

# An Annotated List of Vascular Plants of the Chiricahua Mountains

Including  
Pedregosa Mountains, Swisshelem Mountains,  
Chiricahua National Monument, and  
Fort Bowie National Historic Site

Peter S. Bennett  
R. Roy Johnson  
Michael R. Kunzmann

Special Report No. 12

United States Geological Survey  
Biological Resources Division  
Cooperative Park Studies Unit  
The University of Arizona ♦ Tucson, Arizona



## COOPERATIVE NATIONAL PARK RESOURCES STUDIES UNIT

The University of Arizona, Tucson

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THE UNIVERSITY OF  
**ARIZONA**  
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School of Renewable Natural Resources  
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## **Abstract**

The remarkable botanical diversity of the Chiricahua Mountains invites examination of their physiognomy, geology, pedology, and climate to account for this richness. We have presented a generalized account of these factors and a discussion of their importance. This special report is a comprehensive but tentative list of Chiricahua Mountains plants assembled from published sources, unpublished but reliable lists, and herbarium specimens. This list is preliminary, since the authors did not authenticate the taxa listed through specimen examination or by making field collections. The total Chiricahua sub-generic taxa presented in our list is 1,261, distributed among 1,240 species, 532 genera, and 103 families. In the absence of critical examination of the taxonomic literature, taking into account revisions, annotations, and errors in identification, the list was subjected to a single taxonomic standard.



## Introduction

Although 5 partial lists of the Chiricahua Flora exist (Fishbein 1993, Rominger and Larenezi 1986a and 1986b, Russel 1982, Leithliter 1980, Reeves 1974) all are local lists and do not cover the entire range. While conducting research on vegetation and bird distributions, we were hampered by the lack of a more comprehensive plant list. Since time and funding did not permit preparation of a complete flora from new field collections, as should be done, we compiled available data by combining the contents of the local lists. The total Chiricahua sub-generic taxa presented in our list is 1,261 which are distributed among 1,240 species, 532 general, and 103 families.

The holdings of the herbaria at Chiricahua National Monument, Fort Bowie National Historic Site, and the Southwest Research Station were added to the combined list previously mentioned. Herbarium holdings of The University of Arizona, Arizona State University, and New Mexico State University were then added to this list also. However, complete search of the approximately 0.5-million specimens held by these institutions were beyond our means and we had to limit our search to the most likely taxa. Details of herbarium sampling are presented in the flora section below.

The compiled raw master list, composed of the local floras, holdings of Chiricahua-based herbaria, and some holdings of local universities, contained taxonomic citations spanning more than a century. Reduction of this list to a single taxonomic standard was obviously necessary taking into account revisions, annotations, and errors in identification. We used Kartesz (1994) as a standard and consulted with herbarium personnel and reviewers to solve many, but not all, remaining problems. This procedure leaves much to be desired and will leave taxonomists dissatisfied. We hope that taxonomists will critically examine our work and make corrections as needed. We ask our readers to recall that our list was intended for use by field ecologists, a group that often say: "I don't care what you call it, I just want to have a consistent name to use."

## Study Area

The Chiricahua Mountains in Cochise County, Arizona, cover 152,300 ha (607 sq. mi.) and reach a maximum elevation of 2,986 m (9,795 ft.). The range rises above the Sulphur Springs Valley (elevation 1,525 m, 5,000 ft.) to the west and from the San Simon Valley (elevation 1,280 m, 4,200 ft.) in the east (Figure 1).

Apache Pass marks the northern limit of the mountains and separates them from the lower, but structurally similar, Dos Cabezas Mountains to the north. The southern end of the range is marked by the confluence of the Sulphur Springs and the San Bernardino valleys which includes the Pedregosa Mountains and Swisshelm Mountains, considered to be part of the Chiricahua for the purposes of this flora (Figure 2). Streams on the east side of the Chiricahua flow north into the Gila River via the San Simon River and those of the west side flow into the Willcox Playa.

The Chiricahua Mountains are one of several ranges in the Basin and Range Province (Atwood 1940) that are outliers along the axis of the Sierra Madre Occidental massif 200 km (120 mi.) to the south in Mexico. Heald (1975) calls these mountains Sky Islands but Lowe (1992) more properly refers to them as the Madrean Archipelago since they are isolated wooded mountains rising from a "sea" of grasslands rather than islands in the sky. Additional Madrean outliers are the El Tigre, Pulpito, Ajos, and San Jose mountains of Mexico and the Animas, Peloncillo, Galiuro, Pinaleno, Dragoon, Atascosa, Pajaritos, Baboquivari, Huachuca, Santa Rita, Rincon, Santa Catalina, and Sierra Ancha of the United States (Figure 3).

The Sierra Madre are two roughly parallel north-south oriented mountain chains running the length of Mexico. Their shape resembles a wishbone with the open ends near the border with the United States and the closed end to the south beyond Mexico City. The eastern range is the Sierra Madre Oriental and the western is Sierra Madre Occidental. These two ranges are geologically dissimilar since the Sierra Madre Oriental is mostly marine limestones and the Sierra Madre Occidental is mostly felsitic rocks (especially rhyolites). The mountains gain elevation from north (1,800 m=6,000 ft.) to south (5,500 m=18,000 ft.) and are joined south of Mexico City at the Sierra Madre del Sur. A sloping plain (the Alto Plano) enclosed between the ranges also rises from north (1,200 m=4,000 ft.) to south (2,250 m=7,400). It was on these ranges (particularly the Sierra Madre Occidental) that much of the flora of the Chiricahua and other mountains of northern Mexico, southeastern Arizona and southwestern New Mexico evolved beginning in the Eocene Epoch of the Tertiary Period, 40 to 55 million years ago. Since this montane flora had its centers of origin and diversity in the Sierra Madre, it is referred to as Madrean.

## Geology

The Chiricahua Mountains share a complex geological structure and history with other ranges of the Madrean Archipelago. In spite of this geological commonality, orogenic events seem to have expressly acted upon the Chiricahua to create a topography and soils favoring development of an exceptionally diverse biota.

The first of 3 orogenic phases forming the Chiricahua was one of compressional mountain building. Strong northeast-southwest oriented compressive crustal stress in the late Cretaceous and Paleocene (70-65 m.y. ago) caused older marine sedimentary and volcanic rocks to upwarp about a northwest-oriented fold axis (Drewes 1981).

This fold structure ruptured as compression continued, forming several allochthon (overriding plates) of regional extent, each bounded by low-angle thrust faults (Fig. 5). Horizontal plate movement was probably large, from 15-35 km (9-22 mi.) in extent. The southern plates (Cochise plate and Hidalgo plate) overrode the autochthon (stationary structures) to the north. The line of contact between the autochthon and the allochthon extended from the southern end of the Rincon Mountains eastward through the vicinity of Apache Pass and on into New Mexico.

The Hidalgo plate carried the structures of the future Chiricahua, Peloncillo, Animas, Dragoon, Mule and Santa Rita mountain ranges. The Cochise plate carried the future Huachuca, Whetstone, Swisshelm, and Pedregosa ranges. Thus the Chiricahua, Animas, and other ranges of the Hidalgo plate are somewhat isolated geologically from the Dos Cabezas Mountains and from the balance of the Madrean Archipelago to the west.

Compressive crustal stress relaxed in the late Cretaceous. During that time, and continuing into the Paleocene, magma migrated upward invading both bedded deposits and thrust faults. These erosion resistant cores tend to form the smooth humpback skyline profiles typical of the ranges of the autochthon (Santa Catalina, Rincon, and Pinaleno mountains). The cores of the Chiricahua Mountains and other ranges of the Hidalgo plate are exposed in relatively few places and their topography is more related to faulting and deposition of volcanic ejecta than to core exposure.

Following core emplacement, brief but violent volcanism 26.9 m.y. ago, centered on West Turkey Creek. Approximately 500-1,000 km<sup>3</sup> (120-240 mi.<sup>3</sup>) of incandescent ash, pumice, and other volcanics fell while the particles were hot enough to weld together, forming the 400-1,200 m (1,300-4,000 ft.) thick Rhyolite Canyon tuff, blanketing the central Chiricahua. The Turkey Creek Caldera, a collapsed remnant of this volcanic episode, was filled by an intrusive dacite core, causing upward bowing of the region. Subsequent rhyolite lava extrusion in the vicinity has masked the topographic expression of the caldera. Evidently, the caldera was 20 km diameter (du Bray and Pallister (1991, 1992) and Gettings (1992). Remnants of its rim are Ida, Buena Vista, and Sentinel peaks (Fig. 6).

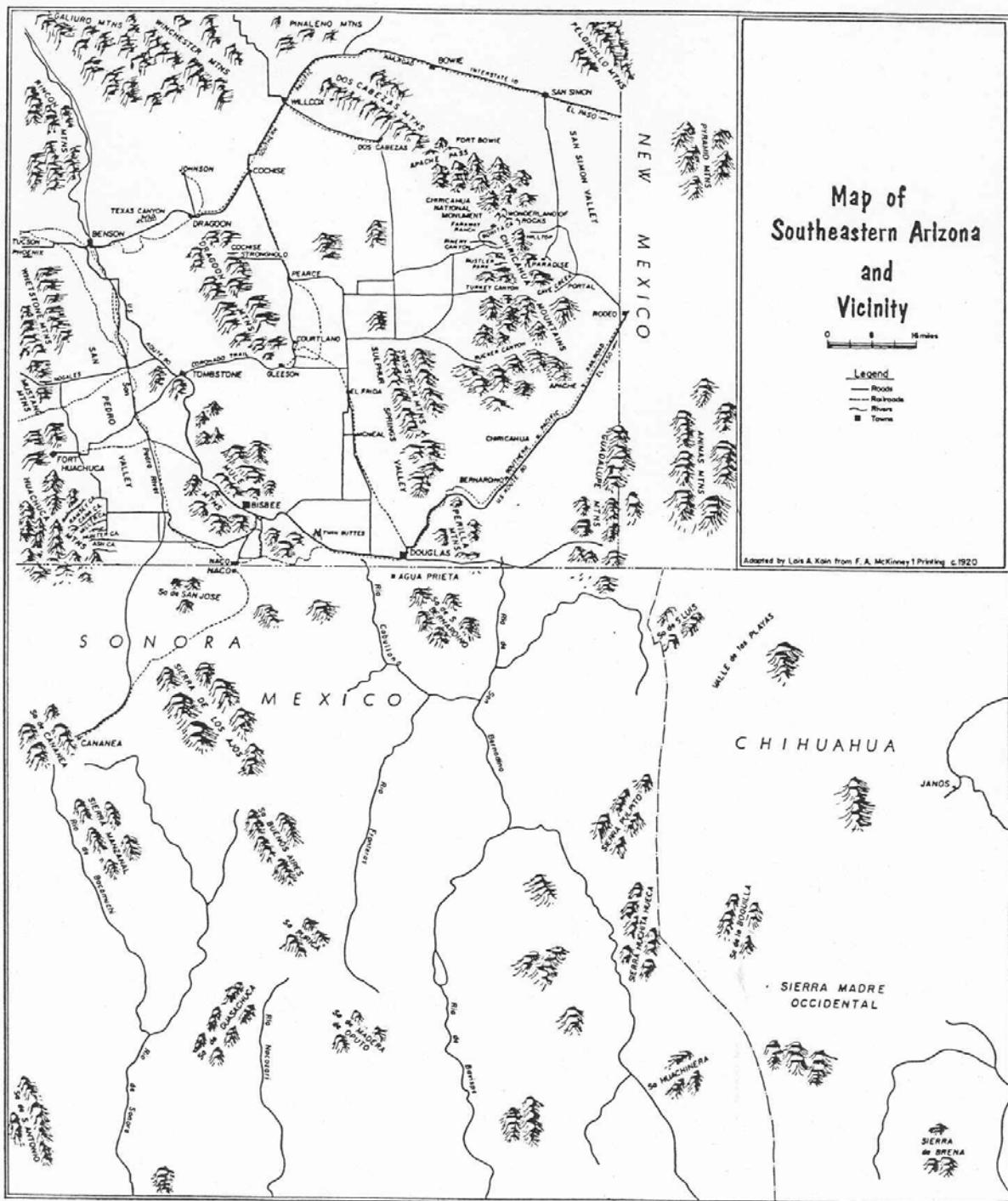


Figure 1. General map of southeastern Arizona.

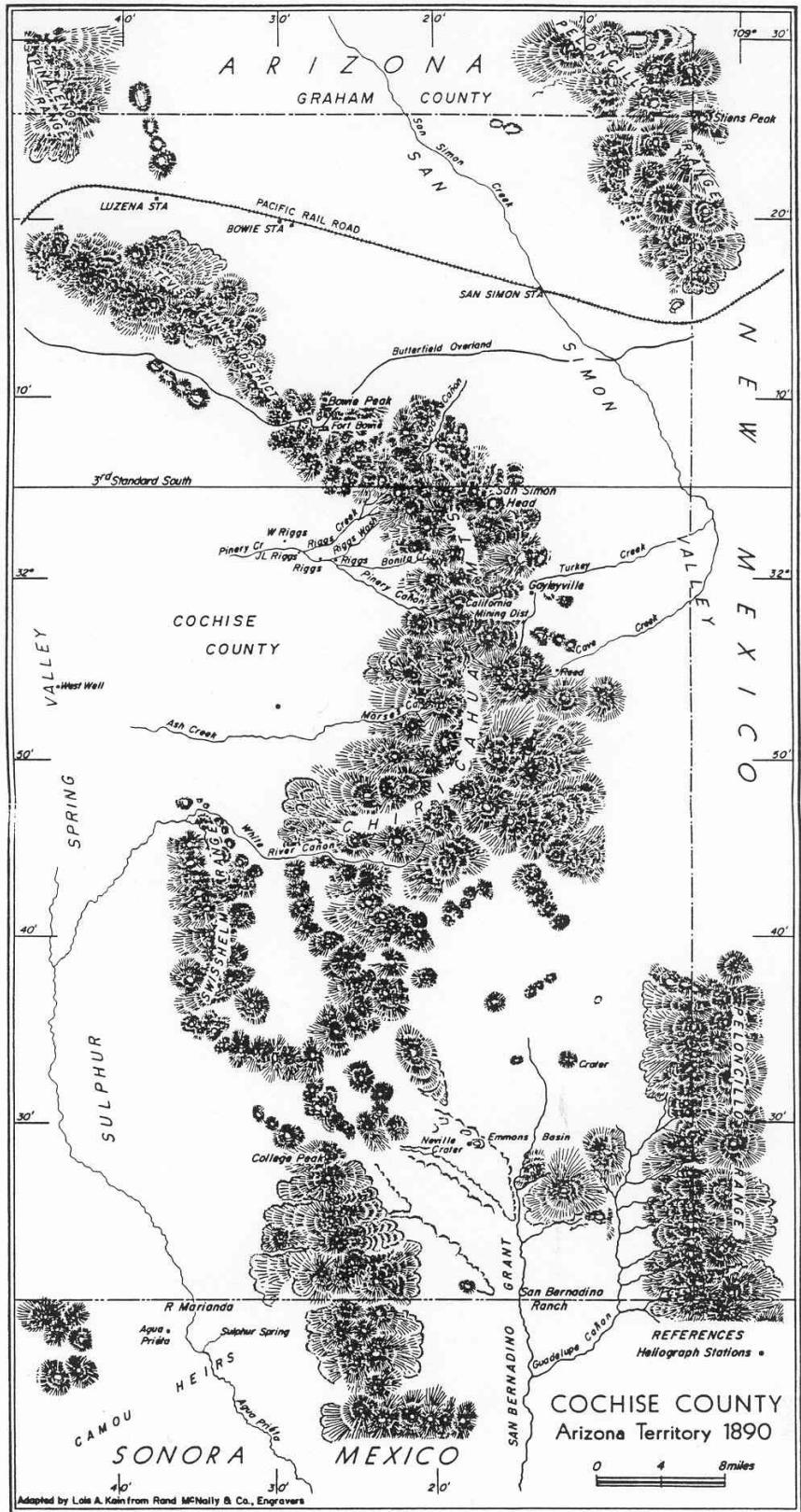
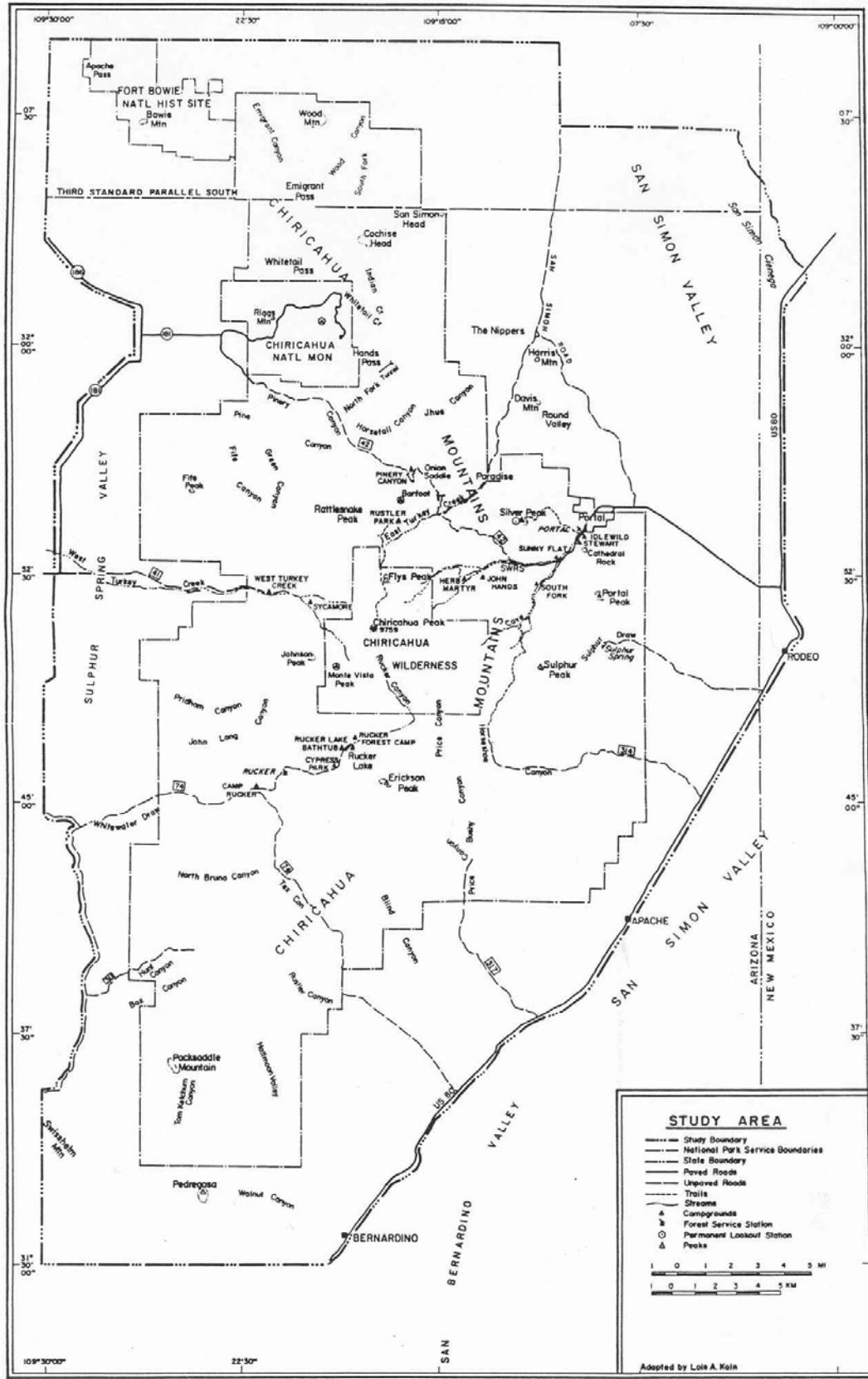


Figure 2. Chiricahua Mountains and vicinity. Redrawn from Rand McNally and Co., engravers, 1890. Some localities established since 1890 (e.g. Paradise, Portal, and Chiricahua National Monument, etc.) do not appear on this map. (Map drawn by Lois Kain)

Figure 3. Chiricahua Mountains and vicinity depicting localities appearing on U.S.G.S. topographic sheets and the boundary of this study. Most collecting sites used in the plant list are labeled. (Map drawn by Lois Kain)



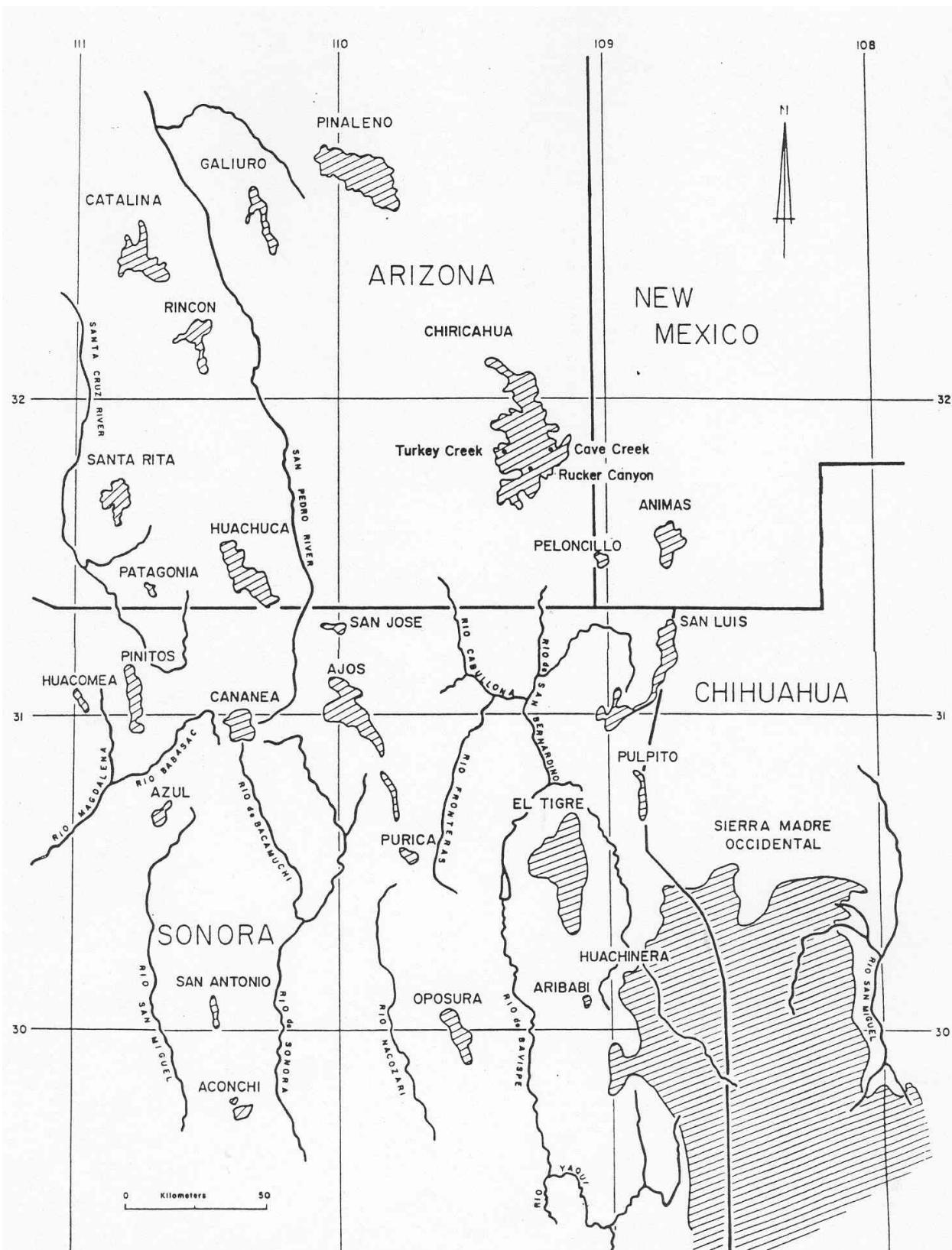


Figure 4. Ranges of the Madrean Archipelago in northern Mexico and southeastern Arizona. Redrawn from Marshall (1957)

Cooling-induced shrinkage of the welded Rhyolite Canyon tuff caused formation of vertical intersecting joints in the formation. This fractured and somewhat porous structure tends to

capture precipitation, releasing it slowly through joints and fissures throughout the year. Frost-wedging and fluvial erosion acting along these fractures created a landscape of spires, balanced rocks, and deep canyons—a topography of diverse aspect exposure and consequently varied environments.

The bold eastern Chiricahua escarpment, visible from the San Simon Valley, formed when the graben down-faulted 1,500 m (5,000 ft.) along the presumptive Chiricahua Fault bounding the eastern foothills (Sabins 1957). Canyon gradients between the montane crest at 2,900 m (9,500 ft.) and San Simon Valley at 1,200 m (about 4,000 ft.) elevation are steeper than those draining to the west into Sulphur Springs Valley at 1,500 m (about 5,000 ft.) where there was no comparable down-faulting. As a result, canyons draining east have down-cut more and tend to be deeper than those draining west.

The sedimentary record of the region is no less rich than the orogenic history (Gililluly 1956). The Pinal schist, formed of metamorphosed sediments and volcanic materials in the Precambrian Period, provides the earliest sedimentary record. During the long period between the Precambrian and early Cretaceous, the region was covered by extensive seas at least 4 times. Each transgression left sedimentary deposits visible today: (1) the Cambrian age El Paso Dolomite, Abrigo Formation, Bolsa Quartzite, and Coronado Sandstone; (2) the Devonian and Mississippian Paradise Formation, Escabrosa Limestone, and Portal Formation; (3) the Lower Pennsylvanian to Upper Permian Horquilla Limestone, Colina and Earp formations, Concha Limestone, and Scherrer Formation; and (4) the Early Cretaceous Upper Bisbee Formation, and Glance Conglomerate. Marine and terrestrial sedimentary rocks (preexisting Chiricahua orogeny), metamorphic core rocks, and volcanics (rhyolite, dacite, tuff) have provided material for generation of a variety of soil types. Soils, modified by intricate topography and varied by geological structure, have created a richly assorted habitat which supports an ecosystem of great ecological diversity and species richness (Moir 1979).

## TECTONIC MAP OF SOUTHEASTERN ARIZONA

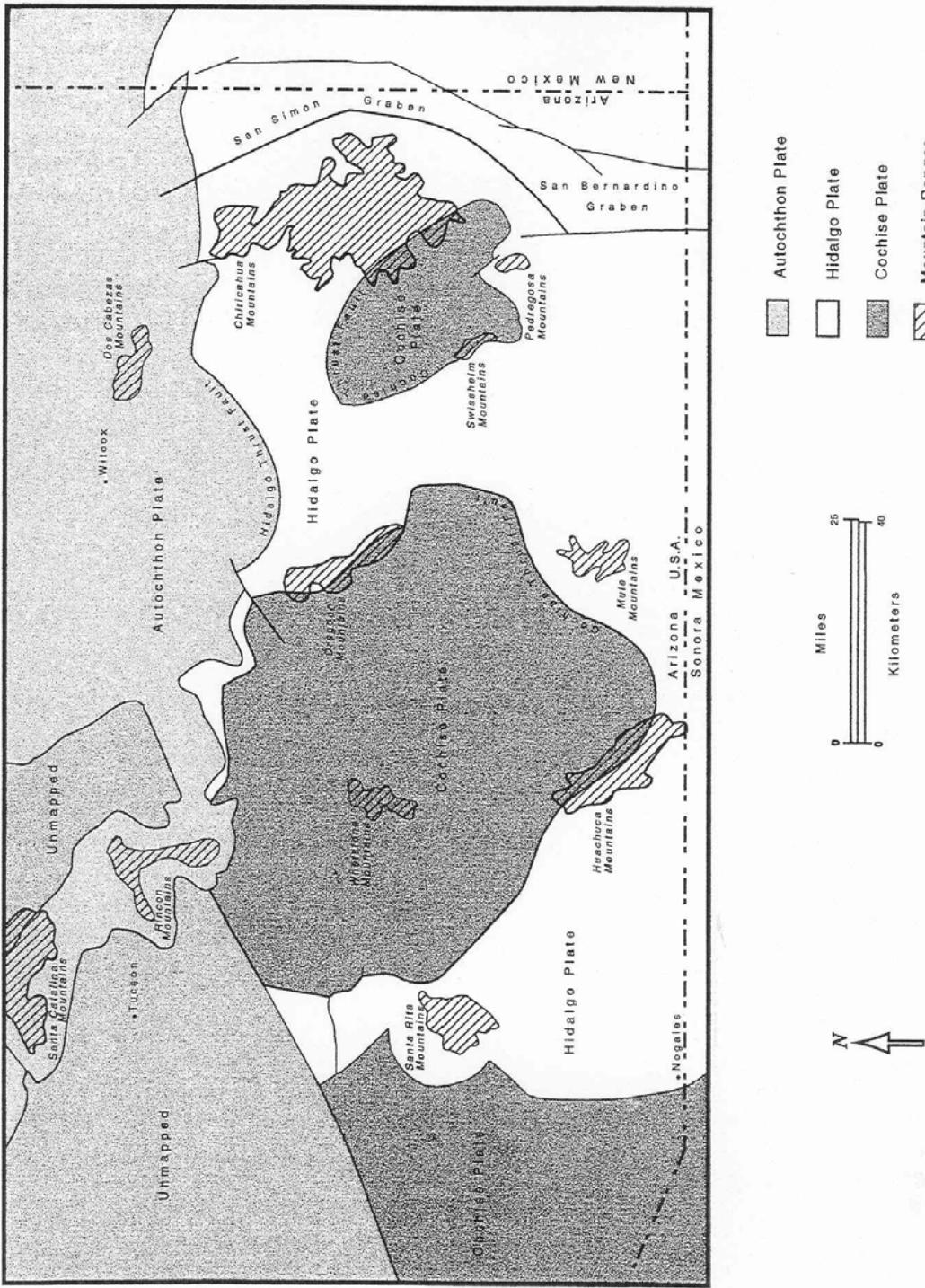


Figure 5. Tectonic map of Southeastern Arizona depicting the relationship of the Madrean Archipelago ranges and the allochthon plates. Redrawn from Drewes (1981)

Cartography by Susan Matus, 1995

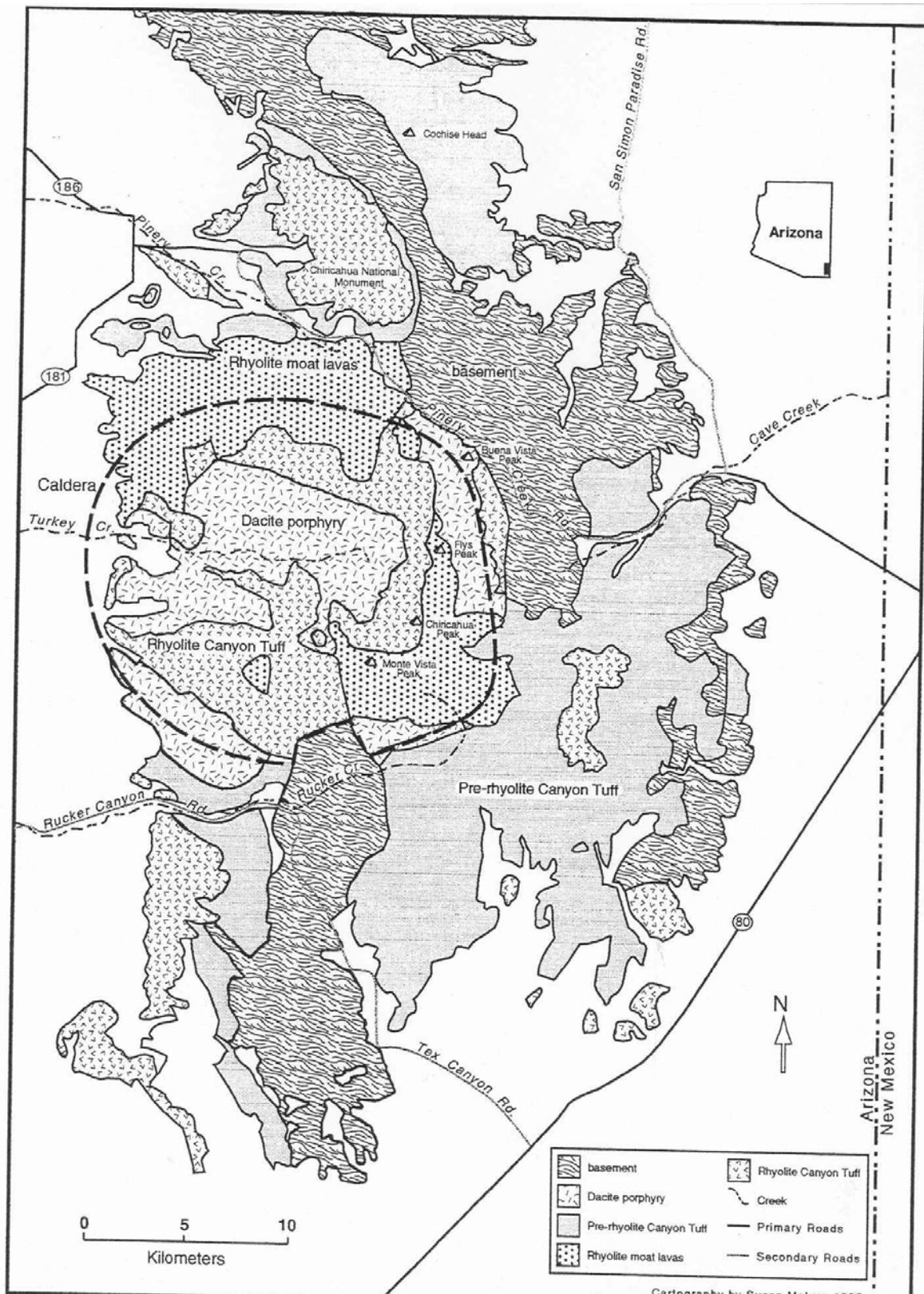


Figure 6. Preliminary geologic map of the Turkey Creek caldera. Redrawn from du Bray and Pallister (1992). The caldera was the source of more than 500 km<sup>2</sup> of rhyolite tuff that covered the Chiricahua and contributed greatly to its topographic diversity. Cartography by Susan Malusa 1995

## Climate

Because the Chiricahua climate varies with season and elevation, it cannot be simply described. Precipitation increases 0.392 mm for each 1 m increase in elevation. It is bimodal in distribution with 52% of the annual total falling from July through September and 47% falling in July and August. During late fall and winter (October through April), 42% of the annual precipitation total is received. The summer wet climate was an important factor in evolution of Madrean vegetation and remains important for community maintenance today (Axelrod 1958). Table 1 lists mean annual precipitation for several localities in the Chiricahua mountains.

Temperature at the base of the mountains is warm temperate (Cox, et al.). Portal (elevation 5,000 ft.) has 220 frost-free days and Chiricahua National Monument (elevation 5,250 ft.) may expect 300 frost-free days. Winter temperatures in the high country are more severe. Calculated on the basis of normal temperature lapse rate of 1°F per 1,000 ft., approximately 140 days are frost-free (Sellers and Hill 1974).

Elevation influence on precipitation and temperature distribution is described with more detail in the vegetation descriptions which follow.

Table 1. Mean annual precipitation in the Chiricahua mountains.

LOCATION	ELEVATION		PRECIPITATION	
	m	ft.	mm	in.
<u>Sulphur Springs Valley</u>				
Leslie Canyon	1,360	4,465	317	11.2
El Coronado Ranch	1,677	5,500	484	
West Turkey Creek Ranger Sta.	1,980	6,500	600	23.6
Rucker Canyon	1,637	5,370	485	19.1
Chiricahua Nat. Mon. (CHIR)	1,616	5,300	473	18.6
<u>San Simon Valley</u>				
Portal	1,160	3,800	226	8.9
Painted Canyon	1,525	5,000	434	17.1
Rustler Park Ranger Sta.	1,646	5,400	477	18.8
	2,500	8,200	760	29.9

## **Soils**

Detailed soil surveys of Arizona mountainous regions have not been undertaken but Hendricks (1985) has discussed the soils of Arizona statewide and Richmond (1978) describes and maps the soils of Cochise County in a 3rd order survey.

### **Soils of the Valley Floor, River Bottoms, and Alluvial Fans**

Sulphur Springs and San Simon valley soils are deep and well drained (Moir 1979). McAllister Ustolic Haplargids Association have good water-holding capacity (250 to 300 mm) and are confined to the nearly level San Simon Valley floor northeast of the Chiricahuas. Vegetation is scrub grassland. Mesquite (*Prosopis glandulosa* and *P. velutina*) are widespread where water-holding capacity is higher. Burrobush (*Isocoma tenuisecta*) and mesquite presence also indicate disclimax conditions stemming from overgrazing and perhaps fire exclusion.

Comoro—Anthony—Grabe Typic Torrifluvents Association lies at the lower bajadas of East Turkey Creek—Cave Creek, Tex, Leslie, Rucker, Pinery—Bonita, and Wood canyons. These soils are deep, well-drained sand, loamy sand, or sandy loam which are sometimes gravelly, especially near the surface. Water-holding capacity is moderate (120 to 150 mm) supporting growth of mesquite scrub, yucca, and catclaw, with bunchgrasses between the shrubs. Where the surface is a brown loam underlain by clay loam, high water availability and low permeability are imparted, creating small oases like that at San Simon Cienega. These soils are often calcareous, slightly alkaline, and somewhat saline.

Chihuahuan Desert Scrub communities develop where valley soils have lower available water capacity (50 to 75 mm),. Cave Typic Paleorthids, Hathaway Aridic Calciustols, and Nickel Calciorthids are soils supporting communities of creosotebush, mariola, parthenium, and other desert indicators prominent east of Portal (Richmond 1978). However, such soils are uncommon near the Chiricahua, effectively limiting the occurrence of desert vegetation.

### **Soils of Valley Slopes and Foothills**

Forrest Ustolic Haplargids—Tubac Typic Paleargids Association and Eba Typic Haplargids Association lie adjacent to the Chiricahua and are best represented on the west side of the range. Both associations are deep, fine textured, well drained, neutral to moderately alkaline, and lie on gentle slopes between 1,150 and 1,550 m (3,800—5,000 ft.) elevation. They differ primarily in gravel and calcium carbonate content. The Forest—Tubac Association lacks the gravelly surface and subsoil and has less lime accumulation than found in the Eba Association.

Three less important soil associations in the Chiricahua area are the Sonoita Typic Haplargids Association, the Bonita Chromusterts—Sontag Typic Argiustolls Association and the Martinez Udic Haplustalf. The first two are moderately gravelly soils with moderate water availability and support stands of Semi-desert Grassland. The Martinez soils are finer textured with much higher clay content than the others and with higher water availability—150 mm (6 in.) versus 230 mm (9 in.)—enough difference to support oak savannas on the Martinez soils. All valley slopes and foothills soils support Semi-desert Grassland vegetation.

## **Soils of the Mountains**

Tortugas and the Mabray Lithic Haplustolls occur on limestone outcrops near Apache Pass, Portal, Hands Pass, and several other locations. They are moderately shallow to very shallow, alkaline, calcareous, cobbly and stony, very well-drained loam soils. Available water capacity is too low (25 mm=1 in. to 60 mm=2.5 in.) to support woodland vegetation, resulting instead in the development of Interior Chaparral vegetation, with cacti well represented.

The Faraway Lithic Haplustolls and Luzena Lithic Argustolls are montane soils that have developed below 2,150 m (7,000 ft.) elevation in the Chiricahua (Richmond 1978). They are usually grayish brown very cobbly sandy loam, about 20 cm (8 in.) deep, mildly acid to mildly alkaline, non-calcareous, and develop over rhyolite or other igneous rock with widely spaced fractures. Water availability and cation exchange capacity are low and water permeability is moderate to low (Hendricks 1985). These soils are widely distributed and support most of the Chiricahua biomass, ie., the Madrean Evergreen Forest and Woodland (Moir 1979, Brown 1982).

Above 2,100 m elevation (7,000 ft.), non-calcareous brownish gray cobbly loamy sand supports the Subalpine Conifer Forest and the Madrean Montane Conifer Forest. Richmond (1978) does not map high altitude soils in the Chiricahua. However, Moir (1979) found Lithic and Typic Ustorthents in the Peloncillo Mountains at 2,100 m (7,000 ft.) elevation which appear similar to soils at higher elevations in the Chiricahua, especially over exposures of the metamorphic core complex. These soils appear similar to the Mirabal Ustorthents (Hendricks 1985). The identity of the rhyolite-derived soils has not been established but they appear to differ from woodland soils found at lower elevations.

High altitude soils are moderately acid (pH 4.8 to 5.5), low enough to favor growth of fungi decomposers instead of the more efficient bacteria with the result that leaf litter tends to accumulate. pH values tend to be higher (5.9 to 6.6) beneath aspen, maple, and other broadleaf trees. Low available water capacity, low cation exchange capacity, and excessive drainage combine to limit nutrient availability and consequently, few forest trees are more than 20 m (66 ft.) tall.

Where drainage is impaired, high altitude meadows or "parks" form, especially along the mountain crest in saddles (Russell 1982). They are found in scattered clearings at elevations generally above 2,300 m (7,500 ft.). Wet meadows occur in bottoms near springs. Fire and disturbance are thought to be a factor in formation and preservation of parks. However, parks occur in places where such factors are not obviously present (Russell 1982).

## Vegetation

Chiricahua Mountains vegetation is typical of other ranges of the northern Madrean Archipelago except that it lies closer to the boundary between the Sonoran and the Chihuahuan deserts causing representation of floral elements of both. The Chiricahua are surrounded on three sides by semi-desert scrub grassland and on the fourth (northeastern) side by the upper elevational portions of the Chihuahuan Desert. Grassland and desert give way upslope to oak woodlands. The transition between grassland and woodland is usually gradual, taking the form of a savanna. Between desert and woodland the transition is abrupt, although there may be a band of chaparral between the two. Oak woodland (encinal) intergrades with pine-oak woodland. Pine forest, followed by spruce-fir forest, is found at higher elevations.

Transitions are controlled by elevation, precipitation, slope, exposure, and soil type (Whittaker & Neiring 1964, 1965). Thus, grasslands and woodlands tend to ascend the mountains on exposed ridges and south-facing slopes while the forest types descend the mountains in canyons and on north-facing slopes. Soils on limestone have the effect of lowering ecological elevation by 500 m (1,500 ft.) or more permitting chaparral to ascend to higher than expected elevations.

Riparian forest and riparian woodland occur in canyon bottoms which are very species rich. A peculiar characteristic of the major Chiricahua canyons is that, notwithstanding apparent topographic similarity, their vegetation and floras are unique. West Turkey Creek, for example, has no stands of Arizona cypress which are common in nearby Rucker, Bonita, and Rhyolite canyons.

Three kinds of riparian environments are recognized: (1) the hydroriparian where surface water is perennially present; (2) the mesoriparian where water is seasonally present; and (3) xeroriparian where water presence is unpredictable and is dependent on localized events such as summer thunder-showers (Johnson & Lowe 1985). Hydroriparian vegetation is mostly riparian obligate—requiring abundant moisture at or near the surface. Mesoriparian vegetation is preferential facultative and requires more moisture than, and differs compositionally from, nearby upland vegetation. Xeroriparian vegetation differs in stature and density, and is a mixture of riparian and upland plants.

The vegetation of the Chiricahua Mountains is still under active investigation by the Fish and Wildlife Service's GAP program and by the National Biological Survey. The classification we present is based on Brown, Lowe, and Pase (1979, 1980), and the identification numbers appended to community names correspond to those used by those authors.

### **Subalpine Conifer Forest: Engelmann Spruce – Douglas fir - Mixed Conifer Series.**

This forest is among the southernmost Engelmann Spruce forests in the United States. It occupies the highest elevations in the range, occurring on the north- and east-facing slopes of Chiricahua Peak (2,986 m, 9,794 ft.), and along the mountain crest from Ida Peak at 2,590 m (8496 ft.) to Turtle Mountain at 2,608 m (8557 ft.). In sheltered mesic canyons such as Pine Canyon, upper Cave Creek, and East Turkey Creek, it descends to 2,100 m (7,000 ft.). Precipitation totals 500-640 mm (20 to 25 in.) per year with more than half of it falling in July, August, and September. Snow is often abundant and remains on the ground throughout the winter. *Picea engelmannii* is dominant and climax. Successional species (listed in order of decreasing importance) are *Pseudotsuga menziesii*, *Populus tremuloides*, *Abies concolor*, and *Pinus strobus*. The narrow or conical form of these

species is an adaptation for shedding snow, thus preventing breaking or uprooting by the snow's weight.

Multiple vegetation layers are well developed. Spruce and fir overtop the subdominant pines. Fire sites are initially colonized by dense aspen stands which are eventually shaded out by pines and spruce regeneration. However, occasional aspen trees persist in the conifer forest. A shrubby layer of *Acer glabrum*, *Lonicera arizonica*, *Vaccinium myrtillus*, and *Sorbus dumosa* occurs here and there. The herbaceous plant layer is well represented by *Fragaria virginiana*, *Smilacina racemosa*, *Viola canadensis*, *Mertensia franciscana*, *Goodyera oblongifolia*, *Bromus ciliatus*, and *Senecio bigelovii*.

Many prominent plants in this community have centers of distribution in the Rocky Mountain, Sierran-Cascadian, or Oregonian biogeographic provinces (Brown, Lowe, & Pase 1979). *Pinus strobiformis* and *Sorbus dumosa* are exceptions belonging in the Madrean biogeographic province. Classification of this vegetation series within the Madrean biome is arbitrary and was done to emphasize its Mexican affinities.

#### **Madrean Montane Conifer Forest: Douglas-fir - Mixed Conifer Series**

This forest occurs between 2,300-2,650 m (7,550-8,700 ft.), contacting the Engelmann Spruce - Douglas-fir - Mixed Conifer Series forest above and the Pine Series forest below. The forest extends to lower elevations on north-facing slopes and in cool mesic canyons and ascends upslope to the highest peaks in the range on warmer and drier south-facing slopes. Slightly less than half of the annual precipitation of 500-650 mm (20-25 in.) falls as snow.

The closely set dominant trees (65-90 percent cover) permit relatively little light to reach the forest floor. Subdominant trees are scattered in forest openings and the scrub layer is well represented or abundant (11-40 percent cover). Usually only three vegetation layers are apparent: dominant trees, shrubs, and herbs. Although the dominant tree species reach impressive stature elsewhere (45-60 m), Chiricahua stands rarely exceed 30 m. Inadequate precipitation and thin soils with low water holding capacity combine to limit growth.

The Douglas-fir - Mixed Conifer Series is well developed along the road into Barfoot Park and the road between Rustler Park and Long Park. This forest resembles the Madrean Subalpine Conifer Forest but lacks *Picea engelmannii*, *Pseudotsuga menziesii*, *Abies concolor*, and *Pinus strobiformis* are most common (in the order presented). *Populus tremuloides* may be locally abundant on fire scars. Other successional trees are *Quercus gambelii*, *Acer glabrum* and *A. grandidentatum*. They make their appearances here at the upper limit of their altitudinal ranges. *Holodiscus dumosus*, *Lonicera arizonica*, *Physocarpus monogynus*, *Ribes pinetorum*, *Robinia neomexicana*, *Salix scouleriana* are common scrub-layer species. *Fragaria vesca*, *F. virginiana*, *Geranium richardsonii*, *Lathyrus graminifolius*, *Rudbeckia laciniata*, *Senecio wootonii*, *Maianthemum canadense*, *S. stellatum*, and *Viola canadensis* are characteristic in the herbaceous layer. Showy but less common plants are *Aquilegia chrysantha*, *A. triplinervia*, and *Salvia lemonii*. *Bromus ciliatus* is most often found in forest openings but also occurs in isolated tussocks beneath trees, a reminder of a time past when the forest was more open, perhaps following a fire.

### **Madrean Montane Conifer Forest: Pine Series**

The Pine Series forest is the highest elevation vegetation type with undoubted Madrean affinities. The community occurs between 2,100-2,600 m (7,000-8,500 ft.) where precipitation is between 508-635 mm (20-25 in.) annually. The Pine Series and the Douglas-fir - Mixed Conifer Series both lie in the same elevational band and receive similar amounts of precipitation. The Douglas-fir - Mixed Conifer Series requires a cooler, wetter environment, confining it to northeast, north, and northwest facing slopes. The Pine Series communities develop on warmer, less protected west, south, and southwest-facing slopes or flats.

Three pines of the Ponderosa complex occur in the Chiricahua Mountains. The first is Arizona pine (*Pinus arizonica*), common in the mountains of southeastern Arizona, southwestern New Mexico, and the Sierra Madre Occidental of Mexico where it has its center of distribution (Critchfield and Little 1966). The Rocky Mountain ponderosa (*Pinus ponderosa* var. *scopulorum*) is found sparingly and is, in part, distinguished from the former by needles in fascicles of 3 instead of 5, but this character is rather variable. Apache pine (*P. engelmannii*) which is restricted in distribution, occurring in southeastern Arizona, extreme southwestern New Mexico, and the northern outliers of the Sierra Madre Occidental. Apache and Arizona pines appear to form hybrids with characteristics of both parent species. Possible hybrids are commonplace along the north edge of Barfoot Park and upper Pinery Canyon.

Arizona and Apache pines occur together at elevations between 2,150-2,600 m (7,000-8,000 ft.) with Arizona pine more common at the higher elevations and Apache pine more common below. Apache pine is found down to 1,675 m (5,500 ft.) in riparian corridors but Arizona pine does not range so low. Both trees have crowns oval in outline, forming forests distinctive from the spire-shaped appearance of fir and spruce stands. Old growth stands have 50-75 percent cover and are often park-like with a single layer understory of grass maintained by frequent low-intensity fires. Low trees and shrubs as well as herbs may form a multistratal community beneath the pines when the overstory is more open.

Commonly encountered understory trees are *Quercus hypoleucoides*, *Q. arizonica*, *Q. rugosa*, *Q. gambelii*, *Pinus discolor*, and *Juniperus deppeana*. Abundance and composition of the shrub layer depends on recent fire history. *Robinea neomexicana*, *Ceanothus fendleri*, *Rubus neomexicanus*, *Lonicera arizonica*, and *Sambucus coerulea* are commonly found. *Antennaria parvifolia*, *Tradescantia pinetorum*, *Senecio bigelovii*, *S. wootonii*, *Geranium richardsonii*, *Elymus trachycaulus*, *Koeleria macrantha*, *Muhlenbergia longiligula*, *M. montana*, and *M. virescens* are frequently encountered herbs.

### **Madrean Evergreen Forest and Woodland Formation: Oak – Pine Series**

The Oak – Pine Series lies in contact with the Encinal Series below and the Pine Series of the Madrean Montane Conifer Formation above. At its upper altitudinal limit (about 2,400 m, 8,000 ft.) the Oak – Pine series grows on warm southwest to southeast facing slopes in contact with the Madrean Montane Conifer, Forest: Pine Series. At low elevation it tends to tongue down into cool canyon slopes and bottoms descending to about 1,675 m (5,500 ft.) where it lies between the encinal upslope and the Interior Southwestern Riparian Deciduous Forest and Woodland below. Precipitation is 430 to 510 mm (17-20 in.) annually, more than half of it arriving in the summer. Winter temperatures are mild and snowfall is light.

Four vegetation layers are apparent (dominant tree, subdominant tree, shrub, and herb). The dominant tree is *Pinus leiophylla* with *Pinus engelmannii* being less common. Crowns are 10-25 m (40-80 ft.) tall at maturity. Subdominant trees (*Quercus hypoleucoides*, *Q. Arizonica*, *Arbutus arizonica*, *Juniperus deppeana*, and *Pinus discolor*) are 5-15 m (20-50 ft.) tall when mature. Nowhere do the dominant trees form a closed canopy and the subdominant layer is also usually open. Numerous species of shrubs and herbs are represented and species diversity is high.

Typical shrubs are *Nolina microcarpa*, *Rhus aromatica*, *Arctostaphylos pungens*, *Vitis arizonica*, *Yucca shotti*, *Garrya wrightii*, *Frangula betulifolia*, *Prunus serotina* spp., *Rufula*, and *Ceanothus fendleri*. *Muhlenbergia longigula*, *M. emersleyi*, *Aristida orcuttiana*, *Piptochaetium fimbriatum* are all common grasses. Some prominent forbs are *Hedeoma hyssopifolium*, *Senecio neomexicanus*, *Brickellia lemmoni*, *Echeandia flavescens*, *Clitoria marina*, *Tradescantia pinetorum*, *Phaseolus grayanus*, and *P. parvulus*.

### **Madrean Evergreen Forest and Woodland Formation: Encinal Oak Series**

**Series** This series is the most characteristic and widespread of the Madrean woodland vegetation types in the Madrean Archipelago. Rainfall exceeds 380 mm (15 in.) with 200 mm (8 in.) or more falling in the summer. The proportion of summer to winter rainfall is critically important for encinal development. If summer precipitation does not predominate, encinal vegetation will be absent. Winter temperatures are mild.

"Encinal" is derived from the Spanish *encino* = live oaks + *al* = place of (Shreve 1915, Brown 1982). Encinal vegetation develops in the archipelago between 1,400-1,850 m (4,500-6,000 ft.) elevation. The Pine-Oak Woodland lies in contact above and the Semi-Desert Grassland below. Encinal vegetation often forms an ecotone several kilometers wide with the Semi-Desert Grassland and is especially species-rich in that circumstance (Wentworth 1976). Contact with Desert Grassland is apparently controlled by soil depth and type. The encinal occupies thin coarse-textured soils, while the grassland is found on deeper, finer soils.

At lower elevations the encinal tree layer is open to very open with a herbaceous understory of grasses and low shrubs. At higher elevations the tree layer becomes nearly closed and a layer of shrubs may appear. The herbaceous layer, though generally present, is better developed where there is less overstory.

Encinal trees are usually less (often much less) than 9 m (30 ft.) tall with rounded spreading crowns. An excellent example of encinal is seen along the road into Price Canyon and on the foothills between John Long Canyon and West Turkey Creek.

*Quercus emoryi* and *Q. arizonica* are the most important trees in the encinal. In order of decreasing importance, *Juniperus deppeana*, *J. erythrocarpa*, *Pinus discolor* are also found in the tree layer. These five encinal trees occur in variable proportions. Oaks and junipers or junipers and pines form nearly pure stands here and there, obscuring their evolutionary and distributional relationship within the Madrean Encinal. Where oaks are locally absent because environmental factors are unsuitable, overall habitat remains an encinal, although one composed of accessory species.

Shrubs are not always present but some that are commonly found are *Nolina microcarpa*, *Garrya wrightii*, *Rhus aromatica*, *Mimosa aculeaticarpa* var. *biuncifera*, *Dasylinion wheeleri*, *Agave palmeri*, *Ericameria laricifolia*, *Quercus toumeyi*, and *Opuntia spinosior*.

Herbaceous plants, especially grasses, are abundant, including grama (*Bouteloua gracilis*, *B. curtipendula*, *B. rothrockii*, *Muhlenbergia emersleyi*, *Aristida orcuttiana*, *Eragrostis intermedia*), and many others. Non-graminaceous herbs are *Astragalus nothoxys*, *Bouvardia tenuifolia*, *Cheilanthes fendleri*, *Eriogonum wrightii*, *Gaillardia pinnatifida*, *Penstemon linarioides*, and *Verbena neomexicana*.

#### **Warm Temperate Scrublands: Interior Chaparral.**

The Interior Chaparral is dominated by shrubs (collectively = scrub), uniformly 1-2 m (3-6 ft.) tall, with dense compact crowns and small sclerophyllous leaves. Chiricahua Chaparral predominately occurs at the same elevation as the Oak Woodland, between 1,400-1,850 m (4,500-6,000 ft.), and is either disclimax or edaphically controlled.

Where moisture permits and deep soils are present, dense scrub typically covers 70 - 85 percent of the ground. These stands are often fire disclimates dominated by *Arctostaphylos pungens* or *Quercus toumeyi*. Notable fine stands of old growth chaparral are found immediately west of Chiricahua National Monument Headquarters and on the ridge above Pickett Park in the monument.

Near Hands Pass (North Fork of Pinery Canyon) edaphically maintained *Ceanothus-Cercocarpus* chaparral cover is conspicuously faithful to porous limestone-derived soils while evergreen oak woodland is confined to rhyolite-derived soils with greater moisture.

Shrubs typical of Interior Chaparral in the Chiricahua Mountains are *Ceanothus greggii*, *Eriogonum wrightii*, *Mimosa aculeaticarpa* var. *biuncifera*, *Calliandra eriophylla*, and *Fallugia paradoxa* in the driest situations and *Ceanothus fendleri*, *Arctostaphylos pungens*, *A. pringlei*, *Cercocarpus betuloides*, *Quercus toumeyi*, and *Purshia mexicana* on sites with better moisture. *Agave parryi* and *Dasylinion wheeleri* are 2 shrub-size monocotyledonous plants commonly encountered. *Pinus discolor*, *Juniperus erythrocarpa*, and *Quercus emoryi* are found scattered on sites with better moisture but never dominate the landscape.

Beneath the dense canopy of a mature stand, little herbaceous cover can be found. Where openings occur *Aristida fendleriana*, *A. orcuttiana*, *Bouteloua aristidoides*, *B. curtipendula*, and *Stipa neomexicana* are found. Ferns, particularly *Pellaea intermedia*, grow on sunny slopes in soil pockets. *Castilleja integra*, *Penstemon linarioides*, *Astragalus nuttallianus*, *A. nothoxys*, *A. wootoni*, and *Kallstroemia grandiflora* grow where light and space permit.

#### **Warm Temperate Grasslands: Scrub-Grassland (Semidesert Grassland).**

The Scrub-Grassland covers vast tracts of land between the mountains of the Basin and Range Province of the Southwest and northern Mexico. Scrub grassland adjoins the Sonoran Desert to the west and the Chihuahuan Desert to the east at 760-1,070 m (2,500-3,500 ft). It extends upward to the lower reaches of the Encinal (Oak) Woodland or Interior Chaparral between 1,370-1,030 m (4,500-6,000 ft) elevation. Precipitation is 203-330 (8-13 in/yr) with more than half falling in the summer.

The Scrub-Grassland is transitional between the deserts and the scrub and contains some species from both, mostly shrub species. Apparent simplicity of grasslands is illusory. Botanical diversity is surprisingly high: Scrub-Grassland has one-fourth of the species known from the Chiricahua Mountains.

Intensive cattle grazing during the past 200 years has altered the appearance of the grassland, in some cases profoundly. Heavy grazing reduced the vigor of the bunchgrasses, disturbed the soil encouraging establishment of annual grasses, and favored growth of plants (often shrubs) unpalatable to cattle. Highly successful suppression of range fires in modern times has further protected the non-fire resistant scrub at the expense of the fire tolerant grasses. Even light grass fires will check growth of these thin barked scrub species and prevent scrub from becoming unnaturally prevalent. *Prosopis glandulosa*, *Isocoma tenuisecta*, *Senecio douglasii*, *Gutierrezia microcephala*, and *Mimosa aculeaticarpa* var. *biuncifera*, all normal members of the Scrub-Grassland, may become unnaturally prevalent. In extreme cases, complete conversion from grassland to scrub has taken place. Extensive mesquite stands near Portal, Paradise, and Douglas represent former grasslands now controlled by this shrub.

In addition *Agave palmeri*, *Dasylinion wheeleri*, *Nolina microcarpa*, *Yucca schottii* and *Y. elata*, and *Fouquieria splendens* are commonplace. *Opuntia phaeacantha discata*, *O. chlorotica*, *O. spinosior*, *Coryphantha vivipara*, *Echinocereus pectinatus* are frequently encountered cacti.

*Aristida ternipes*, *Bouteloua curtipendula*, *B. gracilis*, *B. hirsuta*), *B. radicans*, *B. rothrockii*, *Elymus elymoides*, *Eragrostis intermedia*, *Hilaria belangeri*, *Lycurus setosus*, *Muhlenbergia asperifolia*, *M. porteri* and *Sporobolus airoides* are the most abundant bunchgrasses of the Scrub-Grassland.

Annual grasses that have replaced the bunch grasses are: *Aristida adsensdionis*, *Bouteloua aristidoides*, *B. barbata*, *Brachiaria arizonicum*, *Bromus hordeaceus*, *Cenchrus incertus*, *Eragrostis ciliaris*, *E. pectinacea*, *E. mexicana*, *Eriochloa lemmonii*, *Panicum hirticaule* and *Vulpia octoflora*.

*Amaranthus palmeri* *Gomphrena caespitosa*, *Salsola iberica*, *Acourtia thurberi*, *A. wrightii*, *Baccharis pteronioides*, *Cirsium neomexicanum*, *Leucelene ericoides*, and *Mentzelia albicaulis* are a few of the annual broadleaf plants specializing in colonizing disturbed habitats. In good years, when late winter rains are adequate, the Scrub-Grassland puts on a spectacular wildflower display. Many of these flowering plants are important wildlife resources. The showiest species are: brickelbush (*Brickellia californica*, *Gaillardia pinnatifida*, *G. pulchella*, *Lasthenia californica*, *Zinnia acerosa*, *Ipomoea costellata*, *Sphaeralcea laxa*, *Mirabilis multiflora*, *Oenothera primiveris*, *Escholtzia californica mexicana*, *Eriastrum diffusum*, *Gilia sinuata*, *Ipomopsis multiflora*, *Penstemon parryi*, and *Verbena neomexicana*.

### **Chihuahuan Desert Scrub**

The Chihuahuan Desertscrub is the largest of the three creosotebush dominated deserts of North America (Mohave, Sonoran, Chihuahuan). Its center, and region of best development, lies on the plains between the Sierra Madre Occidental and Sierra Madre Oriental of north-central Mexico. In the United States, the Chihuahuan Desert occupies the Rio Grande Valley of Texas and New Mexico, and southeastern Arizona south of the Gila River in the San Simon Valley. In the Chiricahua Mountain vicinity, the desert is best developed on flats flanking the range to the northeast. Further to the south, in the vicinity of Portal and beyond, the Chihuahuan Desert

vegetation becomes patchy, gradually giving way to Desert Grassland.

The northern Chihuahuan Desert climate, with 230 mm (9 in.) precipitation, is slightly drier than the Sonoran Desert and is decidedly colder. Freezing temperatures occur on more than 100 nights a year. In the summer, maximum temperature is frequently 105°F or warmer. More than 50 percent (range 54-72) of the annual precipitation occurs in the summer. This climate favors scrub growth and not arborescent vegetation.

Vegetation is approximately 3 f. tall with a scattering of taller plants. Although floristically rich, the Chihuahuan Desertsrub gives the impression of uniformity and simplicity. The few scrub species that are widespread and define the Chihuahuan Desert in Arizona are: *Larrea tridentata*, *Flourensia cernua*, *Acacia neovernicosa*, *Parthenium incanum*, *Mortonia scabrella*, *Prosopis glandulosa* and *P. torreyana*.

Although succulents are not as abundant as where the climate is warmer and more moist, they are an important element in the vegetation. *Opuntia chlorotica*, *O. phaeacantha*, and *O. violacea* are rather common.

Many grasses are common to the Chihuahua Desert and the Semi-desert Grassland which lies altitudinally above. *Aristida adsensdionis*, *Bouteloua aristidoides*, *B. barbata*, *Brachiaria arizonicum*, *Bromus mollis*, *Eragrostis diffusa*, *E. mexicana*, *Eriochloa lemmonii*, *Panicum hirticaule*, and *Vulpia octoflora* those most commonly encountered.

Many plants are cryptic in their habits and do not show except in years with good moisture (especially winter rainfall). *Allium macropetalum*, *Apodanthera undulata*, *C. digitata* and *Anemone tuberosa* are common geophytes. *Gaillardia pulchella* and *Lasthenia chrysostoma* are common therophytes.

### **Interior Southwestern Swamp and Riparian Scrub: Mixed Scrub (Xeroriparian) Series.**

Xeroriparian ecosystems are associated with desert washes where water is fleetingly present as a result of storms. Flowing for a few minutes or a few hours only, water availability is unpredictable. Plants associated with the Xeroriparian are desert plants adapted to uncertainly available moisture.

Growing conditions are better near xeroriparian washes, even considering vagaries of moisture. *Larrea tridentata*, *Flourensia cernua*, *Acacia neovernicosa*, *Parthenium incanum*, and *Mortonia scabrella*, all typical Chihuahuan Desert species, are commonly present. *Prosopis torreyana* and *Baccharis sarothroides* are examples of shrubs growing well with enhanced moisture. *Sporobolus airoides* is a coarse grass found in addition to the smaller typical desert species.

Although the xeroriparian is limited in aerial extent, its ecological significance is great. The species density and diversity of vertebrates in the xeroriparian is 2 to 3 times greater than in the surrounding desert.

### **Arctic – Boreal Grasslands: Madrean Alpine and Subalpine Grassland and Cold Temperate Grasslands: Madrean Montane Grassland.**

These high country meadows are another vegetation with strong Rocky Mountain and Sierra Madre affinities. For consistency, we assign them to the Madrean though they could be considered to be

Rocky Mountain biota. Since the Madrean Alpine and Subalpine Grassland is restricted to a handful of widely scattered sites each less than a hectare in size, their discussion will be combined.

These grasslands lie in natural forest openings on more or less level ground with poorly-drained soils at 2,470-2,900 (8,100-9,500 ft) elevation. Precipitation is about 635 mm (25 in) annually with more than half falling during summer. The higher elevation grasslands are watered by snow melt and rainfall, while the lower ones have a ciénega (marshy spring) fed rill, in addition.

Forbs (non-graminoid herbs) are usually more abundant than are grasses, sedges, or spike-rushes. *Rudbeckia laciniata* and *Dugaldia hoopesii* are the tallest forbs with a 1 m stature. *Achillea lanulosa*, *Androsace septionalis*, *Bahia dissecta*, *Cerastium nutans*, (*C. sordidum*), *Gentianella wislizeni*, *Helenia recurva*, *Linum lewisii*, *Oenothera hookeri*, *O. laciniata*, *Oxalis alpina*, *Potentilla hippiana*, *Senecio bigelovii*, *S. wootonii*, *Sisyrinchium longipes*, *Taraxacum laevigatum*, *Trifolium pinetorum*, and *Viola nephrophylla* are native members of the meadow flora. *Rumex orthoneurus*, one of the genuine plant rarities in the Chiricahua Mountains, also occurs in wet marshes of these meadows.

Important meadow grasses are: *Agrostis scabra*, *Blepharoneuron tricholepis*, *Bromus richardsonii*, *B. frondosus*, *Koeleria cristata*, *Muhlenberbia montana*. Grass-like species are: *Carex wootoni*, *Eliocharis montevidensis*, and *Juncus saxamontanus*.

Russell (1982) found that high country meadows in the Chiricahua Mountains have been seriously impacted by grazing and trampling. The ubiquitous presence of *Iris missouriensis* and *Pteridium aquilinum* indicate disturbance as do the naturalized *Taraxacum officinale*, *Erodium cicutarium*, and *Rumex acetosella*.

**Interior Southwestern Riparian Deciduous Forest and Woodland: Mixed Broadleaf Series.** The Mixed Broadleaf Series is either hydroriparian (water present continuously) or mesoriparian (water predictably present seasonally). It is confined to deep cool canyon bottoms at elevations between 1,525-2,150 m (5,000-7,000 ft). Tree species commonly present in the Chiricahua Mts. are: *Platanus wrightii*, *Juglans major*, *Salix gooddingii*, *Fraxinus pennsylvanica* ssp. *velutina*, and *Populus fremontii*. Trees from adjoining communities, (Madrean Pine Series, Madrean Oak - Pine Series, and Madrean Encinal (Oak) Series) may be present, enhancing species and height diversity. *Pinus engelmannii*, *Arbutus arizonica*, *Quercus rugosa*, and *Q. hypoleucoides* are representatives from the Pine - Oak Series woodlands. *Cornus stolonifera*, *Acer glabrum*, *A. grandidentatum*, and *Pseudotsuga menziesii* are associated with the Madrean Montane Conifer Forest: Pine Series. *Q. arizonica*, *Juniperus deppeana* and *P. disolor* are associated with the Encinal (Oak) Woodland. The relict Arizona cypress (*Cupressus arizonica*) forms its own vegetation communities and is usually associated with the Mixed Broadleaf Series.

Shrubs are abundant beneath the tree layer. Young or suppressed tree species are the most common shrubs but true shrubs such as *Amorpha fruticosa*, *Frangula betulifolia*, *R. californica*,

*Cercocarpus montanus*, *Ceanothus integerrimus*, *Ptelea angustifolia*, *S. lasiolepis*, *Toxicodendron rydbergii* and *Sideroxylon lanuginosum* are important also.

The herb and grass layer is best developed in forest openings or along stream banks. Some herbs characteristic of the Riparian Broadleaf Forest and Woodland are: *Brickellia chlorolepis*, *Erigeron platyphyllus*, *Lactuca graminifolia*, *Viguiera trilobata*, *Gentianella microcalyx*, *Hypericum formosum*, *Monarda menthaefolia*, *Stachys coccinea*, *Allophylum gilioides*, *Ranunculus arizonicus*, *Diodia teres*, *Galium wrightii*, *Mimulus guttatus*, and *Glandularia bipinnatifida*. Typical grasses and grass-like plants are: *Cyperus aristatus*, *Agrostis scabra*, *Aristida longiseta* and *Echinochloa crusgalli*. The showy *Epilobium canum*, *Maurandya antirrhiniflora*, *Penstemon barbatus* and *P. linarioides* are important hummingbird foods.

The rich mixture of broadleaf tree species overtopped by scattered coniferous trees provides an unusually rich habitat for birds. Significantly, the Chiricahua localities with the most bird species (Cave Creek, East Turkey Creek, West Turkey Creek, and Rhyolite Canyon) have Mixed Broadleaf Series vegetation well represented.

**Interior Southwestern Riparian Deciduous Forest and Woodland: Cottonwood - Willow Series.** Cottonwood - Willow Series vegetation is situated downstream from the Mixed Broadleaf Series along hydroriparian or mesoriparian drainages. Typically found in open canyons or on bajadas, the community is exposed to full sunlight and warm, dry air. The Cottonwood - Willow Series is usually found from 1,200-1,700 m (4,000-5,500 ft.) elevation in the Chiricahua Mountains.

*Populus fremontii* is usually the dominant tree species, although *Salix gooddingii* and *S. bonplandiana* may be locally co-dominant. *Platanus wrightii*, though present and of large size, is not dominant. Other trees include *Morus microphylla*, *Celtis pallida*, *C. reticulata*, *Fraxinus pennsylvanica* var. *velutina*, and *Juglans major*. Smaller trees are *Prosopis glandulosa* and *Chilopsis linearis*. Shrubs can be well represented. Common ones are *Salix exigua* and *S. lasiolepis*, *Hymenoclea monogyra*, *Baccharis salicifolia*, and *Zizyphus obtusifolia*. *Sporobolus airoides* and *Bouteloua curtipendula* are common grasses. This vegetation type is uncommon in the Chiricahua but are found at San Simon Cienega and in lower Tex Canyon.

### **Madrean Marsh, Lakes, Ponds, and Stock Tanks**

Today, these features in the Chiricahua range are mostly man-made. Groundwater pumping and reservoir construction have lowered the water table to the extent that natural marshes, like San Simon Cienega, are habitats of the past. In their stead, stock tanks (artificial reservoirs for watering cattle) have replaced the natural wetlands. Some stock tanks, like Headquarters Tank at Price Canyon Ranch, are of considerable size. Others, such as the watering trough at Anita Spring, are of infinitesimal size. Regardless of size, all open water is of importance because of its rarity. The larger stock tanks are bordered by Cattails (*Typha domingensis*), Willows (*Salix* sp.), Hackberry (*Celtis reticulata* or *C. pallida*), and Mesquite (*Prosopis velutina*).

## Flora

The floras of Arizona and New Mexico are well known but complete plant lists have yet to be compiled for the Madrean Archipelago. Complete floras have been prepared for only three mountain ranges: Animas Mountains (Wagner 1973, 1979), Cooke's Range (Columbus 1988) and Rincon Mountains (Bowers & McLaughlin 1987).

Floras have been prepared for portions of several ranges: Sierra Ancha Experimental Forest (Pase & Johnson 1968); Coronado National Memorial (Ruffner & Johnson 1991); Garden Canyon (Stallcup 1991); Ramsey Canyon in the Huachuca Mountains (Toolin et al. 1980); Rosemont area in the Santa Rita Mountains (McLaughlin & Van Asdall 1977); Thomas Canyon in the Baboquivari Mountains (Toolin 1979); and Patagonia-Sonoita Creek Sanctuary (Fay 1978) and Sycamore Canyon (Toolin et al. 1979) in the Patagonia Mountains. Floras have been prepared for Chiricahua National Monument (Clark 1939, Reeves 1976), Fort Bowie National Historic Site (Warren, et al. 1992), and Chiricahua Wilderness Area (Leithliter 1980, Russell 1982) in the Chiricahua Mountains. A flora for the Pinaleno Mountains compiled by Johnson (1988) was significantly amended by McLaughlin (1993). Whittaker and Niering (1964, 1965) compiled a list of plants (not intended to serve as flora) from the low to middle elevations of the Santa Catalina Mountains to support their ecological work. Lacking sufficient data from high elevations, they augmented their list with high elevation collections made in the Pinaleno Mountains.

### Sources of the Flora List

The checklist of vascular plants presented here was originally a standardized species list of plants known to occur in the Chiricahua Mountains. It was compiled from the holdings of the herbaria at Chiricahua National Monument (CHIR) in 1989, Fort Bowie National Historic Site (FOBO) in 1989, and Southwestern Research Station (SWRS) in 1990. To this list were added the plants collected by Leithliter (1980) and held at Chiricahua Wilderness Area Study (CHWA), Russell (1982), Rominger & Laurenzi (1986) and Fishbein (1993). Madrean Archipelago plants from the published and reliable unpublished sources listed above, were incorporated into the checklist as we became interested in floral similarities of the various ranges. The database now includes 2,012 subgeneric taxa.

While checking the original list against the holdings of the University of Arizona herbarium (ARIZ), new plants not on the list were found. We wanted to make the list as complete as practically possible and started searching ARIZ, ASU, and NMS herbaria for plants not already on the list. Examination of the approximately 400,000 sheets held for Chiricahua plants would require a full year, and was impractical owing to time and cost constraints.

We chose to sample the contents of all three herbaria by looking for plants most likely to occur. A list of those plants known from the greatest number of ranges in the vicinity of the Chiricahua Mountains was assembled. Three plants were known to occur in the Sierra Ancha, Santa Catalina, Rincon, Pinaleno, and Animas mountains, but not in the Chiricahua. The number of taxa shared by these ranges increases as the number of ranges taken in combination decreases. We chose for our search sample the total shared flora of all two-range combinations which was 484 taxa. This search resulted in the addition of 236 taxa held exclusively by NMS, 32 by ASU and 170 by ARIZ, a discovery efficiency of 49 percent. The total Chiricahua sub-generic taxa in the list is 1,261 which are distributed among 1,240 species, 532 genera and 103 families.

No statistically rigorous tests for Chiricahua checklist completeness were conducted. But when small plant lists, such as Rominger and Lorenzi (1986a, 1986b) and Fishbein (1993), were added to the Chiricahua database, we used the assumption:

$$tx = (tm \times sn)/ts \quad (\text{Eq. 1})$$

where  
 sn = taxa new to the main list;  
 ts = taxa in the sample list;  
 tm = taxa in the main list;  
 tx = taxa as yet unknown

We estimate that the Chiricahua list is probably 85 to 90 percent complete.

Total sub generic plant taxa we list for the Chiricahua Mountains are distributed among one or more of these sources:

CHIR	FOBO	SWRS	ARIZ	ASU	NMS	CHWA (ASU)	Lists
641	354	828	179	41	40	267	134

### Botanical Exploration

Lieutenant (later General) W.H. Emory traversed southern Arizona from the headwaters of the Gila River in New Mexico to its confluence with the Colorado approximately along the 33 parallel. His orders read (in part): ". . . in all cases where it did not interfere with other and more immediate military demands of the service, the attention of myself, and the officers assigned to duty with me, should be employed in collecting data which would give the government some idea of the regions traversed." (Emory, 1849)

His account began August 2, 1846 at Bent's Fort and continues through October 8, 1847. Plants collected by expedition naturalists J.M. Bigelow, C.C. Perry, A. Schott, G. Thurber, and C. Wright were described by Asa Gray, George Engelmann, and John Torrey. Although no collections were made in the Chiricahua Mountains, plants named in recognition of the collectors are common there. *Baccharis bigelovii* Gray, *Agave parryi* Engelmann, *Calliandra schottii* Torrey, *Anisacanthus thurberi* (Torrey) Gray, and *Garrya wrightii* Torrey are prominent examples of collections made on the Emory expedition of plants occurring in the Chiricahua Mountains.

Problems with Indians greatly impeded botanical exploration in southeastern Arizona, southwestern New Mexico, and adjacent Mexico. Relations between the Apache and the Spanish were not cordial in Eusebio Kino's time (1697-1712) with establishment of permanent settlements on the Sonoran frontier. The presidio at Tubac, established in 1757, was moved to Tucson in late 1776 to better protect the citizenry from Apache raids. These raids were so effective that between establishment of the Tucson Presidio and its occupation by United States troops in 1856, the population of southern Arizona and Sonora declined. The ranges of the Madrean Archipelago in the Apache heartland were even more jealously and effectively guarded. Southeastern Arizona plant collectors, for the most part, confined their activities to the vicinity of the army posts at Fort Grant (1860-1872), Fort Huachuca (1877-present), Fort Lowell (1860-1890), and Fort Bowie (1862-1894) together with its satellite camps—Rucker (1879), Supply (1878), Powers (1872), Price (1881), and Crawford 1886 (Walker & Bufkin 1978).

John Gill Lemmon (1832-1908) brought his bride to Arizona where they collected heavily between 1880 and 1882. In 1881 the Lemmons made 15 collections of plants described as new to science near Fort Bowie and Camp Rucker, both within the bounds of the study area and apparently without incident (Crosswhite 1979). However during this period, while traveling between Tucson and Fort Huachuca through Apache country, the Lemmon family passed two burned out ranches whose occupants had been scalped. They camped out both nights. On the third day they were stopped by Apaches and searched. The Indians apparently concluded that collection and pressing of plants was the work of insane people, protecting the Lemmons from harm by them (Benson 1959).

Many of Lemmon's collections were described by Asa Gray and later by E.L. Greene. These authors named many of these plants in his honor or for his wife, Sara Allen Plummer Lemmon, including *Asclepias lemmoni* Gray, *Bidens lemmonii* Gray, *Brickellia lemmonii* Gray, *Hieracium lemmonii* Gray, *Senecio lemmonii* Gray, and *Salvia lemmonii* Gray. Sara Plummer Lemmon was remembered in specific epithets (*Stevia plummerae* Gray, *Ipomoea plummerae* Gray) and with genus *Plummeria* (*Plummera ambigens* Blake, *Plummera floribunda* Gray). The plants described by Greene do not occur in our study area. Sara is also memorialized by the name of the highest peak in the Santa Catalina Mountains, Mt. Lemmon, named for her rather than for her more famous husband.

Jacob Corwin Blumer (1872-1947) made the first concentrated and one of the most important collection efforts in the Chiricahua Mountains. According to Bowers (1983), Blumer was born in Switzerland, but emigrated with his parents to the United States in 1881. In 1902, he graduated from Iowa State College with a BSA and then attended the University of Michigan from 1904-1906. During his college years Blumer worked seasonally for the newly established Forest Service in Colorado, Idaho and New Mexico. He may have acquired an interest in the Chiricahua during his work in New Mexico. Shortly after he left Michigan, Blumer relocated to Arizona and began collecting in the Chiricahua and Swisshehm mountains in August of 1906. In 1907 and 1908 he worked as a research assistant at the Carnegie Institution's Desert Laboratory. By 1909 he was back in the field collecting in the Santa Catalina, Rincon, Santa Rita, and Pajarito mountains in Arizona, and then in the Comobabi, Quijotoa mountains and in Sonora. Between 1913 and 1916, Blumer worked in Canada but then came back to Arizona to collect in the Harcuvar Mountains. In 1917 he left the world of botany, returning to the Midwest to work on his brother's farm. Blumer died of a heart attack in Ortonville, Minnesota, in 1948.

Blumer wrote about his Chiricahua work: "In 1906 and 1907, ten months were given to the exploration of this range, some 1,600 miles covered within its bounds, and about 1,050 species of plants collected. Undoubtedly many other higher plants may be found." (Blumer 1909, p. 720).

In his own hand, Forrest Shreve made a list of 524 Blumer collections which have survived at ARIZ among Forrest Shreve's notes titled: "*Enumeratio Plantarum quas in Montibus Chiricahuensis collectit J.C. Blumer annis 1906-1907.*" This list shows species collected, general location, date of collection, and field number between August 10, 1906 and October 24, 1907. Blumer used 2 kinds of field numbers: one was apparently a provisional, i.e., N26½, U6a, N27 and the other (often listed as equivalent) were 4 digit numbers, i.e., 1606, 1723, etc. The dates are presented in strict chronological order but these are often at variance with the numerical sequence of his collection numbers. The lowest number on Shreve's list is 1231 and the highest is 2267 which accounts for 1,036 of the 1,050, but only 524 collections are given. Even with the omissions, some listed collections are duplicates making it difficult to see how "about 1,050 species" could have been collected. We suspect that Blumer meant that he made 1,050 collections rather than collected 1,050

species.

Blumer's most collected locality was Barfoot Park where 16 percent of his collections were made. Paradise (he boarded at the sawmill there) was represented by 12 percent of his specimens. Blumer must have been a familiar sight at the ranches. He made collections at Miss Rhoda Riggs' Ranch, Erickson's Ranch, Joe Smith's Ranch, and at Wilgus Ranch. At Stephans' Ranch in Pinery Canyon, Bettie Stephans (the daughter of the family) collected *Castilleja minor* (Blumer 1810) on 10/24/07 at the ranch for him.

In 1939, six years after Chiricahua National Monument was established, Ora M. Clark reported that an active collections program was under way (Clark 1939a, 1039b). Clark and custodian Frank Fish made 446 collections with the assistance of two Civilian Conservation Corps (CCC) workers. The mounted sheets were sent to ARIZ for determination by John Thornber and Lyman Benson. At this time the park herbarium had plants representing 77 families, 197 genera and 333 species. A year later Clark (1940) reported that the collection had grown to 80 families, 257 genera and 467 species. The outbreak of war in 1941 and the closing of the CCC camp reduced botanizing for the duration of World War II.

Dr. Jack S. McCormick, American Museum of Natural History (AMNH), began an intensive collecting project for the Chiricahua range beginning in 1958. McCormick and his crew of locally recruited collectors worked out of the AMNH's Southwestern Research Station (SWRS) at Portal for the next three years. Approximately 700 subgeneric taxa were collected and a herbarium of 1,500 sheets was organized. Faculty and staff at ARIZ provided significant assistance with plant identifications. McCormick moved from AMNH to Ohio State University in 1961 and the Chiricahua project came to a halt about a year later. Other acquisitions to the herbarium were made slowly over the years. The herbarium now holds 877 subgeneric taxa and is a valuable regional botanical resource.

Marina and Bill Hoy, custodians of Fort Bowie National Historic Site (FOBO), collected the flora of this 405 ha area between 1972 and 1977. Additional specimens were collected by Paul Fugate, the National Park Service ranger who vanished without a trace while on duty in 1980. Peter Warren (1992) reworked the flora and completed a vegetation map. A small herbarium housing the FOBO collections is kept at FOBO headquarters and is distinct from that of CHIR. A total of 471 subgeneric taxa are distributed in 274 genera in 75 families.

Reeves (1976), working under the guidance of Don Pinkava (ASU), expanded the Clark (1939) CHIR list by one-third. Twenty-five collecting trips were made between August, 1974 and September, 1975. In addition, the entire months of June and July, 1975 were spent in the field. Almost 2,700 specimens were collected and identified, and 1,700 were deposited at CHIR and ASU. Reeves reports finding 672 subgeneric taxa distributed among 352 genera in 91 families on the 2,600 ha (6,410 ac.) within the National Monument.

Leithliter (1980), another of Don Pinkava's students, prepared a flora of the Chiricahua Wilderness Area, an area of 7,000 ha (18,000 ac.) in the heart of the range. The area extends from an elevation of 1,800 m (5,900 ft.) at Cave Creek to 2,986 m (9,794 ft.) at the summit of Chiricahua Peak. Between May, 1975 and September 1976, Leithliter collected 297 species representing 196 genera and 66 families on 14 collecting trips. His vouchers are deposited at ASU.

Russell (1982) sampled vegetation in 12 high altitude meadows (parks) in the Chiricahua Mountains. He identified and listed 68 meadow species during his study but did not indicate if voucher collections were made, and if so, where they were deposited. No Russell exsiccatae were found at ARIZ or ASU.

Fishbein (1993) made plant collections at Centella Point, documenting plant succession following a prescribed fire set in 1988. Data, based on his collections deposited at ARIZ, have been incorporated into the checklist.

## Phytogeography

Origins of the Madrean Evergreen Woodland can be traced to the Paleocene in the southern United States and northern Mexico. Although this woodland arose at approximately the same time as did the coniferous forests and California scrublands, it has a different developmental history and occupies a very different environment. Today its center of distribution lies in the Sierra Madre (Madrean) of Mexico and extends northward into the mountains of southeastern Arizona (Figure 2), south of the Catalina Mountains and east of the Baboquivari Mountains (Lowe 1961, Niering and Lowe 1984). It generally occurs in a belt at elevations between 1,700 m (5,500 ft.) and 2,100 m (7,000 ft.) and is bordered by desert grassland below and coniferous forest above.

Axelrod (1959) recognized three basic floral elements residing in North America about 75 million years ago at the beginning of the Tertiary: (1) the Arcto-Tertiary Geoflora, (2) the Neotropical-Tertiary Geoflora, and (3) the Madro-Tertiary Geoflora. A geoflora is a large assemblage of plants persisting in time and space. The Arcto-Tertiary Geoflora is represented today by the Canadian forests and coniferous forests of the Pacific Coast and Rocky Mountains. The Neotropical-Tertiary Geoflora has a more complex history. Its taxa are represented in the subtropical forests found today from Panama north into Mexico. The Madro-Tertiary Geoflora was derived largely from the Neotropical-Tertiary Geoflora with a minor contribution from the Arcto-Tertiary Geoflora. The Madro-Tertiary Geoflora is the youngest and has a much stronger affinity with the tropical floras than it does with those of the montane or coastal West. Today's Madrean woodland communities in the Southwest and the northern Sierra Madre are Madro-Tertiary derivative assemblages.

Under the influence of spreading dry climatic conditions during the middle Eocene, vegetation evolved from preexisting dry tropic and warm temperate broad-leaved sclerophyllous plants in what is now the southern United States and northern Mexico. During the later Pliocene, summer precipitation diminished in the Far West, differentiating the vegetation into summer-wet and summer-dry types. The summer-dry taxa developed into the California Chaparral. Summer-wet vegetation was gradually eliminated in the Far West and now occupies the mountains of southeastern Arizona extending southwestward into the Sierra Madre Occidental where the climate is summer-wet. This vegetation now comprises the Madrean Evergreen Forest and Woodland (Axelrod 1958; Brown, Lowe and Pase 1980).

### Species Richness

Brady (1973), Bowers and McLaughlin (1982, 1987), and Wentworth (1985) have characterized the Madrean ecosystems of southeastern Arizona as species rich and present several reasons for the phenomenon. Perhaps the most important reason is that three major floral Pliocene-Pleistocene segregates of the Arcto-Tertiary and Madro-Tertiary inhabit these mountains and their pediments: (1) a northern element (forest and tundra) at higher elevations; (2) a younger (woodland and chaparral) mixed southern element at middle elevations; and (3) the deserts, which are very young, lie on the pediments (Axelrod 1958, Lowe 1964). These elements, in effect stacked one upon the other, contribute to a rich vegetation and flora.

A second reason for species richness, suggested by Brady (1973) and Wentworth (1985), is that the scattered canopy of the Madrean woodlands creates a heterogeneous environment supporting a number of herbaceous species. These authors cite the high species diversity of savanna ecotone between the Semi-desert Grassland and the Madrean Oak Woodland as evidence.

A third source of richness is the presence of aquatic habitats (Weber 1973, Bowers & McLaughlin 1982). Aquatic habitat presence is promoted by bi-seasonal precipitation where the summer rains restart mesoriparian stream flow, by topography that includes high elevation peaks and ridges that increase precipitation, and by the ground storage within the fractured Tertiary welded tuffs.

The fourth factor promoting species richness is the presence of canyon environments (Bowers & McLaughlin 1982). Bennett and Kunzmann (1992a,b) correlated species richness with "canyonness" or the Dissection Index (DI), an empirical statistic defined as the absolute value of elevational change along 2 linear transects, placed at right angles, that cross at the highest summit divided by the sum of the distances between the pediments of the transects. Thus:

$$DI = |Elevation\ Change| \times Transect\ Length^{-1} \quad (\text{Eq. 2})$$

Results of DI calculations for the Animas, Chiricahua, Rincon, Santa Catalina, Pinaleno, and Sierra Ancha mountains are presented in Table 2.

Table 2. Flora Characteristics of 6 Ranges of the Madrean Archipelago

Range	Species Listed	Percent Madrean	Percent Rocky Mtn.	Relative Richness (R)	Dissect. Index
Animas	663	23.7	4.5	33.5	0.50
Chiricahua	1240	27.3	5.2	26.4	0.28
Rincon	884	20.1	4.1	28.0	0.17
Catalina	876	19.5	5.4	5.0	0.21
Pinaleno	848	17.7	7.1	1.8	0.21
Ancha	716	15.1	6.0	-8.0	0.14

Floras with higher gamma diversity (Table 1, Eq. 3) tend to have higher Madrean taxa representation than do those with less (Bowers and McLaughlin 1982). Ranges with higher dissection indices (Eq. 1) also have higher gamma diversity and greater Madrean representation. These relationships do not appear to apply to the Rocky Mountain flora element.

Bowers and McLaughlin (1982) explored collection effort and montane elevational range as predictors of gamma diversity (Whittaker 1972) for subgeneric taxa (see Eq. 3). Comparison of expected taxa number with the number collected yields relative diversity (Eq. 3).  $S_{E,T}$  is strongly influenced by the collection effort, T, which can be easily estimated for floral lists based on a well defined collection effort. Reeves (1976), cited collections made at Chiricahua National Monument between 1938 and the date of his thesis, an interval of 36 years. However, determining T for the Chiricahua checklist is much less certain since it is based on exsiccatae from Lemmon (1881) to the present day, a span of more than 100 years. This is clearly too great a number (T=100) since Lemmon did not collect intensively in the locality in 1881 and there was a hiatus between Lemmon's time and the Blumer collections (1906-1907). Clearly this lapse in time should not be included in T since no collection effort was being expended. Likewise, O.M. Clark collected at CHIR in 1938 but the effort languished during the war years. McCormick's SWRS effort lasted 3 years (1959-19620), Marina and Will Hoy collected at FOBO off and on between 1972 and 1977, and Leithliter spent 1 year collecting the CHWA. The upshot is that the collection effort for the Chiricahua and most other ranges was sporadic and must be estimated (Table 3).

$$\hat{S}_{E,T} = 47 = + 0.349E + 8.20T$$

(Eq. 3)

$$R = \frac{100(S - \hat{S}_{E,T})}{\hat{S}_{E,T}}$$

(Eq. 4)

Where :      E = Elevation range in meters  
                 T = Collecting time in years  
                  $S_{E,T}$  = Expected number of species  
                 R = Relative Richness

Bowers (1981) and Bowers and McLaughlin (1982) listed and assembled data from local Arizona floras. Gamma species diversity was modeled from those data as a function of collection effort and elevation differential elevation:

When compared with local floras scattered statewide, Madrean floras show more positive species richness values than do those that are Madrean-poor (Bowers 1981, Bowers & McLaughlin 1982). Consistently higher- than-predicted species counts suggest that the Madrean flora contributes to high species richness.

Bennett and Kunzmann (1992) determined DI (Eq. 1) and R (Eq. 3) for Madrean plants extracted from the Santa Catalina, Rincon, Pinaleno, Animas mountains and Sierra Ancha (Table 2) and determined that the correlation was high ( $R^2=0.89$ ). Similarly when R was calculated for Rocky Mountain plants the correlation was  $R^2=-0.32$ . These results suggest that there is a strong relationship between "canyon-ness" Madrean species richness.

Table 3. Input Data for Estimation of Species Numbers

Range	Taxa Listed	Elev. Diff.(m)	Effort (yrs.)	Est. Species Number ( $S_{E,T}$ )
Animas	663	1171	5	497
Chiricahua*	1240	1736	40	981
Rincon	884	1727	5	691
Catalina*	876	1786	20	834
Pinaleno*	848	1783	20	833
Sra. Anacha	716	1273	35	584

\* Flora  $\geq$  10 percent incomplete.

A fifth factor promoting species richness is the presence of edaphic conditions which provide additional localized habitats. Limestone soils provide habitats for 84 species of calciphiles, i.e., *Dyschoriste decumbens*, *Rhus microphylla*, *Haplophyton cimicidum*, *Macrosiphonia brachysiphon*, *Asclepias macrotis*, *Escobaria tuberculosa*, *Brickellia baccharidea*, *Flourensia cernua*, *Calylophus hartwegii* ssp. *pubescens*, *Ipomopsis longiflora*, *Ceanothus fendleri*, and *Chamaesarachia sordida*. Thin soil pockets perched on rhyolite cliffs support species such as *Cheilanthes feei*, *C. lendigera*, *Asplenium resiliens*, *Perityle cochisensis*, *Sedum griffithsii*, *Apacheria chiricahuensis*, and *Holodiscus dumosus*.

### Geographic Affinities of the Flora

The flora of the Chiricahua Mountains is primarily derived from the Apachean and adjacent Madrean, Chihuahuan, Rocky Mountain and Sonoran (Dice 1943, Dasman 1972) floras (See Table 3). Additional widely distributed species are also present in significant numbers. We follow Whittaker and Niering (1964) for delineation of more distant regions which is presented subsequently.

Species of Madrean geographic distribution are better represented than are those of any other region and their presence is probably related to the high gamma diversity of the flora. More Chihuahuan taxa are represented than are Sonoran, in part a representation of the flora evolving at higher elevations on the Alta Plano between the Sierra Madre ranges. The Sonoran flora evolved at lower elevations to the west of the Sierra Madre.

Apachean (Madrean Archipelago endemic) plants comprise 5.7 percent (71 species) of the Chiricahua flora and another 21.3 percent (264 species) have their centers of distribution in the Sierra Madre Occidental. Only the Animas Mountains of New Mexico have a greater percentage of Madrean plants (Bennett & Kunzmann 1992a). Chihuahuan plants are well represented (9.7 percent) on the Chiricahua pediments and foothills while Rocky Mountain species (5.2 percent) mostly occur at higher elevation. The bulk of the flora is composed of "Southwestern" and "Western" plants (29.8 percent) and species of the north and east ("All Other" in Table 3) comprise the balance (23.0 percent) of the flora. Only 75 species (6.0 percent) are introduced, a low figure considering how intensively the resources of the Chiricahua have been utilized for grazing and lumbering in the past. Latin American (tropical Mexico and further south) plants are relatively uncommon (3.0 percent), considering that flora of the Chiricahua and other ranges of the Madrean Archipelago have stronger southern than northern affinities.

Percentages of the Chiricahua life forms compared with those compiled worldwide (average) indicate a warm temperate flora. Below average number of phanerophytic (woody) taxa show a non-tropical origin. The greater than average representation of therophytes may indicate either a still evolving xeric flora or development of disclimax related to past agricultural practices.

Table 4. Geographic Distribution of the Chiricahua Flora

Distribution	No of Species	Percent of Flora
Madrean (Apachean)	71	5.7
Madrean (other)	264	21.3
Total Madrean	335	27.0
Rocky Mountain	64	5.2
Chihuahuan	120	9.7
Sonoran	29	2.3
Southwestern	256	20.6
Western	114	9.2
Latin American	37	3.0
All Other	285	23.0
Introduced	75	6.0

Table 5. Chiricahua Flora Life Forms

Life Form	No. Spp.	Pct. Flora <sup>1</sup>	Pct. Worldwide <sup>2</sup>
Phanerophytes	144	11.6	46
Chamaephytes	115	9.3	9
Hemicryptophytes	429	34.6	26
Geophytes	136	11.0	6
Therophytes	267	21.5	13
Undetermined	149	(12.0)	—

<sup>1</sup> Excluding species of undetermined life form.

<sup>2</sup> Braun-Blanquet, 1965, p. 298.

## Chiricahua Annotated Checklist

### Structure of the List

To achieve simplicity of use and economy of space, the checklist is presented in a rigidly structured manner. The data are contained in 19 fields. In the following empirical example, the numbers in parentheses are the field numbers and are keyed to the explanations that follow:

- (1) Technical name (2)Author
- (3) Synonymous technical names (2)Authors
- (4) Common names
- (5) Distributional elevation. (6) Months of flowering. (7) life form. (8) Growth form.
- (9) Leaf size, leaf texture. (10) Habitat. (11) Technical names of associated species.
- (12) Distribution within the Chiricahua Mountains. (13) Also distribution by other ranges in the Madrean Archipelago. (14) Distribution within Arizona by county; distribution within the United States; distribution by other countries. (15) Regional distribution. (16) Biogeographical center of abundance. (17) Economic notes and other notes. (18) Pertinent citations to literature.
- (19) Exsiccatae.

Field 1. Technical name is that used by Kartesz (1994). Cultivar names are preceded by an asterisk

Field 2. Presentation of author names is standardized using Munz and Keck (1974), Correll and Johnston (1970), Brummitt & Powell (1992). In the interest of simplicity, occasional exceptions were made in usage from these sources (See Appendix 1).

Field 3. Sources used for synonyms were Benson and Darrow (1981), Kartesz (1994), Kartesz and Kartesz (1980), Lehr (1978), and Lehr and Pinkava (1980, 1982).

Field 4. Vernacular names were taken from various sources, mostly Kearney et al. (1960) (1964) and Benson and Darrow (1981). In no case did we create vernacular name by transliteration of the technical binomial.

Field 5. Distributional elevations are presented in feet from low to high. Values enclosed in brackets represent data from localities other than the Chiricahua Mountains.

Field 6. Months of flowering are based on collections of suitable material represented in the herbaria. Months enclosed in brackets represent data from localities other than the Chiricahua Mountains.

Field 7. Growth and life forms are taken from Raunkaier (1934) and are given to generally describe plant physiognomy, a purpose beyond Raunkaier's intent. They are presented in this checklist to give a crude description of the appearance of the plants.

The life forms (presented before the growth form) are: trees which are woody plants with a single stem greater 2 m tall. Trees are subdivided as broadleaf deciduous, broadleaf evergreen, pinnate leguminous, needleleaf evergreen, or succulent. The second life form is shrubs which are plants more than 1.9 m tall with multiple woody stems. Shrubs are subdivided as broadleaf deciduous, broadleaf evergreen, pinnate leguminous, narrow leaf dicot, stem-succulent, spinose deciduous, spinose evergreen, monocot rosette, suffrutescent, green-stemmed (deciduous leaves or none), woody vines or climbing semi-shrubs, and parasites. The third form is herbs which are non-woody plants subdivided as deciduous ferns, evergreen ferns, perennial graminoids (including perennial grasses), winter annual grass, summer annual grass, perennial deciduous forbs (other than ferns or grasses), evergreen perennial forbs, (including leaf succulents), winter-

annual forbs, and summer-annual forbs.

Field 8. The first growth form is the phanerophyte which is woody plants (except for epiphytes) more than 0.25 m tall which are subdivided by their stature, i.e., woody-stemmed vines, epiphytes, megaphanerophytes (more than 30 m tall), mesophanerophytes (8 to 29 m tall), microphanerophytes (2 to 7 m tall), nanophanerophytes (more than 0.25 to 1.9 m tall), rosette shrubs (*yucca*, *agave*), and stem-succulents (cacti).

The second growth form category is the chamaephytes which are low shrubs (less than 0.25 m tall). They are subdivided as woody low or sub-shrubs, suffrutescent, rosette-shrub, and low stem-succulents (small cacti).

The third growth form category is the proto-chamaephytes which are intermediate between chamaephytes and hemicryptophytes and are subdivided as scapose or leafy stemmed, rosette, semirosette (like a rosette but without the leaves being entirely basal, spreading or prostrate, and twining). This growth form is not prominently represented in the Chiricahua flora.

The fourth, and most important, growth form is the hemicryptophyte. They are perennial herbaceous plants with their perenniating organs at or near the ground surface. The hemicryptophyte form is subdivided as scapose, rosette, semirosette, spreading or prostrate, and twining hemicryptophyte (Cv)

The fifth growth form is the geophyte. They are plants whose perenniating organs are beneath the ground surface. The geophyte form is subdivided as bulbs, rhizomes, or phytophagous (root parasites).

The final growth form is the therophyte or annual plant. The therophyte form is subdivided as scapose or leafy-stemmed, rosette, semirosette, spreading or prostrate, or twining.

Field 9. Leaf sizes we report are classified by Braun-Blanquet (1965:296) as: mesophyll (25.26 cm<sup>2</sup> to 182.25 cm<sup>2</sup>); microphyll (226 mm<sup>2</sup> to 20.25 cm<sup>2</sup>); nanophyll (25.1 mm<sup>2</sup> to 225 mm<sup>2</sup>); and leptophyll (<25 mm<sup>2</sup>). Leaf textures are orthophyll (leaves of normal texture, sclerophyll (hardened or coriaceous texture), succulent (fleshy leaves); and membranous (very thin and soft).

Field 10. The usual habitat for each plant is briefly described on the basis of herbarium labels, flora lists for the Chiricahua Mountains (Reeves, Leithlighter, Warren), or personal observation. In some cases, published descriptions (Kearney & Peebles, Benson, Benson & Darrow) were consulted and were floras for other ranges in the Madrean Archipelago (Bowers & McLaughlin, Wentworth, Wagner, Johnston, Garcia-Perez). We attempted to limit descriptor vocabulary by not distinguishing between terms like river, stream, brook, rill, and creek. We did distinguish riparian habitats as being hydro-, meso-, or xeroriparian. We also distinguished between water courses in canyons and arroyos. Landform terminology generally follows American Geological Institute (1960). We avoided using community names in habitat descriptions to the extent possible, relying instead on lists of associated species (field 11.)

Field 11. Names of other plants, often those defining the community type, are included here

when they are known. These plant names came from the same general sources as the habitat information (Field 10), and may contain names of plants that have not been vouchered.

Field 12. Distributions within the Chiricahua Mountains are presented first. General localities are separated by semicolons (Wilderness Area; Cave Creek; San Simone Valley), but localities within a general locality are separated by commas after the initial term which is usually connoted by "on," "at," "in," or another preposition. Thus a collections on Sugarloaf Mountain and Massai Point would read: "Chiricahua Mts.: Chiricahua Nat. Mon on Sugarloaf Mtn., Massai Point; . . ."

Field 13. Distributions on other ranges of the Madrean Archipelago, are separated by commas with detailed distribution within the ranges omitted.

Field 14. Distributions by counties (mostly within Arizona) are from Kearney and Peebles (1960) modified by herbarium data.

Field 15. Distribution by states is taken from published floras, primarily Kearney and Peebles (1960), Munz & Keck (1974), and Correll & Johnston (1960).

Field 16. Biogeographic center of abundance concept follows Whittaker and Niering (1965) but has been modified to reference the biogeographic provinces of Dice (1943) Dasmann (1972) and Brown, Lowe and Pase (1979, 1980). Distributional data for many species is incomplete causing assignment to a distributional category to be arbitrary in some cases. Never-the-less, the spatial affinities of the flora is important enough to overlook this problem. Listed below are the biogeographical areas used.

Endemic—distribution limited to the mountains of southeastern Arizona, southwestern New Mexico, northern Sonora and northern Chihuahua, i.e. the Madrean Archipelago—approximates the Apachean biogeographic province.

Madrean—montane distribution of wider extent than above, includes the Sierra Madre Oriental and Occidental massif and Mexican highlands—same the Madrean biogeographic province of authors cited.

Chihuahuan—non-montane eastern Arizona to Texas and southward in (or beyond) Chihuahua and Coahuila at low elevation. Includes the Chihuahuan and Tamaulipan biogeographic provinces of the authors cited.

Sonoran—Arizona west of the Santa Rita Mountains on low ground to southeastern California and southward in Sonora and Baja California. Coincides with the Mohavian and Sonoran biogeographic provinces of the authors cited.

Rocky Mountain—the mountains of the central and northern Arizona plateau and the cordillera of central New Mexico and the Rocky Mountains of Canada. It coincides with the Rocky Mountain biogeographic province of Dice (1943) and Dasmann (1972) but includes the Mogollon (Interior) of Brown, Lowe, and Pase (1979).

Plains-distributed from the Southwest to the grasslands of Texas and northward east of the Rocky Mountains. It coincides with the Plains biogeographic province of the authors

cited.

Southwestern—distribution extending from the more arid portions of west Texas, New Mexico, California and northern Mexico. Included are the southern Plains, Tamaulipan, Chihuahuan, northern Madrean, Apachean, northern Sonoran, Mogollon, Mohavian, Californian, southern Great Basin, and southern Rocky Mountain biogeographic provinces of the authors cited.

Western—widely distributed in western North America. Included are the Southwestern, defined above and the balance of the Plains, the Great Basin, and the Rocky Mountain biogeographic provinces.

Temperate—The Western, as defined above, and the Southeastern, the Eastern, and the Gulf Coast biogeographic provinces.

Northern—widely distributed in Canada and southward in mountains including the Sierran, northern (Canadian) Rocky Mountain, Alaskan, and Canadian biogeographic provinces of the authors cited.

Holarctic—distributed in both North American and Eurasia.

Latin America—extending into Central America or occurring also in South America.

Introduced—species that are adventive or naturalized from regions distant enough to rule out spread by non-human means.

Cultivar—species intentionally introduced for agricultural purposes and which have not become adventive or naturalized.

Field 17. Notes about uses and usefulness as well as items of unusual interest about the plants are included when they have been encountered.

Field 18. Citations to literature encountered during assembly of the checklist are listed in "Literature Cited" and the brief reference is given here. These citations are not necessarily the most definitive or recent treatments of the taxon and are included for what value they may have.

Field 19. Exsiccatae have been compiled primarily by examination of specimens at the Chiricahua National Monument (CHIR), at Fort Bowie National Historic Site (FOBO), and Southwestern Research Station (SWRS), near Portal, Arizona. The collections at University of Arizona (ARIZ), Arizona State University (ASU), and New Mexico State University (NMC) were consulted to augment the holdings of the first three herbaria listed.

## PTERIDOPHYTA

### ADIANTACEAE—Maidenhair-fern

#### Family.

A family of approximately 200 species mostly distributed in the American tropics.

#### **Adiantum capillus-veneris L.**

*Adiantum capillus-veneris* var. *modestum*

(Underwood) Fern., *A. capilis-veneris* var. *prostratum* fern., *A. modestum* Underwood

Maidenhair fern, culantrillo

[1,500] - 6,000 [7,000] ft. Evergreen fern, rhizome geophyte; mesophyll, orthophyll. Rare on mesic shaded or partly shaded slopes, hydro- and mesoriparian canyons or ravines; rocky, sandy or loamy soils.

Chiricahua Mts.: Cave Creek Falls. Also Sierra Ancha and throughout most of the state. Virginia south to Florida, west to Kentucky, Tennessee, Missouri, Texas, and Arizona; tropical America; Eurasia.

Exsicc: SWRS [Morse s.n.]

#### **Adiantum pedatum L.**

Common maidenhair fern

7,200 ft. Sep. Evergreen fern, rhizome geophyte; mesophyll, orthophyll. Hydro- and mesoriparian canyons; gravelly sandy soils; partial sun.

Chiricahua Mts.: base of Winn Falls. Coconino County, Gila County, Cochise County. Mexico south to Rio Mayo, Sonora. Widely distributed in temperate North America. Temperate.

Exsicc: SWRS [Roth Pinkava 36].

#### **Argyrochosma limitanea (Maxon) Windham ssp. *limitanea***

*Cheilanthes limitanea* (Maxon) Mickel, *Notholaena limitanea* Maxon, *Pellaea limitiana* (Maxon) Mort.

[2,000] 5,500 - 6,200 [7,000] ft. Evergreen fern, hemicryptophyte rosette herb. Uncommon on dry south-facing slopes among rocks and ledges.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station; Ava Ranch; Fort Bowie Nat. Historic Site; Paradise on ridge above Epley's mine; Hands Pass; Cave Creek; Winn Falls. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Sierra de los Ajos, Swisshein Mts. Coconino County to Cochise, Santa Cruz, Pima and Yuma counties. Western Texas to southern Utah and Arizona. Sonora, Mexico. Madrean.

Exsicc: CHIR [Reeves 1825, 3085, 3616]. SWRS [Ordway, Roth 1959-533]. FOBO [MHoy 61, 336]. ARIZ [Blumer 1526, Peebles 5403, Barr 65-21].

#### **Astrolepis cochisensis (Goodding) Benham & Windham ssp. *cochisensis***

*Cheilanthes cochisensis* (Goodding) Mickel; *C. sinuata* (Lag.) Domin var. *cochisensis* (Goodding) Munz; *C. intergerrima* (Hook.) Mickel, *C.*

*intergerrima* (Hook.) Hevly, *Notholaena cochisensis* Goodding; *N. sinuata* (Lag. ex Sw.) Kaulf. var. *cochisensis* (Goodding) Weath.

Cloak fern

[1,000] 5,400 - 5,600 [7,000] ft. Deciduous fern, rosette

herb; microphyll, sclerophyll. Common on dry south-facing woodland and grassland ledges and crevices. Tolerates limestone soils. *Rhus choriophylla*, *Cercocarpus breviflorus*, *Garrya wrightii*, *Agave plameri*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station. Also Rincon Mts., Huachuca Mts., Whetstone Mts., Canelo Hills, Dragoon Mts., Mule Mts., Sierra Ancha, Animas Mts. Coconino and Mohave counties to the mountains of Graham, Cochise, Santa Cruz, Pima, and Yuma counties. Western Oklahoma and Texas to southern California; Mexico to Chile; Jamaica, Hispaniola. Temperate.

Exsicc: CHIR [Reeves 2268, 3483, 4057]. SWRS [Moort s.n.]. ARIZ [Blumer 1527].

#### **Astrolepis sinuata (Lag. ex Sw.) Benham &**

#### **Windham ssp. *sinuata***

*Cheilanthes sinuata* (Lag. ex Sw.) Domin,

*Notholaena sinuata* (Lag. ex Sw.) Kaulf.

Cloak fern

5,000 ft - 6,500 ft. Evergreen fern, rosette hemicryptophyte. Common on sunny dry rocky slopes, canyons, draws, and arroyos.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill east of trailer; Paradise; 9 mi. north of Portal. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Latin American.

Exsicc: CHIR [Reeves 1334, 3863]. SWRS [Lellinger 1958-8, Ordway 65]. FOBO [MHoy 59, 454].

#### **Bommeria hispida (Mett. ex Kuhn) Underw.**

*Gymnopteris hispidis* (Mett. ex Kuhn) Underw.

Hairy bommeria

[4,000] 5,200 - 5,900 [7,700] ft. Evergreen fern, rhizome geophyte; mesophyll, orthophyll. Common on south-facing sunny dry slopes, flats, and arroyos; partial shade at lower elevations; gravelly to sandy soil.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinal Mts., Mule Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Mountains of Yavapai, Gila, Graham, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and New Mexico. Sonora, Mexico. Madrean.

Exsicc: CHIR [Clark 8343, Reeves 1463, 1472, 1510]. SWRS [Ordway 70]. FOBO [MHoy 63].

#### **Cheilanthes arizonica (Maxon) Mickel**

*Cheilanthes pyramidalis* Fee var. *arizonica* (Maxon) Broun

Lip fern

7,000 ft. Evergreen fern, rosette hemicryptophyte. North-facing canyon slope.

Chiricahua Mts.: Wilderness Area; Rucker Canyon. Also Mule and Huachuca Mts. Southeastern Arizona, Mexico, and Central America. Latin American.

Exsicc: CHWA [Phillips 2858].

#### **Cheilanthes bonariensis (Wild.) Proctor**

*Notholaena aurea* (Poir.) Desv.

Cloak fern

[4,000] 5,400 - 6,500 [7,000] ft. Aug - Sep. Evergreen fern, rosette hemicryptophyte. Uncommon on warm dry slopes, ledges and crevices; partly shaded canyons and draws. *Platanus wrightii*,

*Juglans major*, *Arctostaphylos pungens*, *Pinus discolor*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Paradise. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts. Southern Apache County and mountains of Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Texas to Arizona; Mexico to Argentina; Jamaica; Hispaniola. Latin American, Chihuahuan.

Exsicc: CHIR [Clark 9298, Reeves 1465, 3495, 4065]. SWRS [DLellinger 1958-6].

**Cheilanthes eatoni** Baker

*Cheilanthes castanea* Maxon

Lip fern

[3,800] 5,400 - 6,700 [8,000] ft. Evergreen fern, rhizome geophyte; mesophyll, sclerophyll. Common on sunny south-facing slopes, and flats at higher elevations; partial sun and xeroriparian washes at lower elevations; rocky or gravelly soil. *Quercus emoryi*, *Q. arizonica*, *Q. grisea*, *Juniperus deppeana*, *Pinus discolor*, *Nolina microcarpa*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill east of trailer; Southwestern Research Station in draw north of station; South Fork Campground near big pool. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Navajo and Coconino counties to Graham, Cochise, Santa Cruz, and Pima counties. Oklahoma to central Texas to Colorado, Arizona, and Sonora, Mexico. Madrean.

Exsicc: CHIR [Reeves 2375, 3496, Clark 8344, Reeves 1829, 3084, 3827A]. SWRS [Nockunas s.n., Roth s.n.]. FOBO [MHoy 58].

**Cheilanthes feei** T. Moore

Slender lip fern

[2,000] 5,400 - 7,200 ft. Herbaceous evergreen fern, rhizome geophyte. Uncommon on sunny slopes, flats, and mesic canyons, cliffs and ledges; among boulders; thin rocky sandy or loam soils. Tolerates limestone. *Pinus engelmannii*, *P. leiophylla*, *Quercus arizonica*, *Q. hypoleucoides*, *Q. rugosa*, *Platanus wrightii*, *Salix gooddingii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Whitetail Canyon; Winn Falls; Herb Martyr Dam. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts. Arkansas, California, Nevada, Arizona, New Mexico, Texas, Oklahoma to British Columbia and Illinois and Wisconsin. Temperate.

Exsicc: CHIR [Reeves 3810]. SWRS [Wittmann 104, DLellinger 1959-601].

**Cheilanthes fendleri** Hook.

Lip fern

[4,000] 5,400 - 7,460 [9,500] ft. Herbaceous evergreen fern, rhizome geophyte; microphyll, sclerophyll. Common on shaded slopes, mesoriparian canyons and ravines; beneath boulders, on ledges; thin rocky sandy soils. *Pinus engelmannii*, *P. leiophylla*, *P. discolor*, *Quercus arizonica*, *Q. hypoleucoides*, *Q. rugosa*, *Q. emoryi*, *Platanus wrightii*, *Salix gooddingii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; southwest of Herb Martyr Dam; Southwestern Research Station; Wilderness Area. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Pinal Mts., Mule Mts., Pinaleno Mts., Animas Mts. Coconino County to the mountains of Greenlee, Cochise, Santa Cruz, and Pima counties. Western Texas to Colorado and Arizona. Madrean.

Exsicc: CHIR [Clark 8443, Moir 519, Reeves 3405, 3845]. SWRS [Lellinger 1959-602, Ordway s.n.]. CHWA [Leithliter 417, 430].

**Cheilanthes lendigera** (Cav.) Sw.

*Pomatophytum pocillatum* M.E. Jones

Lip fern

[5,000] ft - 7,800 ft. Herbaceous evergreen fern, rhizome geophyte; schlerophyll, microphyll. Uncommon on north-facing, mesic slopes; moist, shaded canyons and draws, among boulders, ledges, and cliffs; thin rocky sandy or sandy loam soil. *Pinus engelmannii*, *Cupressus arizonica*, *Quercus arizonica*, *Q. rugosa*, *Q. hypoleucoides*, *Rhus aromatica*, *Nolina microcarpa*, *Prunus serotina*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; Wilderness Area. Also Mule Mts., Huachuca Mts., Oro Blanco Mts., Rincon Mts. Cochise, Santa Cruz and Pima Counties. Western Texas; Mexico to Venezuela and Ecuador. Latin American.

Exsicc: CHIR [Reeves 3618A]. CHWA [Leithliter 742].

**Cheilanthes lindheimeri** Hook.

Lip fern, fairy swords

[2,000] 5,000 - 6,000 [8,000] ft. Herbaceous evergreen fern, rhizome geophyte, mesophyll, sclerophyll. Common on rocky hillsides except on hottest south-facing slopes, xeric ravines, ledges, cliffs, among boulders, and on talus slopes.

Chiricahua Mts.: Chiricahua Nat. Mon., Fort Bowie Nat. Historic Site on hill east of trailer; Southwestern Research Station; Wilderness Area, South Fork Cave Creek. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinal Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Western Texas to Arizona and northern Mexico. Chihuahuan, Madrean.

Exsicc: CHIR [Clark 8231, Reeves 1337, 1608]. SWRS [Ordway s.n.]. CHWA [Leithliter 447]. FOBO [MHoy 55].

**Cheilanthes pringlei** Daven.

[3,000] - [5000] ft. Herbaceous evergreen fern, rhizome geophyte. Rocky slopes, especially at the base of cliffs.

Chiricahua Mts., Huachuca Mts., Animas Mts., Mazatzal Mts., Catalina Mts. Southern Arizona and northern Mexico. Chihuahuan.

**Cheilanthes wootonii** Maxon

Beaded lip fern

[3,000] 5,300 - 6,900 [9,000] ft. Herbaceous evergreen fern, rhizome geophyte. Common on rocky partly shaded or shady slopes or mesoriparian canyons; among boulders.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; Southwestern Research Station in ravine north of station. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Pinal Mts., Mule Mts., Animas Mts. Coconino County to the mountains of Greenlee, Cochise, Santa Cruz, and Pima counties. Oklahoma, southeastern Colorado, and western Texas to Arizona and northern Mexico (Sonora and Chihuahua). Great Plains, Chihuahuan, Madrean.

Exsicc: CHIR [Reeves 3389, 3950]. SWRS [BNoekunas s.n.]. FOBO [MHoy 57].

### **Cheilanthes wrightii** Hook.

#### Lip fern

[1,000] 5,050 - 5,700 [6,000] ft. Evergreen fern, rosette hemicryptophyte. Uncommon on dry rocky south-facing slopes and ledges; in partial shade.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill east of trailer. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Mountains of Greenlee, Graham, Gila, Maricopa, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Madrean.  
Exsicc: CHIR [Clark 9114, Reeves 2271, 3371, 4040]. FOBO [MHoy 62].

### **Notholaena grayi** Davenp. ssp. **grayi**

#### *Cheilanthes grayi* (Davenp.) Domin

#### Cloak fern

[4,000] 5,150 - 5,450 [6,000] ft. Evergreen fern, rosette hemicryptophyte. Rare among rocks on sunny dry south-facing slopes with shrubs.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts., Santa Catalina Mts., Mule Mts. Mountains of Greenlee, Graham, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Mexico. Madrean.

Exsicc: CHIR [Reeves 1250, 3386, 3481].

### **Notholaena standleyi** Maxon

#### *Cheilanthes hookeri* (Kummel.) Domin

#### Cloak fern

[1,000] 5,400 - 6,500 ft. Evergreen fern, rosette hemicryptophyte. Uncommon on warm sunny slopes on cliffs, ledges, and among rocks.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; South Fork. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Dos Cabezas Mts., Mules Mts. Greenlee, Graham, Gila, Maricopa, Pinal, Cochise, Santa Cruz, and Pima counties. Western Oklahoma and Texas to Colorado, Arizona and Mexico. Great Plains, Chihuahuan, Madrean.

Exsicc: CHIR [Reeves 3385, 3482, 4074]. SWRS [Roth s.n.]. FOBO [MHoy 399]. ARIZ [Windham & Yats-Kievych 82-217, Garton 16879].

### **Pellaea atropurpurea** (L.) Link

#### Cliff brake

[3,500] 5,200 - 6,400 [7,000] ft. Evergreen fern, rosette hemicryptophyte. Uncommon on rocky slopes, cliffs, and wooded draws. *Pinus discolor*, *Juniperus deppeana*, *Bouteloua curtipendula*, *Nolina microcarpa*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Sierra de los Ajos. Navajo County, Coconino County, Gila County, and mountains of Graham, Gila, Cochise, Santa Cruz, and Pima counties. Vermont and Ontario to South Dakota, south to Florida and Texas, New Mexico, and Arizona; Sonora, Mexico and western Guatemala. Temperate, Central American.

Exsicc: CHIR [Clark 9200, Reeves 1821, 3550]. SWRS [Nockunas s.n.].

### **Pellaea intermedia** Mett. ex Kuhn

#### Cliff brake

[3,500] 5,200 - 7,200 ft. Deciduous fern, rhizome geophyte; microphyll, sclerophyll. Uncommon in canyons among

mesoriparian streambed rocks (rarely on cliffs), dry rocky slopes; tolerates limestone substrate.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Sierra Ancha. Mountains of Gila, Cochise, Santa Cruz, and Pima counties. Southwestern Texas to Arizona and Mexico. Madrean.

Exsicc: CHIR [Clark 8441, Reeves 2396, 2449, 3936].

### **Pellaea truncata** Goodding

#### *Pellaea longimucronata* auct. non Hook.

#### Cliff brake

[2,000] 5,000 - 6,500 [8,000?] ft. Evergreen fern, rosette hemicryptophyte. Rare on dry wooded slopes among rocks at higher elevations; mesoriparian canyon cliffs and crevices at lower elevations.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill east of trailer; South Fork. Also Peloncillo Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Coconino County, northern Mohave County, to the mountains of Cochise, Santa Cruz, Pima, and Yuma counties. Colorado and New Mexico to Nevada, Arizona, and northern Mexico. Great Plains, Great Basin, Chihuahuan, Madrean.

Cronquist, et al. (1972).

Exsicc: CHIR [Clark 8342, Reeves 1335, 2370]. SWRS [Roth s.n.]. FOBO [MHoy 61].

### **Pellaea wrightiana** Hook.

#### *Pellaea ternifolia* (Cav.) Link var. *wrightiana*

#### (Hook.) A.F. Tryon

#### Cliff brake

[4,000] 5,190 - 7,000 [8,000] ft. Evergreen fern, rosette hemicryptophyte. Common in rocky places throughout and on cliffs, especially in canyons and shallow drainages.

Chiricahua Mts.: Chiricahua Nat. Mon.; South Fork Road; Southwestern Research Station. Also Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Pinal Mts., Mule Mts., Animas Mts. Coconino County and mountains of Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Southwestern Oklahoma and central Texas, west to Arizona. Southeastern, Chihuahuan, Madrean.

Exsicc: CHIR [Clark 8268, 8588, Reeves 1882, 2371, 3490, 3609, 3846]. SWRS [Nockunas s.n., Ordway s.n.].

### **ASPLENIACEAE—Spleenwort Family.**

A widely distributed family but mainly in tropical and subtropical regions. 12 genera with 700 species. *Asplenium* (650 species) is nearly cosmopolitan.

### **Asplenium resiliens** Kunze

#### Black-stem spleenwort

[2,000] 5,400 - 6,600 [7,000] ft. Deciduous fern, rosette herb; microphyll, sclerophyll. Common in crevices of north-facing cliffs and boulders, streambeds, cool moist slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; South Fork Cave Creek. Sierra Ancha. Coconino County and the mountains of Greenlee, Graham, Gila, Cochise, and Yuma counties. Southern Pennsylvania south to Florida, west to Illinois, Oklahoma, New Mexico, and Arizona; Jamaica; Mexico. Temperate, Latin America.

Exsicc: CHIR [Clark 8440, Reeves 1822, 3934A]. SWRS [Nockunas s.n.].

### **Asplenium trichomanes** L.

#### Maidenhair spleenwort

[6,000] 6,400 - 6,700 [9,600] ft. Evergreen fern, rosette hemicryptophyte. Rare on mesic slopes at higher elevations; deep ravines at lower elevations, especially in crevices on rhyolite boulders.

Chiricahua Mts.: Chiricahua Nat. Mon. in Totem Canyon; Cave Creek Falls. Also Pinaleno Mts., Santa Catalina Mts., and mountains of southern Apache, Coconino, Graham, Gila, Cochise, and Pima counties. Nova Scotia and Quebec south to Georgia and Alabama, west to Alaska and south to Texas, New Mexico, Arizona, and Oregon; Sonora, Mexico; Eurasia. Holarctic.

Exsicc: CHIR [Reeves 1907, 4230]. SWRS [Roth s.n.].

## DENNSTAEDTIACEAE (Pteridaceae)- Bracken Fern Family.

Large terrestrial ferns with hairy rhizomes. Eight genera and 160 species. The monotypic polymorphic Ngenus *Pteridium* is nearly cosmopolitan but concentrated mainly in tropical and subtropical regions.

### *Pteridium aquilinum* (L.) Kuhn. var. *pubsecens* Underw.

*Pteridium aquilinum* ssp. *lanuginosum* (Bong.) Hult.en, *P. aquilinum* var. *lanuginosum* (Bong.) Fern.

Bracken Fern.

6000 [5000] ft - 9510 ft ft. Deciduous fern. Rhizome geophyte. Common. Mesic forested canyons, disturbed meadows, cool moist slopes. Repeated burning or a long history of heavy livestock use give this plant a competitive advantage.

Chiricahua Mts.: CHIR; Greenhouse Trail (Cave Creek); Rustler Park; Centella Point. Pinaleno Mts.: Webb Peak. Sierra Ancha. Santa Catalina Mts. Pinal Mts. Animas Mtn. Mountains of Cochise, Pima, Coconino, and Apache counties. Cosmopolitan distribution. [6624JH].

Reported to be poisonous to cattle and horses when eaten in large quantities, but the poisonous properties may be eliminated by cooking. The rootstocks and young fronds have been utilized for human food. Invasion of meadows by this species indicates disturbance and drying of the soil.

Exsicc: CHIR [C8141, R4265]; SWRS [EOrdway 93, DLellinger 1958-1]; CHWA [L18].

## DRYOPTERIDACEAE—Shield Fern Family

### *Athyrium filix-femina* (L.) Roth var. *cyclosorum* Rupr.

*Athyrium filix-femina* (L.) Roth var. *californicum* Butters, *A. alpestre* (Hoppe) Rylands ex T. Moore var. *cyclosorum* Rupr. T. Moore, *A. angustum* var. *elatius* (Link) Butters, *A. filix-femina* ssp. *cyclosorum* (Rupr.) C. Chr., *A. filix-femina* var. *sitchense* (Rupr.) Ledeb.

Southern lady fern

6,400 - 8,530 [9,000] ft. Deciduous fern, rosette hemicryptophyte. Uncommon beneath trees and along streams, rich shaded ground about springs. *Cupressus arizonica*.

Chiricahua Mts.: Wilderness Area. Also Santa Catalina Mts., White Mts., Pinaleno Mts., Huachuca Mts. Apache County, Graham County, Pima County, Cochise County. Widely distributed in North and South America and Eurasia. Holarctic.

Exsicc: CHWA [Leithliter 144, Lehto 453, Lehto 711].

### *Cystopteris fragilis* (L.) Bernh. var. *tenuifolia* (Clute) Broun

Fragile bladder fern

[3,500] - 8,680 [12,000] ft. Deciduous fern, rosette hemicryptophyte. Uncommon on open mesic slopes at higher elevations but in deeper wet ravines at lower elevations.

Chiricahua Mts.: Chiricahua Nat. Mon. in Totem Canyon; Wilderness Area, Winn Falls, Greenhouse Trail. Also Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Pinal Mts., Sierra de los Ajos. Apache County, Navajo County, Coconino County to the mountains of Cochise, Santa Cruz, and Pima counties. Labrador to Alaska, south to North Carolina, the Great Lakes region, Texas, New Mexico, Arizona, and southern California; Sonora, Mexico; tropical America; Eurasia. Holarctic.

Exsicc: CHIR [Reeves 4239]. SWRS [Roth s.n.]. CHWA [Leithliter 151, Lehto 587].

### *Dryopteris filix-mas* (L.) Schott Male fern

[6,500] 6,825 - 9,180 [10,000] ft. Jun - Dec. Deciduous fern, rosette hemicryptophyte. Uncommon on rocky outcrops and along streams; rich moist soil. *Veratrum californicum*, *Heracleum lanatum*, *Athyrium filix-femina*, *Abies concolor*, *Acer negundo*, *Quercus gambelii*; *Pinus strobus*, *Salix exigua*, *Populus tremuloides*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Totem Canyon; Winn Falls; Rucker Canyon. Also Pinaleno Mts., Santa Catalina Mts., Pinal Mts., Santa Rita Mts., Huachuca Mts., Sierra Ancha, Baboquivari Mts., Rincon Mts. Coconino, Graham, Gila, Cochise, Santa Cruz, Pima counties. Newfoundland to British Columbia, south to Vermont, Michigan, western Oklahoma, western Texas, New Mexico, Arizona, southern California; Mexico; Greenland; Eurasia. Holarctic.

The drug aspidium, used extensively as a vermifuge, especially for tapeworm, is derived from this plant. It is a violent poison in overdoses.

Exsicc: CHIR [Reeves 1906, 2809]. SWRS [Roth P44]. CHWA [Leithliter 133, Lehto 388]. ARIZ [Darrow 2558, 2618, (et al.) 2489, Pringle s.n., Windham 107A, Thornber & Shreve 7919. Yatskievych 80-277, (& Windham 82-225), (& Roth 81-223), Harrison et al. 8094. Shreve 5414. Phillips & Darrow 3023].

### *Phanerophlebia auriculata* Underw.

#### *Cyrtomium auriculatum* (Underw.) Mort.

[2,000] - 5,800 [7,000] ft. Deciduous fern, rosette herb; mesophyll, orthophyll. Rare in crevices in north-facing cliffs and boulders, damp, shaded canyon wells.

Chiricahua Mts.: Chiricahua Nat. Mon. in Pickett Canyon and Shake Springs; 4 mi. east of Southwestern Research Station at top of Wind Cave. Also Animas Mts. Graham, Pinal, Cochise, Pima, and Yuma counties. Western Texas to Arizona and northern Mexico. Madrean.

Exsicc: CHIR [Clark 8949, Reeves 3114]. SWRS [Raue 47].

### *Woodsia plummerae* Lemmon

#### *Woodsia pusilla* Fourn. var. *glandulosa* (Eat. & Faxon) T.M.C. Taylor

[2,000] 5,600 - 7,150 [9,000] ft. Deciduous fern, rosette hemicryptophyte; microphyll, orthophyll. Uncommon in rocky places, north-facing slopes, shaded ledges and cliffs.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern

Research Station in draw southeast of station. Also Pinaleno Mts., Animas Mts. Apache and Coconino counties south to the mountains of Cochise, Santa Cruz, Pima, and Yuma counties. Western Texas to Arizona and Mexico. Chihuahuan, Madrean. Exsicc: CHIR [Reeves 1823, 1914, 3615A]. SWRS [Nockunas s.n.].

## EQUISETACEAE—Horsetail Family.

A family of annual or perennial plants, usually rhizomatous. The class, order, and family are represented by a single genus comprised of about 25 species. Widely distributed, except in Australia, New Zealand, and tropical Africa. Most occupy wet habitats of the tropics and subtropics but 12 species are widely scattered in North America. These are considered the most primitive vascular plants still extant, being traceable back to the Carboniferous.

### *Equisetum hyemale* L. var. *affine* (Engelm.)

Eat.

*Equisetum affine* Engelm., *E. hyemale* ssp. *affine* (Engelm.) Calder & Taylor, *E. hyemale* var. *californicum* Milde, *E. hyemale* var. *elatum* (Engelm.) Mort., *E. hyemale* var. *pseudohyemale* (Farw.) Mort., *E. hyemale* var. *robustum* (A. Braun) Eat., *E. praealtum* Raf. *E. robustum* A. Braun  
Scouring-rush

4,500 - 5,700 [8,000] ft. Mar - Sep. Evergreen perennial forb, rhizome geophyte. Uncommon in wet to moist soils in hydroriparian or mesoriparian canyons, near seeps, springs, and rivulets in meadows. Chiricahua Mts.: Southwestern Research Station; Chiricahua Nat. Mon.; Herb Martyr Dam. Also Pinaleno Mts., Santa Catalina Mts. Apache, Navajo, and Coconino counties to Cochise, Santa Cruz, and Pima counties. Holarctic.

Exsicc: CHIR [Reeves 1410B]. SWRS [Barnes s.n., Ordway 156, SWRS 1959-515].

### *Equisetum laevigatum* A. Braun

*Equisetum funstonii* Eat., *E. kansanum* Schaffn., *E. laevigatum* ssp. *funstonii* (Eat.) Hartm.

Smooth scouring-rush

[5,000] 5,400 - 5,450 [8,000] ft. Perennial deciduous forb, rhizome geophyte; leptophyll, orthophyll. Rare in meadows, floodplains, marshes, alluvial thickets, and sandy banks, sometimes a weed in cultivated places.

Chiricahua Mts.: Chiricahua Nat. Mon. at Bonita Springs. Navajo and Coconino counties south to Pima, Santa Cruz, and Cochise counties. Ontario and Michigan to British Columbia, south to Ohio, Oklahoma, Texas, and California; Mexico. Temperate, Latin American.

Exsicc: CHIR [Clark 8276, Reeves 1410A, 2963A].

### *Equisetum X ferrissii* Clute

*Equisetum hiemale* var. *affine* X *E. laevigatum*, *E. hyemale* var. *intermedium* Eat., *E. laevigatum*  
Hybrid scouring-rush

5,400 - 5,800 ft. Locally common in meadows and around springs.

Chiricahua Mts.: Chiricahua Nat. Mon.; Rucker Canyon. Also Santa Rita Mts., Huachuca Mts. Coconino, Graham, and Cochise counties. Southwestern.

Exsicc: CHIR [Reeves 1450, 2963, 2855, 4527].

## POLYPODIACEAE—Polypody Family.

A family of epiphytes typically. Widely distributed but mainly in tropical regions.

### *Pleopeltis thyssanolepis* (A. Braun ex Klotzsch)

Andrews & Windham

*Polypodium thyssanolepis* A. Braun ex Klotzsch  
[5,000] - 5,600 [6,000] ft. Deciduous fern, rhizome geophyte; mesophyll, orthophyll.

Chiricahua Mts.: South Fork Campground. Also Huachuca Mts. Cochise County, Baboquivari Mts. (Pima County). Western Texas to Arizona, Mexico, and South America; Jamaica; Hispaniola. Latin American.

Exsicc: SWRS [Roth Pinkava 42].

## SELAGINELLACEAE—Spike Moss Family.

A monogeneric family of small mosslike plants. There are about 600 species, of which 37 occur in the United States. About 25 species are cultivated domestically as ornamentals.

### *Selaginella underwoodi* Hieron.

*Selaginella underwoodi* var. *dolichotricha* Weath.  
Underwood's spike-moss

[5,000] - 6,400 [8,000] ft. Spreading hemicryptophyte, evergreen perennial forb; leptophyll, orthophyll. Rare on moist rocks. *Sedum stelliforme*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Totem Canyon; Cave Creek at base of Cave Canyon Falls; Greenhouse Trail. Also Pinaleno Mts., Santa Rita Mts., Santa Catalina Mts., Baboquivari Mts., Animas Mts. Coconino, Gila Graham, Cochise, Santa Cruz, and Pima counties. Western Texas to Wyoming and Arizona. Southwestern, Rocky Mountain.

Exsicc: CHIR [Clark 8968]. SWRS [Roth Pinkava 29].  
CHWA [Leithliter 895B].

## GYMNOSPERMACEAE

### CUPRESSACEAE—Cypress Family.

A family of trees or shrubs, leaves usually scale-like, sometimes dimorphic (juvenile leaves larger and more slender than adult leaves); world-wide distribution, composed of 15 - 16 genera and about 140 species. Some species are valuable for timber.

### *Cupressus arizonica* Greene

*Cupressus arizonica* var. *bonita* Lemmon, *C. glabra* Sudw., *C. macnabiana nevadensis* (Abrams) Abrams, *C. nevadensis* Abrams, *C. stephensonii* C.B. Wolf.

Arizona cypress, rough-bark Arizona cypress

[3,000] 5,300 - 8,040 ft. Apr - May. Needleleaf evergreen tree, mesophanerophyte; leptophyll, sclerophyll. Common in mesoriparian canyons, lower north-facing and intermediate slopes; often forming closed stands locally. *Acer grandidentatum*, *Cheilanthes lendigra*, *Panicum bulbosum*, *Quercus rugosa*, *Frangula betulifolia*, *Toxicodendron rydbergii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon, Rhyolite Canyon and tributaries; John Long Canyon; Price Canyon; Rucker Canyon; and South Fork Cave Creek. Also Animas Mts., Santa Catalina Mts., and Sierra Ancha. Greenlee,

Graham (?), Cochise, Pima Coconino, Yavapai, Gila and Maricopa counties. Western Texas to southern Arizona and northern Mexico. Madrean, relict.

Used as timber for rough construction and as an ornamental. French government planted Arizona cypress for reclaiming barren land in France and northern Africa. Planted in southern Arizona as an ornamental. Seeds are viable for several years and = 40,000/lb. Germination takes 3 weeks. Maximum age greater than 700 years. Little (1950).

Exsicc.: CHIR [Clark 8136, Reeves 1349, 1870, 3570, Roseberry 1]. SWRS [SWRS 1958-217].

### ***Juniperus deppeana* Steud.**

*Juniperus deppeana* ssp. *sperryi* (Correll) E. Murr., *J. deppeana* var. *pachyphlaea* (Torr.) Martinez, *J. deppeana* var. *sperryi* Correll, *J. mexicana* Schlecht. & Cham, iede & Deppe, *J. pachyderma* Sitgr.

Alligator juniper, cedar chino

[4,500] 5,000 - 9,680 ft. Jul. Needleleaf evergreen tree, microphanerophyte; leptophyll, sclerophyll. Common in dry grassland, woodland flats, slopes, and mesic canyon benches. *Pinus leiophylla*, *P. engelmannii*, *P. arizonica*, *Quercus emoryi*, *Q. arizonica*, *Q. hypoleucoides*, *Piptochaetium fimbriatum*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Faraway Ranch and Rhyolite Canyon; Fort Bowie Nat. Historic Site at Cut Off Canyon; Paradise to Portal road; West Turkey Creek. Also Animas Mts., Huachuca Mts., Mule Mts., Pinaleño Mts., Sierra Ancha, and Santa Catalina Mts., Sierra de los Ajos. Southeastern and central Arizona extending as far north as Flagstaff and west to the Boboquivari Mountains. Coconino to Pima, Santa Cruz and Cochise counties. Western Texas to Arizona and Mexico. Madrean.

Johnston (1943). Little (1948).

Exsicc.: CHIR [Clark 8137, Dole 8, Reeves 1485, 1571, 1676, 2264, 3057, 3252, 3420]. CHWA [Leithliter 466, 556]. FOBO [MHoy 10].

### ***Juniperus erythrocarpa* Cory.**

*J. coahuilensis* (Martinez) Gaussen; *J. erythrocarpa* var. *coahuilensis* Martinez, *J. pinchotii* var. *erythrocarpa* (Cory) J. Silba

[3,000] - 6,000 ft. Needleleaf evergreen tree, microphanerophyte; leptophyll, sclerophyll. Common in grassland or grassland scrub, rarely in interior chaparral, outwash slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill south of Old Cemetery; Portal to Paradise road; and Halfmoon Valley. Also Animas Mts., Huachuca Mts., Pinaleño Mts., and Santa Catalina Mts., Rincon Mts., Santa Rita Mts., Sierra de los Ajos. Southern Arizona below the Mogollon Rim, southwestern New Mexico, Transpecos Texas, Mexico in southeastern Sonora; Sierra Madre in Chihuahua, Durango, Coahuila, Zacatecas, and Nuevo Leon. Madrean.

Fruits eaten by coyote, deer, quail, and rodents. Wood used by Indians for prayer sticks, bows, and musical instruments; the bark provided a green dye and fibers for mats; sandals; and saddles. Adams & Zanoni (1979).

Exsicc.: CHIR [Clark 8986, Reeves 2391, 2953, 3202, 4086]. SWRS [SWRS 1958-16]. FOBO [MHoy 54].

### **EPHEDRACEAE—Mormon Tea Family.**

The genus Ephedra is of wide sporadic distribution in arid regions of the tropics and subtropics of the northern and southern hemispheres and contains 42 species. Twenty-four species occur in the New World with 13 in North America and 9 - 10 in South America. Asiatic species contain the medicinal alkaloid ephedrine and were formerly harvested to obtain the drug.

### ***Ephedra trifurca* Torr. ex S. Wats.**

Long-leaved joint-fir, canatilla, popotilla, teposote [4,000] 4,400 - 6,100 ft. May. Green-stemmed shrub, nanophanerophyte. Rare in woodland openings and grasslands on gravelly or sandy soils along washes and rills.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in wash east of trailer; in West Turkey Creek; along road to Rodeo. Also Animas Mts., Pinaleño Mts., and Santa Catalina Mts. Greenlee County to Gila, Yavapai, and Mohave counties, south to Mexican boundary. Southwestern Texas to southern California and adjacent Mexico. Chihuahuan, Sonoran, Mohavian.

American Indians and Mexicans have long used stem decoctions as a cooling beverage and have eaten seeds; common name Mormon tea is derived from use as beverage for Latter-Day-Saint pioneers in the American West. Browsed by bighorn sheep and jackrabbits. Seeds eaten by scaled quail. A Chiricahua Nat. Mon. population collected in 1937 at the southwest corner of the monument, may no longer occur inside of the monument.

Exsicc.: CHIR [Dole 125, Reeves 2554]. FOBO [MHoy 148].

### **PINACEAE—Pine Family.**

A family of trees, rarely shrubs, comprising 9 genera and about 210 species of wide distribution, especially throughout temperate regions of the northern hemisphere. The family is of considerable economic importance for lumber and pulpwood.

#### ***Abies concolor* (Gord. & Glend.) Lindl. ex Hildebr.**

*Picea concolor* Gord. & Glend.; *Picea lowiana* Gord.; *Abies lowiana* (Gord.) A. Murr.; *Abies grandis* var. *lowiana* (Gord.) Hoopes

White fir

[5,500] 7,600 - 9,760 ft. Fruits mature in Sep. Needleleaf evergreen tree, mesophanerophyte; nanophyl, sclerophyll. Locally common but does not form pure stands. Cool mesic slopes at higher elevations becoming riparian lower down. *Pinus arizonica*, *P. strobiformis*, *P. engelmannii*, *Pseudotsuga menziesii*, *Populus tremuloides*, *Acer grandidentatum*, *Quercus gambelii*, *Muhlenbergia virescens*.

Chiricahua Mts.: Pinery Canyon near Onion Saddle; Greenhouse Trail; Wilderness Area, south of Round Park, along Crest Trail. Also Pinaleño Mts., Santa Catalina Mts., Sierra Ancha. From rim of the Grand Canyon to the Chiricahua Mts., Santa Catalina Mts., and Hualpai Mtn., Sierra de los Ajos. Wyoming to Oregon, south to northern Mexico. Sierran-Cascadian, Rocky Mountain, Madrean.

Limited use for lumber. Replaces fire tolerant species when forest fires are suppressed. Thin bark of young trees makes them susceptible to fire kill. Shade tolerant throughout life. Fairly prolific but irregular seeder. Seeds germinate well on any kind of substrate provided sufficient moisture is available. Little (1950, 1953).

Exsicc.: SWRS [Martin s.n.]. CHWA [Leithliter 699, 821].

#### ***Picea engelmannii* Parry ex Engelm.**

*Picea glauca* (Moench) Voss ssp. *engelmannii* (Parry ex Engelm.) T.M.C. Taylor, *P. glauca* var. *engelmannii* (Parry ex Engelm.) Boivin Engelmann spruce

6,375 ft. - 9,790 ft. Needleleaf evergreen tree, mesophanerophyte; nanophyll, sclerophyll. Common on east- or

west-facing slopes on high ridges, cool slopes below north-facing cliffs at lower elevations; extending down-slope in deep mesic canyons.

Chiricahua Mts.: East Turkey Creek; Rustler Park; Wilderness Area along Crest Trail, Snowshed Peak and Chiricahua Peak. Also Pinaleno Mts. Coconino, Apache, Graham, and Cochise counties. British Columbia through the Rocky Mts. to New Mexico and Arizona, and through the Pacific coast states to northern California. Rocky Mountain, Madrean, Sierran-Cascadian.

Exsicc: SWRS [SWRS 1960-189]. CHWA [Leithliter 11, 91, 369].

### **Pinus arizonica** Engelm.

*Pinus arizonica* Laws. var. *arizonica* (Engelm.) Shaw, *P. ponderosa* P.& C. Lawson ssp. *arizonica* (Engelm.) E. Murr., *P. ponderosa* var. *arizonica* (Engelm.) Shaw  
Arizona pine

[5,500] 6,000 - 9,790 ft. May - Jun. Needleleaf evergreen tree, megaphanerophyte, nanophyll, sclerophyll. Common but in our area not usually forming pure stands. Upland slopes and flats. *Pseudotsuga menziesii*, *Pinus strobus*, *P. discolor*, *P. engelmannii*, *Juniperus deppeana*, *Quercus hypoleucoides*, *Muhlenbergia longiligula*, *Rhus aromatica*, *Nolina microcarpa*, *Yucca schottii*, *Ceanothus fendleri*, *Arbutus arizonicana*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Greenhouse Trail; John Long Canyon; Rustler Park; Wilderness Area. Also Pinaleno Mts., Santa Catalina Mts., Santa Rita Mts., Sierra Ancha, Sierra de los Ajos. Widely distributed in southeastern Arizona: Graham, Cochise, Pima, and Santa Cruz Counties. Mexico. Madrean.

Premier timber species. Type from Santa Rita Mts. Johnston (1943). Vines (1959). Perry (1990).

Exsicc: CHIR [Clark 8195, Dole 9, Reeves 3653, 4243, 4255]. SWRS [Martin s.n.]. CHWA [Leithliter 120].

### **Pinus discolor** D.K. Bailey & Hawksworth

*Pinus cembroides* Zucc. var. *bicolor* Little  
Mexican pinyon, border pinyon, pino, pinonero  
[4,000] 5,200 - 7,800 ft. May - Jun, fruits Aug - Sep. Needleleaf evergreen tree, microphanerophyte; leptophyll, sclerophyll. Common from dry ridges to canyon bottoms. Does best with only moderate moisture. *Pinus leiophylla*, *Piptochaetium fimbriatum*, *Juniperus deppeana*, *Quercus emoryi*, *Q. grisea*, *Q. hypoleucoides*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Rhyolite Canyon, Pickett Ridge; Portal to Paradise road; Onion Saddle; bottom of Greenhouse Trail; Wilderness Area. Also Huachuca Mts., Animas Mts., Baboquivari Mts., Mule Mts., Pinaleno Mts., Santa Catalina Mts., Sierra de los Ajos. Greenlee, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Madrean.

Seeds commercially harvested for food and are utilized by rodents, squirrels, chipmunks, porcupine, bear, Mearn's quail, turkeys, and thick-billed parrots. Trees grow slowly. Lehr & Pinkava (1980).

Exsicc: CHIR [Clark 8127; Dole 7; Reeves 1623, 3050, 3167, 3213]. SWRS [Sandoval 28; SWRS 1958-9]. CHWA [Leithliter 599].

### **Pinus edulis** Engelm. var. *edulis*

Colorado pinyon, pinyon, pinyon pine

[4,000] 4,995 - 6,900 [7,000] ft. Microphanerophyte, leptophyll; nanophyll, sclerophyll. Common on red-bed soil or sandstone derived soils; dry upper slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. on northeastern portion of the monument, Bonita Park, north and east to boundary; Fort Bowie Nat. Historic Site in lower Cut Off Canyon, upper South Canyon, base of Helen's Dome. Also Sierra Ancha. Widely distributed and common in northern and central Arizona from Apache County to Coconino County and south to Cochise County, Gila County, and Yavapai County. Western Oklahoma and Texas to Wyoming, eastern Utah, Arizona, and Baja, California. Rocky Mountain, Great Basin.

Edible nuts are harvested. Indians use the pitch for glue, waterproofing, and for chewing.

Exsicc: CHIR [Clark 8325, Reeves 1258, 1308, 3844]. SWRS [SWRS 1958-475].

### **Pinus edulis** Engelm. var. *fallax* Little

One needle pinyon

5,000 ft. May. Needleleaf evergreen tree, mesophanerophyte; nanophyll, sclerophyll. Rare on wash banks and in woodlands.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at northeastern base of Helen's Dome.

"This is one of the few locations in the Southwest where these three pinyons occur together." Warren (1991).

Exsicc: FOBO [MHoy 209].

### **Pinus engelmannii** Carr.

*Pinus latifolia* Sarg., *Pinus apacheca* Lemmon, *Pinus mayriana* Sudw., *Pinus macrophylla* Engelm. in Wisliz., *Pinus arizonica* var. *mayriana* (Sudw.) Sarg., *Pinus arizonica* var. *macrophylla* Shaw. Apache pine, Arizona longleaf pine

[5,000] 5,700 - 7,100 [8,000] ft. May - Jun. Needleleaf evergreen tree, mesophanerophyte; nanophyll, sclerophyll. Locally common in mesic canyons. Benches near waterways at lower elevations but moving away from drainages at elevations above 6,500 ft. This species has wide ecological amplitude. *Pinus leiophylla*, *P. discolor*, *P. arizonica*, *Juniperus deppeana*, *Quercus hypoleucoides*, *Quercus rugosa*, *Q. arizonica*, *Arbutus arizonicana*, *Platanus wrightii*, *Fraxinus pennsylvanica*, *Juglans major*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Pickett Park, Bonita Park, Rhyolite Canyon, Sarah Deming Canyon; West Turkey Creek; Rustler Park; Southwestern Research Station. Also Animas Mts., Dragoon Mts., Huachuca Mts., Santa Rita Mts., Sierra de los Ajos. New Mexico and Arizona, northern Mexico. Madrean.

Lumber quality is good but the species is too restricted in distribution to be an important timber species. Pines in Rustler Park have 3 to 5 needles. Type *P. apacheca* from the Chiricahua Mts. (Lemmon 1881) and *P. latifolia* from the Santa Rita Mts. The pines in Rhyolite Canyon exude a vanilla odor not noted elsewhere. Vines (1959). For differentiation from *Pinus arizonica* see: Little (1950, 1953).

Exsicc: CHIR [C.s.n., Reeves 1302, 3589, 4161]. SWRS [Ordway s.n.].

### **Pinus leiophylla** Schiede & Deppe var.

**chihuahuana** (Engelm.) Shaw

*Pinus chihuahuana* Engelm.

Chihuahua pine

5,400 ft. - 7,000 ft. May - Jun., fruits Nov. Needleleaf evergreen tree, mesophanerophyte; nanophyll, sclerophyll. Common in less mesic canyon bottoms and stream terraces in pine-oak woodland and cool north-facing slopes. *Pinus discolor*, *P. engelmannii*, *Juniperus deppeana*, *Quercus grisea*, *Q. hypoleucoides*, *Nolina microcarpa*, *Rhus aromatica*, *Arctostaphylos pungens*, *Prunus serotina* ssp. *virens*, *Frangula*

*betulifolia*, *Vitis arizonica*, *Fallugia paradoxa*, *Yucca schottii*, *Garrya wrightii*, *Piptochaetium fimbriatum*, *Bromus porteri*, *Aristida orcuttiana*, *Bouteloua curtipendula*, *B. gracilis*, *Muhlenbergia longiligula*, *Poa fendleriana*, *Senecio neomexicana*, *Desmodium rosei*, *Thalictrum fendleri*, *Brickellia lemonii*, *Galim microphyllum*, *Phaseolus* spp., *Calliandra humilis*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Pickett Park, Rhyolite Canyon; West Turkey Creek; Pine Canyon; Price Canyon; Cave Creek; below Onion Saddle; Pinery Canyon; John Long Canyon; East Turkey Creek. Also Animas Mts., Pinaleno Mts., Pinal Mts., Santa Catalina Mts. and Santa Rita Mts., Sierra de los Ajos. Southwestern New Mexico, Arizona, and Mexico. Madrean.

Cones persistant, mature in the third year. The typical variety (*P. l. var. leiophylla*) is not native in the United States but has a wide range in Mexico from Chihuahua to Michoacan, Veracruz, and Oaxaca. It is characterized by five needles in a fascicle, while *P. leiophylla* var. *chihuahuana* differs by having three needles in a fascicle.

Exsicc: CHIR [Clark 8202, Reeves 1278, 2427, 3604, 3654]. SWRS [Martin s.n.]

### ***Pinus ponderosa* P. & C. Lawson var. *scopulorum* Engelm.**

*Pinus ponderosa* ssp. *scopulorum* (Engelm.) E. Murr. Western yellow pine

[5,800] - [7,800] 9,200 ft. [May] - [Jun]. Needleleaf evergreen tree, mesophanerophyte; nanophyll, sclerophyll. Uncommon on fire site. *Quercus hypoleucaoides*, *Abies concolor*, *Robinia neomexicana*.

Chiricahua Mts.: Centella Point. Also Pinaleno Mts., Santa Catalina Mts., Huachuca Mts., Santa Rita Mts. Apache to Coconino counties south to Pima and Cochise counties. Montana and North Dakota south to Arizona and New Mexico. Petran.

The Centella Point observation in the Chiricahua Mts. is a juvenile and the identification may be in error.

### ***Pinus strobiformis* Engelm. in Wisliz.**

*Pinus reflexa* Engelm., *Pinus flexilis* James var. *reflexa* Engelm. in Rothr., *Pinus ayacahuite* C.A. Ehrenb. var. *brachyptera* Shaw, *Pinus ayacahuite* var. *reflexa* (Engelm.) Voss, *Pinus ayacahuite* var. *strobiformis* Sarg. ex Lemmon.

Southwestern white pine, Mexican white pine  
6,000 - 9,790 [10,000] ft. May, fruits Jun, - [Sep].  
Needleleaf evergreen tree, mesophanerophyte; leptophyll, sclerophyll. Common, rarely in pure stands. Moist rocky slopes at higher elevations but becoming confined to cool drainages and north-facing slopes at lower elevations. *Pseudotsuga menziesii*, *Pinus arizonica*, *Acer negundo*, *Quercus hypoleucaoides*, *Juniperus deppeana*.

Chiricahua Mts: West Turkey Creek; Onion Saddle; Morse Canyon; Rustler Park; John Long Canyon; Greenhouse Canyon; Wilderness Area. Also Animas Mts., Huachuca Mts., Pinaleno Mts., Santa Catalina Mts. and Santa Rita Mts. Southern New Mexico, southern Arizona, and northern Mexico. Madrean.

Taxonically difficult. Seeds remain viable for several years and are 80% viable. Tree is long lived and slow growing.

Exsicc: CHWA [Leithliter 104, 366].

### ***Pseudotsuga menziesii* (Mirb.) Franco var. *glauca* (Beissn. in Jager & Beissn.) Franco**

*Pseudotsuga taxifolia* (Poir.) Britt. var. *glauca*

(Mayr) Sudw., *P. taxifolia* (Lamb.) Britt. var. *glauca* (Beissn.) Sudw.

#### Douglas-fir

[5,000] 6,500 - 9,790 [10,000] ft. Fruits Aug. - Sep.  
Needleleaf evergreen tree, megaphanerophyte; leptophyll, sclerophyll. Common, sometimes forming pure stands. Mesic canyons and intermediate upland slopes. Grows well on a variety of soils provided that they are moist and well drained. *Pinus arizonica*, *P. strobiformis*, *P. discolor*, *Quercus hypoleucaoides*, *Q. grisea*, *Q. rugosa*, *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Rhyolite Canyon; West Turkey Creek; Pinery Canyon; Rustler Park; Greenhouse Trail; Wilderness Area. Also Animas Mts., Huachuca Mts., Pinaleno Mts., Santa Catalina Mts., Santa Rita Mts. and Sierra Ancha, Sierra de los Ajos. Northern and eastern Arizona. British Columbia to western Texas, New Mexico, Arizona, California, and northern Mexico. Petran, Oregonian, Sierran-Cascadian.

Excellent timber species. Seeds eaten by grouse and Douglas squirrel. Needles browsed by deer occasionally. In good habitats, may be largest tree in Arizona. Matures at 9 yrs. Live 200-600 yrs. Sensitive to extreme cold and dry wind. Pioneers on burn sites.

Exsicc: CHIR [Clark 8126, Reeves 1865, 2823, 3634, 4256]. SWRS [Martin s.n.]. CHWA [Leithliter 22, 86, 367].

## ANGIOSPERMAE

### ACANTHACEAE—Acanthus Family.

A family of perennial armed or unarmed herbs or shrubs, rarely trees; some are lianas, xerophytes, aquatics or mesophytes. A large pantropical family of about 240 genera and over 2,200 species. There are 4 centers of distribution: Indo-Malaya, Africa, Brazil, and Central America northward into Mexico. Relatively few are found in the United States.

### ***Anisacanthus thurberi* (Torr.) Gray**

*Drejera puberula* Torr.

Chuparosa, desert-honeysuckle

[2,500] 4,600 - 5,500 ft. [Mar] May - Oct. Broadleaf deciduous shrub, nanophanerophyte; nanophyll, orthophyll. Uncommon in full sun on all but the hottest south-facing slopes; at low elevations in partial shade, mesoriparian drainages; gavelly or sandy well-drained soils; often on roadsides and disturbed soils. *Acacia greggii*, *Mimosa aculeaticarpa* var. *biuncifera*, *Bouteloua gracilis*, *B. curtipendula*, *B. repens*, *B. hirsuta*, *Haplopappus tenuisectus*, *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Organ Pipe formation; Fort Bowie Nat. Historic Site in lower South Canyon Wash; 1.5 mi. east of Portal; East Turkey Creek; Bonita Canyon at Rhoda Riggs' Ranch. Also Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Southern Apache County, to Yavapai County, south to Cochise, Santa Cruz, Pima, and Yuma counties. Southwestern New Mexico, Arizona, and northern Mexico. Sonoran.

Exsicc.: CHIR [Reeves 2772, 2943, 3392]. FOBO [MHoy 194]. SWRS [Pough s.n., SWRS 1959-107]. NMC [Blumer 1304].

### ***Carlowrightia arizonica* Gray**

[2,500] - 5,300 ft. [Apr] - May. Suffrutescent shrub, suffrutescent chamaephyte; leptophyll, orthophyll. Common on sunny canyon, pediment, and alluvial slopes; shallow rocky gravelly sometimes disturbed soils of open canyons. *Isocoma tenuisectus*, *Mimosa aculeaticarpa* var. *biuncifera*, *Bouteloua gracilis*, *B. curtipendula*, *Quercus emoryi*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill east of Overlook. Also Mule Mts., Santa Catalina Mts. Graham, Maricopa, Pinal, Cochise, Santa Cruz, Yuma, and Pima counties. Southern Arizona and northern Mexico. Sonoran.

Exsic.: FOBO [MHoy 171]. SWRS [Mouat s.n.]

### **Carlowrightia linearifolia** (Torr.) Gray

*Schaueria linearifolia* Torr.

[2,500] ft. - 5,000 ft. Aug - Oct. Suffrutescent shrub, nanophanerophyte; leptophyll, orthophyll. Valley floors, along arroyos; sandy soil, disturbed ground.

Chiricahua Mts.: near Portal, San Simon Valley 10 mi. northeast of Portal. Also Animas Mts. Graham County, near Safford and Matthews, apparently also at Cascabel in Cochise County. Western Texas to southern Arizona. Chihuahuan.

Exsic.: SWRS [Luetke s.n.]. ARIZ [Barr 61-284, 62-841, 64-410].

### **Dyschoriste decumbens** (Gray) Kuntze

*Calophanes decumbens* Gray

[4,000] 5,150 - 5,400 ft. Jun - Aug. Perennial deciduous forb, spreading hemicyclopedia; nanophyll, orthophyll. Uncommon on sunny, rocky slopes. Tolerates limestone. *Pinus engelmannii*, *P. discolor*, *P. deppeana*, *Quercus arizonica*, *Q. rugosa*, *Juniperus erythrocarpus*, *Plantanus wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station. Also Huachuca Mts., Animas Mts. Cochise, Santa Cruz, and Pima counties. Western Texas, southern Arizona, and Chihuahua, Mexico. Madrean, Sonoran.

Exsic.: CHIR [Clark 8619, Reeves 2751, 4121, 4291]. SWRS [Ordway 128].

## **ACERACEAE—Maple Family.**

A family of trees or shrubs with 2 genera and about 150 species, with all but 2 species belonging in *Acer*. The maples are mostly indigenous to the upland regions of the northern hemisphere with about 15 species native to the United States.

### **Acer glabrum** Torr. var. **neomexicanum**

(Greene) Kearney & Peebles

*Acer glabrum* ssp. *neomexicanum* (Greene) E. Murr.,

*A. glabrum* var. *parviflorum* E. Murr., *A.*

*neomexicanum* Greene, *A. neomexicanum* ssp.

*neomexicanum* (Greene) E. Murr.

Rocky Mountain maple

6,000 - 9,510 ft. May - Jul. Broadleaf deciduous tree, microphanerophyte; mesophyll, orthophyll. Common on sandy loam soils on mesic slopes at higher elevations and mesoriparian canyon benches at lower elevations; full sun but is shade tolerant. *Pseudotsuga menziesii*, *Arbutus arizonicana*, *Platanus wrightii*, *Pinus engelmannii*, *P. arizonicana*.

Chiricahua Mts.: South Fork Cave Creek; Wilderness Area, along Crest Trail; Barfoot Park. Also Pinaleno Mts., Santa Catalina Mts., Sierra de los Ajos. Apache and Coconino counties south to Cochise and Pima counties. South Dakota to Alaska, south to New Mexico, Arizona, and California. Rocky Mountain, Madrean.

Exsic.: SWRS [SWRS 1958-187]. CHWA [Leithliter 12, 61, 597, 625, 725, 779, 789].

### **Acer grandidentatum** Nutt. ex Torr. & Gray

var. **sinuosum** (Rehd.) Little

*Acer barbatum* Michx. var. *grandidentatum* (Nutt.)

Sarg., *A. brachypterum* Woot. & Standl., *A.*

*grandidentatum* var. *brachypterum* (Woot. &

Standl.) Palmer, *A. saccharum* Marsh. ssp.

*brachypterum* (Woot. & Standl.) E. Murr., *A.*

*saccharum sinuosum* (Rehd.) Sarg., *A. sinuosum*

Rehd.

Big tooth maple, palo de azucar

[4,500] 6,100 - 7,300 ft. Apr - Oct. Broadleaf deciduous tree, microphanerophyte; mesophyll, orthophyll. Common on mesic slopes at higher elevations, mesoriparian canyon habitats at lower elevations; wet rocky sandy soil. *Cupressus arizonica*, *Platanus wrightii*, *Pinus engelmannii*, *P. arizonicana*, *Quercus arizonica*, *Q. rugosa*, and *Q. hypoleucoides*.

Chiricahua Mts.: Greenhouse Trail; south fork Cave Creek; Wilderness Area. Also Animas Mts., Pinal Mts., Pinaleno Mts., Santa Catalina Mts., Sierra Ancha, Huachuca Mts., Sierra de los Ajos. Mohave and Coconino counties, southeast and south to the mountains of Greenlee, Cochise, Pima, and Yavapai counties. Montana and Idaho to western Texas, New Mexico, Arizona, and Sonora, Mexico. Rocky Mountain.

Exsic.: SWRS [Ordway 190, SWRS 1960-184]. CHWA [Leithliter 688].

### **Acer negundo** L. var. **interius** (Britt.) Sarg.

*Acer interius* Britt., *A. negundo* ssp. *interius* (Britt.)

Löve & Löve, *Negundo aceroides* (L.) Moench ssp.

*interius* (Britt.) Löve & Löve, *Negundo interius*

(Britt.) Rydb.

Box-elder

[3,500] 5,000 - 8,040 [9,100] ft. Apr - Jun. Broadleaf deciduous tree, microphanerophyte; orthophyll, mesophyll. Uncommon on mesic shaded or partly shaded slopes; moist rocky soils. *Quercus hypoleucoides*, *Q. arizonica*, *Pinus arizonica*, *P. engelmannii*, *Pseudotsuga menziesii*, *Cupressus arizonica*.

Chiricahua Mts.: East Turkey Creek below Paradise; Wilderness Area. Also Animas Mts., Pinal Mts., Pinaleno Mts., Santa Catalina Mts., and Sierra Ancha. Throughout most of the United States. Sonora, Mexico. Temperate.

Exsic.: SWRS [SWRS 1958-10]. CHWA [Leithliter 7109B].

## **AGAVACEAE—Agave Family.**

A family of eleven genera with about 95 species. The family is economically important as a source of fiber, food, tequila, and steroid hormones.

### **Agave palmeri** Engelm.

Century plant

[3,500] 5,000 - 7,000 [7,500] ft. Jun - Sep. Monocot rosette shrub, rosette chamaephyte; mesophyll, succulent. Common on warmer woodland and chaparral slopes; arroyo woodlands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill northeast of overlook; Portal to Paradise road. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Pinaleno Mts., Sierra de los Ajos. Graham, Gila, Santa Cruz, Cochise, and Pima counties. New Mexico, southern Arizona, and Sonora, Mexico. Madrean.

Exsic.: CHIR [Reeves 8227, Reeves 3158, 3422]. SWRS [Walker s.n.]. FOBO [MHoy 329].

### **Agave parryi** Engelm.

Century plant

[4,500] 6,000 - 8,040 ft. Jun - Sep. Monocot rosette shrub, rosette proto-chamaephyte; mesophyll, succulent. Uncommon in forest and woodland openings on north-facing slopes at higher elevations; mesoriparian canyon forests at lower elevations.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on Bowie Mountain; near summit of Silver Peak; John Long Canyon; Wilderness Area. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Pinaleño Mts., Sierra de los Ajos. Southern Coconino County, Yavapai County to Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and northern Mexico. Madrean.

Exsic.: CHIR [Clark 8154, Reeves 3649]. SWRS [Walker s.n.]. CHWA [Leithliter 444, 671]. FOBO [MHoy 253].

### **Dasyllirion wheeleri** S. Wats.

Sotol, desert spoon

[4,000] 5,100 - 7,300 ft. [May] Jun - Jul [Aug]. Monocot rosette shrub, rosette phanerophyte; microphyll, sclerophyll. Common on grassy slopes and woodland openings; prefers mesoriparian habitats at lower distributional limit.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; Fort Bowie Nat. Historic Site at overlook; Portal to Paradise road; Cypress Gap Trail. Also Huachuca Mts., Rincon Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Greenlee, Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Madrean.

Exsic.: CHIR [Clark 8159, Reeves 1555, 3487]. SWRS [SWRS 1958-153].

### **Nolina microcarpa** S. Wats.

Beargrass, sacahuista

[3,000] 5,000 - 7,300 ft. [May] Jun - Jul. Monocot rosette shrub, rosette chamaephyte; microphyll, sclerophyll. Common in sun or shade; rocky south-facing slopes at higher elevations and mesoriparian canyons lower down. *Pinus leiophylla*, *P. discolor*, *P. engelmannii*, *Piptochaetium fimbriatum*, *Quercus arizonica*, *Q. hypoleucoes*, *Juniperus deppeana*, *Arbutus arizonica*, *Platanus wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon, Pickett Park; Fort Bowie Nat. Historic Site, in Apache Pass, Massacre Site; Portal to Paradise road; Wilderness Area; Monte Vista Trail. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Central and southeastern counties of Arizona. Western Texas to Arizona, northern Mexico. Madrean.

This genus is proposed to move into *Nolinaceae*.

Exsic.: CHIR [Clark 8100, Reeves 1217, 1303, 2958, 3537, 3842]. SWRS [SWRS 1959-35]. CHWA [Leithliter 42].

### **Yucca baccata** Torr. var. *brevifolia* (Schott ex Torr.) L. Benson & Darrow

*Yucca arizonica* McKelvey, *Y. brevifolia* Schott ex Torr., *Y. confinis* McKelvey, *Y. thornberi* McKelvey, *Y. treleasei* Macbr.

Banana yucca, datil

[3,000] 5,000 - 7,150 [8,000] ft. [Apr] May - Jun [Jul]. Rosette phanerophyte, monocot rosette phanerophyte shrub; microphyll, sclerophyll. Uncommon on sunny or partly sunny slopes, along mesoriparian drainages and arroyos, not deep shade tolerant; rarely on very thin rocky soil; tolerates some soil

disturbance. *Pinus arizonica*, *P. discolor*, *Quercus emoryi*, *Juniperus erythrocarpa*, *Juniperus deppeana*, *Ericameria laricifolia*, *Nolina microcarpa*, *Prosopis glandulosa*, *Agave palmeri*, *Mimosa aculeaticarpa* var. *biuncifera*, *Muhlenbergia emersleyi*, *Schizachyrium cirratum*, *Bouteloua curtipendula*, *Acacia greggii*, *Psilosiphon cooperi*, *Fouquieria splendens*.

Rincon Mts., Santa Catalina Mts., Animas Mts. Southwestern Gila, southeastern Pinal, Cochise, and Pima counties. Known only from southern Arizona. Madrean.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill south of Fort Bowie ruins; Cave Creek; Portal to Paradise road; north slope of Blue Mtn. Also Pinaleño Mts., Santa Catalina Mts., Rincon Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Apache to Mohave, Yavapai, Pinal, Cochise, Pima, and Gila counties. Southwestern Colorado, southern Utah and Nevada, and southwestern Texas to southeastern California. Great Basin, Mohavian, Madrean.

Type from vicinity of Tubac.

Exsic.: CHIR [Fish 60; Reeves 2894, 3047, 3981]. FOBO [MHoy 195]. SWRS [SWRS 1959-525]. ASU [Lehto 3373A].

### **Yucca elata** Engelm.

Soaptree yucca, palmilla

[1,500] 4,000 - 5,200 [6,000] ft. [May] Jun - Jul. Rosette phanerophyte, monocot rosette shrub; microphyll, sclerophyll. Rare on grass or scrub slopes and flats, desert bajadas and washes; may inhabit disturbed ground. *Quercus turbinella*, *Juniperus erythrocarpa*, *Aloysia wrightii*, *Agave palmeri*, *Cercocarpus montanus*, *Yucca baccata*, *Nolina microcarpa*, *Bouteloua curtipendula*, *B. hirsuta*, *Hilaria belangeri*, *Eragrostis intermedia*, *Muhlenbergia emersleyi*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site along Apache Pass Road; Portal. Also Rincon Mts., San Simon Valley, Rodeo, Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Graham, Gila, Yavapai, eastern Maricopa, Cochise, Santa Cruz, and Pima counties. Southwestern Texas to central and southern Arizona. Sonora, Mexico. Chihuahuan.

Exsic.: CHIR [Clark 8247, Reeves 3418]. FOBO [MHoy 326]. SWRS [Roth s.n.].

### **Yucca schottii** Engelm.

*Yucca macrocarpa* Engelm. non Merriam, *Y. puberula* Torr.

Hoary yucca

[4,000] 5,400 - 7,460 ft. [Apr] May - Sep. Rosette shrub, monocot rosette shrub; microphyll, sclerophyll. Common on mesic slopes in open woodlands and in mesoriparian canyons. *Pinus engelmannii*, *P. discolor*, *Quercus hypoleucoes*, *Q. arizonica*, *Q. emoryi*, *Dasyllirion wheeleri*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; Portal to Paradise road; 6 mi. south of Rustler Park on road; Cave Creek Canyon; Wilderness Area. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Pinal, Cochise, Santa Cruz and Pima counties. Southwestern New Mexico, southeastern Arizona, northern Sonora. Madrean.

Exsic.: CHIR [Clark 8129, Reeves 1281, 3218, 3458, 3838]. SWRS [Ecton 24, SWRS 158-231]. CHWA [Leithliter 446, 670].

### **AIZOACEAE—Ice Plant Family**

A family of annual or perennial herbs, or low shrubs. Tropical and subtropical arid regions but centered in South and southwestern Africa with a small center in southern Australia. More than 100 genera of about 600 species with 8-9 New World genera mostly in

the southwestern and Pacific areas.

### **Trianthema portulacastrum L.**

#### Pigweed

[1,000] 5,100 - 5,200 ft. [Jun] Aug - [Oct] Aug.

Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon in grassland and along arroyos.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site. Also Santa Catalina Mts. Coconino, Greenlee, Maricopa, Pinal, Cochise, and Pima counties. Widely distributed in tropical and subtropical America; Eastern Hemisphere. Alien. Latin American.

Exsicc.: CHIR [Reeves 1648, 4093, 4103]. FOBO [MHoy 547].

### **AMARANTHACEAE—Amaranth Family.**

A family of annual or perennial herbs (rarely shrubs), trees, or vines. Comprised of 64 genera and about 800 species, most common in tropical regions and especially tropical America and Africa. Nearly one-third of the genera are monotypic, with 5 indigenous to the New World.

### **Alternanthera pungens Kunth**

*Alternanthera repens* (L.) Kuntze, *A. achyrantha* (L.)

R. Brown ex Sweet, *Achyranthes leiantha* (Seub.)

Standl., *A. repens* L.

[2,500] - 5,200 [5,500] ft. Jun. Perennial deciduous forb, spreading hemicryptophyte; nanophyll, orthophyll. Uncommon in grassland, a roadside weed.

Chiricahua Mts.: Chiricahua Nat. Mon., Sierra de los Ajos. Cochise, Santa Cruz, and Pima counties. South Carolina to Arizona, south to tropical America. Alien?

Exsicc.: CHIR [Reeves 2770].

### **Amaranthus blitoides S. Wats.**

*Amaranthus graecizans sensu auctt.* non L.

#### Pigweed

[1,000] - 5,400 [8,000] ft. Sep. Scapose or leafy-stemmed therophyte, summer annual forb. Uncommon on cool north-facing slopes and mesoriparian canyon walls, disturbed ground.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts., Sierra Ancha, Pinal Mts., Sierra de los Ajos. Navajo, Coconino and Mohave counties, south to Cochise, Santa Cruz, and Pima counties. Widely distributed in North America and Mexico. Temperate.

Exsicc.: CHIR [Clark 9259, Reeves 4482].

### **Amaranthus fimbriatus (Torr.) Benth. ex S.**

Wats.

#### Fringed amaranth

[1,000] - [4,000] 4,500 ft. Scapose or leafy-stemmed or leafy-stemmed therophyte. Sandy washes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Pinaleño Mts. Western Coconino County and Mohave County, south to Greenlee, Gila, Cochise, Pima, and (probably) Yuma counties. Southern Utah and Nevada to Arizona and northwestern Mexico. Great Basin, Sonoran.

Exsicc.: FOBO [MHoy s.n.].

### **Amaranthus hybridus L.**

*Amaranthus chlorostachys* Willd., *A. incurvatus* Tim. ex Gren. & Godr., *A. patulus* Bertol.

#### Spleen amaranth

[1,000] - 5,000 [8,000] ft. Jun - Aug. Summer annual forb, scapose or leafy-stemmed therophyte. Uncommon on dry slopes, common weed in cultivated land. Tolerates limestone soils.

*Cercocarpus montanus*, *Nolina microcarpa*, *Cenothus greggii*.

Chiricahua Mts.: Chiricahua Nat. Mon. on Bonita Faraway Hills. Also Huachuca Mts., Pinaleño Mts., Sierra Ancha, Santa Rita Mts. Coconino County, Yavapai County, Maricopa County, Pinal County and Cochise County. Widely distributed in North America. Temperate.

Exsicc.: ARIZ [Moir 534].

### **Amaranthus palmeri S. Wats.**

#### Careless-weed, red-root, quelite, bledo

[1,000] 5,000 - 7,200 ft. Aug - Oct. Summer-annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Common on sunny south-facing slopes and along arroyos; loams and silty soils; often on irrigated lands and disturbed soils.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on Parade ground, around ruins; 2 mi. east of Onion Saddle. Also Huachuca Mts., Santa Catalina Mts., Animas Mts., Pinaleño Mts., Sierra de los Ajos. Coconino, Yavapai, and Greenlee counties, south to Cochise, Santa Cruz, Pima, and Yuma counties. Kansas to Texas, Arizona, California, and south to central Mexico. Great Plains, Chihuahuan, Madrean, Sonoran, Californian.

Exsicc.: CHIR [Clark 8613, Reeves 1230, 1585, 4199]. FOBO [MHoy 288, 347]. SWRS [n.c. s.n.].

### **Amaranthus powellii S. Wats.**

*Amaranthus bouchonii* Thell., *A. bracteosus* Uline & Bray, *A. retroflexus* L. var. *powellii* (S. Wats.) Boivin

[3,000?] - 5,400 [8,000] ft. Sep. Scapose or leafy-stemmed therophyte, summer-annual forb. Sunny south-facing slopes, flats, draws, and washes; loamy soils; often on disturbed ground and irrigated fields.

Chiricahua Mts.: Southwestern Research Station. Also Sierra Ancha, Santa Catalina Mts., Animas Mts., Pinaleño Mts. Apache, Navajo, and Coconino counties, south to Cochise and Yavapai counties. Wyoming to Oregon, Chihuahua, and Arizona. Western.

Exsicc.: SWRS [s.a., s.n.].

### **Amaranthus pringlei S. Wats.**

*Amaranthus torreyi* (Gray) S. Wats.

#### Pigweed

[3,500] - 5,500 ft. Aug. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon in woodland openings, draws and along arroyos.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts., Santa Catalina Mts. Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona, and northern Mexico. Chihuahuan, Sonoran.

Exsicc.: CHIR [Reeves 1224].

### **Froelichia arizonica** Thornb. ex Standl.

#### Snake-cotton

[3,500] 4,700 - 5,400 ft. Aug - Sep. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon on rocky south-facing slopes, benches, flats, broad mesoriparian canyons and arroyos. *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. in lower Pickett Canyon; Fort Bowie Nat. Historic Site at parking lot; along Portal - San Simon road. Also Huachuca Mts., Sierra Ancha, Mule Mts., Animas Mts., Pinaleno Mts. Gila, Cochise, Santa Cruz, and Pima counties. Western Texas, southern Arizona, northern Mexico. Chihuahuan.

Exsicc: CHIR [Reeves 4005]. FOBO [MHoy 273, s.n.]. SWRS [Walker s.n.]

### **Froelichia gracilis** (Hook.) Moq.

*Froelichia braunii* Standl., *Oplotheca gracilis* Hook.  
Snake-cotton

[4,500] - 5,400 [5,500] ft. Aug. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon in gravelly openings in grassland scrub and woods, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Paradise cemetary. Also Sierra Ancha, Animas Mts., Pinaleno Mts. Navajo and Yavapai counties southeastward to Cochise County. Iowa to Colorado, south to Chihuahua and Arizona. Great Plains, Chihuahuan.

Exsicc: CHIR [Clark 8571, Reeves 1494A]. SWRS [Walker s.n.]

### **Gomphrena caespitosa** Torr.

*Gomphrena viridis* Woot. & Standl.  
Globe-amaranth, ball-clover

[3,500] 4,900 - 5,400 ft. Apr - Aug. Perennial deciduous forb, semirosette hemicryptophyte. Common on sunny slopes and flats; disturbed grounds.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site along trail; Paradise. Also Huachuca Mts., Pinaleno Mts., Santa Catalina Mts., Animas Mts., Santa Rita Mts. Coconino County to Greenlee, Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and northern Mexico. Chihuahuan, Great Basin.

Exsicc: CHIR [Clark 9048, Reeves 2758, 2914, 4195]. FOBO [MHoy 89]. SWRS [Walker s.n.]

### **Gomphrena nitida** Rothr.

Globe-amaranth

[4,000] 5,200 - 5,650 [6,000] ft. Aug - Sep. Summer-annual forb, scapose or leafy-stemmed therophyte. Common on sunny hillsides and flats.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station. Also Huachuca Mts., Animas Mts. Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona, and northern Mexico. Madrean.

Exsicc: CHIR [Borell 11, Clark 8630, Lehto 2302, Rapson s.n., Reeves 972, 1709, 4195]. SWRS [Roth s.n., Ordway 56].

### **Gomphrena sonorae** Torr.

Globe-amaranth

[3,000] 5,000 - 5,400 [5,500] ft. Aug - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon on sunny and partly sunny slopes, benches, flats, ravines and arroyos.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts., Santa Catalina Mts. Gila County to Cochise, Santa Cruz, and Pima counties. Arizona and northern Mexico. Sonoran.

Exsicc: CHIR [Moir 526]. SWRS [Luetcke s.n.]

### **Guillemina densa** (Humb. & Bonpl. ex Willd.) Moq.

*Brayulinea densa* (H. & B.) Small

[2,500] 4,900 - 5,400 [6,000] ft. May - Aug [Oct]. Perennial

deciduous forb, spreading hemicryptophyte. Common on sunny flats and slopes, beneath woodland canopies, along arroyos; on disturbed sites. *Pinus discolor*, *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in South Canyon. Also Huachuca Mts., Santa Catalina Mts., Pinal Mts., Mule Mts., Animas Mts., Pinaleno Mts. Greenlee, Graham, Graham, Gila, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona, south to South America. Latin American.

Exsicc: CHIR [Borell 17, Reed 224, Reeves 3416, 3510, 4027, 4130]. FOBO [MHoy 230]. SWRS [Roth s.n.]

## **ANACARDIACEAE—Cashew Family.**

A family of trees or shrubs, usually with resinous bark; 73 genera and about 600 species of both hemispheres but extending into the north temperate areas of Eurasia and North America but distribution chiefly tropical. In the United States the family is widespread.

### **Rhus glabra** L.

*Rhus cismontana* Greene, *R. albida* Greene, *R. elegantula* Greene, *R. calophylla* Greene, *R. Ashei* (Small) Greene, *R. Borealis* (Britt.) Greene, *R. glabra* var. *borealis* Britt., *R. glabra* var. *lacinata* Carr., *R. glabra occidentalis* Torr. Sumac, scarlet sumac, smooth sumac

[5,000] - 7,500 ft. [May] Jun - Sep. Broadleaf deciduous shrub, nanophanerophyte. Uncommon along mesoriparian canyons and on mesic slopes. *Cypressus arizonica*, *Quercus rugosa*, *Q. Hypoleucoes*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; Cave Creek Canyon near South Fork; Wilderness Area. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Pinal Mts., Animas Mts., Pinaleno Mts., Sierra de los Ajos. Apache County to Coconino County, south to Cochise and Pima counties. Canada to Florida, New Mexico, Arizona, Sonora and Chihuahua, Mexico. Temperate.

Fruits eaten by wildlife.

Exsicc: CHIR [Clark 8229]. SWRS [Barr 66-172]. CHWA [Leithliter 727].

### **Rhus microphylla** Engelm. ex Gray

Sumac

[3,500] 3,880 - 5,300 [6,000] ft. Mar - Jun. Broadleaf deciduous shrub, microphanerophyte; nanophyll, sclerophyll. Uncommon in woodlands, savannas, grasslands and along arroyo woodlands.

Chiricahua Mts.: Chiricahua Nat. Mon. in lower Bonita Canyon; Fort Bowie Nat. Historic Site in Siphon Canyon; head of Tex Canyon; Cave Creek; along Portal - San Simon road; Portal; San Simon Cienega. Also Santa Catalina Mts., Mule Mts., Animas Mts. Greenlee, Cochise, and eastern Pima counties. Western Texas to southeastern Arizona and northern Mexico. Chihuahuan, Madrean.

**Rhus trilobata** Nutt. **pilosissima** Engelm. *Rhus aromatica* Ait. ssp. *pilosissima* (Engelm.) W.A. Webber, *R. aromatica* var. *mollis* Ashe, *R. aromatica* var. *pilosissima* (Engelm.) Shinners, *R. trilobata* var. *malacophylla* (Greene) Munz  
Squaw berry, squaw bush, lemonade berry  
2,500 - 7,300 [7,500] ft. [Feb] Mar - Jul [Aug]. Broadleaf

deciduous shrub, nanophanerophyte; microphyll, orthophyll. Common on mesic upland slopes and bottoms. *Pinus leiophylla*, *P. arizonica*, *P. engelmannii*, *Piptochaetium fimbriatum*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; Cave Creek; West Turkey Creek; Rucker Canyon; Portal-Paradise road; Crystal Cave Creek; Herb Martyr Dam; Wilderness Area. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Animas Mts., Peloncillo Mts., Pinaleno Mts., Santa Catalina Mts., Sierra de los Ajos. Oregon to Missouri, Texas to California, south to Mexico. Western.

Indians used the stems in basketry and ate the berries and used them as a dye mordant. Plants are browsed. Benson & Darrow (1981).

Exsicc: CHIR [Reeves 1000, 1320, 3171, 3621, 3683, Clark 8289]. FOBO [MHoy 200, 201]. SWRS [Roth s.n., SWRS 1960-285, 1958-846]. CHWA [Leithliter 431, 639].

Exsicc: CHIR [Clark 8220]. FOBO [MHoy 202]. SWRS [SWRS 1959-225, Roth s.n.].

### **Rhus virens** Lindh. ex Gray ssp. **choriophylla** (Woot. & Standl.) Young *Rhus choriophylla* Woot. & Standl.

#### Sumac

[4,000] 5,000 - 6,100 ft. Apr [Jul] - Oct. Broadleaf evergreen shrub, nanophanerophyte; microphyll, sclerophyll. Common in mesoriparian drainages, scrub savanna, and grassland; tolerates shade and limestone soils. *Cupressus arizonica*, *Juniperus deppeana*, *Pinus engelmannii*, *P. leiophylla*, *P. discolor*, *Piptochaetium fimbriatum*, *Quercus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Pickett Park, Rhyolite Canyon; Fort Bowie Nat. Historic Site in Cut Off Canyon; Portal to Paradise road; Blue Mtn. Also Huachuca Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Cochise, Santa Cruz, and Pima counties. Southern New Mexico, southeastern Arizona, and Sonora, Mexico. Madrean.

Exsicc: CHIR [Clark 8094, Reeves 1340, 2386]. FOBO [MHoy 114]. SWRS [Walker s.n., Roth s.n.].

### **Toxicodendron radicans** (L.) Kuntze ssp. **divaricatum** (Greene) Gillis

*Rhus radicans* var. *divarcatum* (Greene) Barkl.  
Poison-ivy

[3,000] 5,000 - 6,800 [8,000] ft. [Apr] May - Jun [Sep]. Woody vine, woody-stemmed vine; microphyll, orthophyll. Common in oak woods in lower canyons and on stream benches.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; Fort Bowie Nat. Historic Site in upper Siphon Canyon; West Turkey Creek; upper Pine Canyon; Cave Creek; Rucker Canyon. Also Huachuca Mts., Sierra Ancha, Animas Mts., Sierra de los Ajos. Apache to Coconino counties, south to Cochise, Santa Cruz, and Pima counties. Throughout most of North America. Temperate.

Contains urushiol, one of the most allergenic substances known. The fruits are eaten by wildlife causing no ill effects. The milky juice is poisonous when taken internally.

Exsicc: CHIR [Clark 8095, Reeves 2845, 3169, 4523]. FOBO [MHoy 161]. SWRS [Roth s.n.].

### **Toxicodendron rydbergii** (Small ex Rydb.) Greene

*Rhus radicans* L. var. *ridbergii* (Small ex Rydb.) Rehd.

Poison-ivy

[5,000] 6,000 - 8,040 ft. [Apr] Jun - Aug [Sep]. Woody

vine. Woody-stemmed vine; microphyll, orthophyll. Uncommon in mesic habitats, especially along shaded drainages, sandy or gravelly soil. *Cupressus arizonica*, *Pinus engelmannii*, *Platanus wrightii*, *Quercus rugosa*, *Q. hypoleucoides*, *Rhus aromatica*, *Rhamnus californicus*. Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Park; Fort Bowie Nat. Historic Site; Wilderness Area. Also Pinaleno Mts., Santa Catalina Mts. Temperate.

Contains urushiol, one of the most allergenic substances known for humans. Wildlife eat the fruits without ill effect.

Exsicc: CHIR [Reeves 3125, 3400]. CHWA [Leithliter 672].

### **APIACEAE (UMBELLIFERAE)**—Parsley Family

A family of mostly biennial or perennial herbs, occasionally suffrutescent, rarely shrubs; stems usually with a large pith that shrinks or dries at maturity. About 200 genera and 2,900 species, mostly of the northern hemisphere, and represented in this country by 75 genera and 380 species. Economically, the family is important for food, condiments, and ornamentals. Some members possess resins or alkaloids in lethally poisonous quantities, especially in the roots and fruits. Others are cultivated for food, including: carrot (*Daucus*), parsnip (*Pastinaca*), celery (*Apium*), and parsley (*Petroselinum*); for flavoring: anise (*Pimpinella*), caraway (*Carum*), dill (*Anethus*), chervil (*Anthriscus*), fennel (*Foeniculum*), and lovage (*Levisticum*). Poisonous genera are: water hemlock (*Cicuta*), poison hemlock (*Conium*), and fool's parsley (*Aethusa*). Ornamentals are: (*Angelica*), sea holly (*Eryngium*), and cow parsnip (*Heracleum*).

### **Berula erecta** (Huds.) Coville

*Berula erecta* var. *incisa* (Torr.) Cronq., *B. incisa* (Torr.) G.N. Jones, *B. pusilla* (Nutt.) Fern., *Siella erecta* (Huds.) M. Pimen.

#### Water parsnip

4,000 - [7,000] ft. 'Jun and probably later' - Jul. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Found along slow running streams and springs.

Chiricahua Mts.: 4 mi. north of Portal on road. Also Animas Mts., Canelo Hills. Apache County to Coconino County, south to Cochise and Santa Cruz counties. Widely distributed in North America; Eurasia. Holarctic.

Exsicc.: SWRS [Roth s.n.].

### **Cymopterus multinervatus** (Coulter and Rose)

Tidestrom

4,000 - [5,000 - 5,100 [7,000] ft. Feb [Mar] - Apr [May]. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Found on grasslands, also dry desert plains and hills. *Agave*, *Yucca*, *Mammillaria*.

Chiricahua Mts.: Chiricahua Nat. Mon. west of monument; Fort Bowie Nat. Historic Site on north side of Overlook; 5 mi. north of Portal. Animas Mts. Mohave County. Southern Utah to Texas, northern Mexico, Arizona, and southeastern California. Southwestern.

Exsicc.: CHIR [Reeves 2413A, 2540]. FOBO [MHoy 3]. SWRS [Ordway s.n.].

### **Daucus pusillus** Michx.

American carrot, rattlesnake-weed

[4,000 or lower] 5,000 ft. [Mar] May - [May] Jul. Winter-

annual forb, semirosette therophyte. Uncommon on dry uplands. Chiricahua Mts.: Fort Bowie Nat. Historic Site northeast of Overlook. Sierra Ancha, Santa Catalina Mts., Pinaleño Mts., Rincon Mts., Santa Rita Mts. Greenlee County to Yavapai and Mohave counties, south to Cochise, Santa Cruz, Pima, and (doubtless) Yuma counties. South Carolina to Florida, west to Missouri, Arizona, Washington, California, and Mexico. Temperate.

Exsicc.: FOBO [Mhoy 409]. SWRS [Barnes s.n.].

### **Eryngium heterophyllum** Engelm.

#### *Eryngium wrightii* Gray

[4,000] 4,900 – [6,500] ft. [Aug] – Aug [Oct]. Perennial deciduous forb, semirosette hemicryptophyte; microphyll, orthophyll. Found on plains and along water courses.

Chiricahua Mtns.: West Turkey Creek at junction of road and highway. Also Animas Mts., Canelo Hills, Sierra de los Ajos, Cochise, Santa Cruz, and eastern Pima Counties. Western Texas to southeastern Arizona and Mexico. Madrean

Exsicc.: SWRS [Pough 1961-137].

### **Eryngium lemmoni** Coul. and Rose

#### Eryngo, button-snakeroot

[6,000] – 9,370 ft. Aug – [Oct]. Perennial deciduous forb, semirosette hemicryptophyte; microphyll, orthophyll. Uncommon on rocky slopes.

Chiricahua Mts.: Wilderness area, Monte Vista Peak. Also Huachuca Mts., Animas Mts. Cochise County. Southeastern Arizona and northern Mexico. Madrean

This plant, described a new to science, was collected by J.C. Lemmon and wife in the Chiricahua Mts. (no 17) circa 1881.

Exsicc.: CHWA [Leithliter 99, 500, 643].

### **Ligusticum porteri** (S. Wats.) Coul. and Rose

#### Chuchupate, osha

6,480 – 9,790 [11,500] ft. [Jun] – Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common in forest openings at higher elevations and along canyon bottoms lower down.

Chiricahua Mtns.: Wilderness Area between Flys Peak and Centella Point. Also Pinaleño Mts., Sierra Ancha, Santa Catalina Mts. Apache, Coconino, Yavapai (?), Graham, and Cochise counties. Wyoming to Arizona and Chihuahua. Rocky Mountain.

Exsicc.: CHWA [Leithliter 99, 500-643].

### **Lomatium nevadense** (S. Wats.) Coul. and Rose

[3,000] – 5,200 [7,000] ft. [Mar] Apr – [May]. Perennial deciduous forb, tuberous geophyte; microphyll, orthophyll. Uncommon on benches and rocky slopes. *Bouteloua rothrockii*, *Isocoma tenuisecta*, *Memosa aculeaticarpa* var. *biuncifera*.

Chiricahua Mts.: Chiricahua Nat. Mon.; lower Pinery Canyon. Also, Dragoon Mts., Santa Rita Mts. Coconino and Mohave counties to Greenlee, Graham, Gila, Maricopa, Pima and Cochise counties. Western Utah to Oregon and eastern California, south to western New Mexico, Arizona, and Sonora. Southwestern.

Exsicc.: CHIR [Reeves 2582].

### **Lomatium nevadense** (S. Wats.) Coul. and Rose var. **parishii** (Coul. and Rose) Jepson

*Lomatium nevadense* var. *pseudorientale* (M.E. Jones) Munz

### Parish wild parsley, Indian root

[3,000] 5,000 – 6,200 [7,000] ft Mar – [May]. Perennial deciduous forb, rosette hemicryptophyte. Common on cool moist slopes.

Chiricahua Mtns.: Fort Bowie Nat. Historic Site on hill east of trailer; Paradise, Sierra Ancha, Santa Catalina Mts., Pinaleño Mts. Western Utah to Oregon and eastern California, south to western New Mexico, Arizona, and Sonora. Western

Exsicc.: FOBO [MHoy 76]. SWRS [Roth s.n.].

### **Pseudocymopterus montanus** (Gray) Coul. and Rose

*Cymopterus lemmonii* (Coul. and Rose) Dorn, *Pseudocymopterus tidestromii* Coul. and Rose, *Thaspium montanum* Gray

[5,500] 6,100 – 9,790 [12,000] ft. May – Oct. Perennial deciduous forb, semirosette hemicryptophyte. Common in open pine forest and wooded canyons, becoming more mesic, and finally riparian, at lower elevations. *Pinus arizonica*, *Abies concolor*, *Pseudotsuga mensiesii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Park, far upper Totem Canyon and lower Totem Canyon; Fort Bowie Nat. Historic Site; west of Rustler Park; Brfoot Park; between Rustler Park and Long Park; Wilderness Area; Centella Point. Also Pinaleño Mts., Sierra Ancha, Santa Catalina Mts. Apache County to Coconino County, south to Cochise and Pima counties. Southern Wyoming to western Utah, south to northern Mexico. Rocky Mountain.

Exsicc.: CHIR [Clark 8446, Teeves 1289, 3761, 4229, 4261]. SWRS [Pough 1961-7, 1962-63, Wittmann 32]. CHWA [Leithliter 87, 106, 208, 313, 501, 779]. Repository unknown (Blumer 1365, 1366).

### **Spermolepis echinata** (Nutt. ex DC.) Heller

*Apoium echinata* (Nutt. ex DC.) Benth. and Hook. f. ex S. Wats.

#### Scale seed, wild carrot

[1,000] 4,000 – 5,600 ft. [Feb.] Mar – Apr [May]. Winter-annual forb, semirosette therophyte. Found on disturbed ground.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hillside south of the cemetery; Portal; Galeyville, on old townsite near smelter. Also Santa Catalina Mts., Animas Mts. Graham, Gila, Maricopa, Pinal, Cochise, and Pima counties. Missouri to Louisiana, west to southern Arizona, southern California, and Coahuila. Southwestern, Plains.

Exsicc.: FOBO [MHoy 359]. SWRS [Roth s.n., Walker s.n., SWRS 1959-66].

### **Yabea microcarpa** (Hook. and Arn.) K.-Pol.

*Caccalis microcarpa* Hook. and Arn.

#### California hedge-parsley

[4,500 or lower] [5,000] – 5,100 ft. Mar [Apr] – [May] [Jun] – Winter-annual forb, semirosette therophyte. Common on sunny flats and cool moist slopes, also on rocky or gravelly soils.

Chiricahua Mts.: Chiricahua Nat. Mon. west of monument. Also, Huachuca Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Cococino County and Mohave County to Gila, Santa Cruz, and Pima counties. Idaho to British Columbia, south to Arizona and Baja California. Western.

Exsicc.: CHIR [Reeves 2293].

## **APOCYNACEAE—Dogbane Family.**

A family of trees, shrubs, or herbs in about 300 genera with 1,300 species. Cosmopolitan distribution but most abundant pantropically. Forty-six genera and 203 species are indigenous or naturalized in North America. Only 9 genera and 33 species are indigenous in the United States and 18 genera and 52 species are indigenous in Mexico.

### **Amsonia palmeri** Gray

*Amsonia hirtella* Standl *A. hirtella* var. *pogonosepala* (Woods.) Wiggins, *A. standleyi* Woods.

[1,500] 4,700 - [5,000] ft. [Mar] Apr - [Apr]. Scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Along streams or washes, sandy soil.

Chiricahua Mts.: 1 mi. southeast of Portal. Greenlee County to southern Mohave County, south to Cochise, Pinal, and Maricopa counties. Western Texas to Arizona and Chihuahua. Chihuahuan.

Exsicc: SWRS [Walker s.n.]

### **Apocynum androsaemifolium** L.

*Apocynum scopulorum* Greene

Spreading dogbane, Indian hemp

5,400 - 7,200 [9,000] ft. Jun - [Aug]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon on open north-facing forested slopes at higher elevations but in shade at lower elevations. *Quercus arizonica*, *Pinus engelmannii*.

Chiricahua Mts.: Southwestern Research Station swimming pool; Pine Canyon. Also Pinaleno Mts., Sierra Ancha, Santa Catalina Mts. Apache County to Coconino County, south to Cochise and Pima counties. Southern Canada south to Georgia and Arizona; Sierra Madre at Colonia Garcea, Mexico. Temperate.

Toxic to cattle. Synonymy from: Plants Database; 1992; USDA, SCS, National Plant Materials Center; Beltsville, MD.

Exsicc: SWRS [Morse s.n.]. NMC [Blumer 1543].

### **Apocynum cannabinum** L.

*Apocynum cannabinum* var. *angustifolium* (Woot.)

N. Holmgren, *A. cannabinum* var. *glaberimum* A.

DC., *Apocynum cannabinum* L. var. *hypericifolium*

Gray, *A. cannabinum* var. *nemorale* (G.S. Mill.)

Fern. *A. cannabinum* var. *pubescens* (Mitchell ex R.

Brown) Woods., *A. cannabinum* var. *suksdorffii*

(Greene) Bég. & Bel., *A. hypericifolium* Ait., *A.*

*pubescens* Mitchell ex R. Brown, *A. sibericum* Jacq.,

*A. sibericum* var. *cordigerum* (Greene) Fern., *A.*

*sibericum* var. *salignum* (Greene) Fern., *A. suksdorffii*

Greene, *A. suksdorffii* var. *angustifolium* (Woot.)

Woods.

Dogbane, Indian hemp

[3,000] 5,700 - 6,800 [7,500] ft. [May] Jul - [Sep]. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte; mesophyll, orthophyll. Common in mesic canyons and on talus slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Jesse James Canyon. Also Animas Mts., Santa Catalina Mts., Pinaleno Mts. Apache to Coconino and Yavapai counties, south to Pima and Cochise counties. Throughout the entire United States. Temperate.

American Indians used the bark for cordage. A cardiac stimulant, whose action is similar to digitalis, is made from the leaves. Develops cyanogen which is toxic to sheep, cattle, and

horses both when green and dry.

Exsicc: CHIR [Clark 8945, Reeves 3287, 3669].

### **Haplophyton cimicidum** A. DC.

*Haplophyton cimicidum* var. *crooksii* L. Benson, *H. crooksii* (L. Benson) L. Benson

Cockroach plant, hierba-de-la-cucuracha

[2,000] - 5,200 ft. [Jul] - Aug [Oct]. Suffrutescent shrub, suffrutescent chamaephyte. Rocky slopes and canyons; may prefer, but is not limited to, limestone soils.

Chiricahua Mts.: near Portal. Also Santa Catalina Mts. Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and northern Mexico. Chihuahuan.

Exsicc: SWRS [Barr 61-311].

### **Macrosiphonia brachysiphon** (Torr.) Gray

Rock-trumpet

4,000 - 5,600 ft. Jul - Oct. Suffrutescent shrub, chamaephyte suffrutescent low shrub. Common on sunny south-facing rocky slopes and on flats and disturbed soil. Tolerates limestone.

*Fouquieria splendens*, *Larrea tridentata*, *Acacia*, *Quercus*, *Rhus*, *Juniperus deppeana*, *Agave*, *Prosopis glandulosa*, *Dasyliion*.

Chiricahua Mts.: Portal to Paradise road; Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill northeast of Overlook; 1 mi. west of Southwestern Research Station; 5.5 mi. above Silver Creek. Also Huachuca Mts., Pinaleno Mts., Santa Catalina Mts., Mule Mts., Sierra de los Ajos. Cochise, Santa Cruz, and eastern Pima counties; southern New Mexico and northern Mexico. Sonoran.

Plants are browsed by livestock but may be poisonous. The flowers are used medicinally in Mexico.

Exsicc: CHIR [Reeves 4060]. FOBO [MHoy 35]. SWRS [Pough 1962-57, Wittmann 140]. ASU [McGill 5671].

## **ARALIACEAE—Ginseng Family.**

A family of herbs, shrubs, or trees, sometimes lianas, occasionally dioecious; stems often prickly. About 65 genera and more than 800 species, primarily tropical with centers of distribution in the Indo-Malayan region and tropical America. Genera are mostly not shared between these regions.

### **Aralia racemosa** L. ssp. **bicrenata** (Woot. & Standl.) Welsh & Atwood

*Aralia bicrenata* Woot. & Standl.

American spikenard

[5,000] 5,800 - 8,600 [9,500] ft. Jun - Oct. Suffrutescent shrub, scapose or leafy-stemmed proto-chamaephyte; mesophyll, orthophyll. Uncommon on moist cliffs and rocky banks, swales and lower slopes, shade, rich soil in coniferous forests.

Chiricahua Mts.: East Turkey Creek; north slope Rustler Park, Cave Creek Falls above Herb Martyr Dam; Wilderness Area. Also Pinaleno Mts., Sierra Ancha, Sierra de los Ajos. Apache, Navaho, and Coconino counties to Cochise and Pima counties. Canada to Georgia, Arizona, and northern Mexico. Temperate.

Exsicc: SWRS [SWRS 1960-177, 1960-44, Roth s.n.]. CHWA [Leithliter 395, 398, 456].

## **ARISTOLOCHIACEAE—Birthwort Family.**

A family of low herbs, or more commonly woody usually scandent shrubs. Primarily a tropical family with a few members throughout most temperate regions. Composed of 7 genera and 625 species. Two genera are represented by species indigenous to North America. *Aristolochia* (an essentially tropical genus of about 300 species) is represented by seven species over much of the United

States but is not common.

### **Aristolochia watsoni** Woot. & Standl.

*Aristolochia porphyrophylla* Pfeifer

Indian root, huerba indio

[2,000] 4,700 - 4,900 ft. [Apr] - Aug [Oct]. Woody vine. Spreading proto-chamaephyte. Uncommon usually among shrubs; dry uplands and along washes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in South Canyon; Birt Robirds Ranch southeast of Portal; 4 mi. east of Portal. Also Sierra Ancha, Santa Catalina Mts., Pinaleño Mts. Greenlee, Gila, and southern Mohave counties to Cochise, Santa Cruz, Pima, and Yuma counties of Arizona. Western Texas to southern Arizona and Sonora, Mexico. Chihuahuan.

Used medicinally, especially as a remedy for snake bite, by Indians and Whites.

Exsicc: FOBO [MHoy 402]. SWRS [Barr s.n., Cazier 1961-157].

### **ASCLEPIADACEAE—Milkweed Family.**

A family of perennial herbs, shrubs, or rarely small trees, sometimes fleshy or cactuslike, generally with milky sap, usually lianas. Primarily a pantropical family with only a few genera occurring in temperate regions of the northern or southern hemispheres and especially prominent in South America. The family has 75 to 100 genera. The number is in doubt pending a much needed revision of the family with about 1,800 species.

#### **Asclepias asperula** (Dcne.) Woods. ssp. *asperula*

Antelope-horns, inmortal

[3,000] 5,000 - 8,000 [9,000] ft. [Apr] May - Jul [Aug]. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte; microphyll, orthophyll. Common on grassland, wooded slopes and canyons (sometimes in pine forests). *Pinus discolor*, *Quercus emoryi*, *Juniperus monosperma*, *J. depeana*, *Ericameria laricifolia*, *Nolina microcarpa*, *Prosopis glandulosa*, *Agave palmeri*, *Yucca baccata*, *Mimosa aculeaticarpa* var. *biuncifera*, *Muhlenbergia emersleyi*, *Schizachyrium cirratus*, *Bouteloua curtipendula*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill south of Fort Bowie ruins; Woods Canyon; Pinery Canyon. Also Huachuca Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Santa Rita Mts., Animas Mts., Atascosa Mts., Sierra de los Ajos. Almost throughout Arizona. Kansas and Arkansas to Nevada and Arizona, south to northern Mexico. Southwestern, Plains.

Some sheep pastures have been abandoned because of the presence of this plant which contains a poisonous glucoside.

Exsicc: CHIR [Clark 9105, Reeves 2741, 3017, 4056]. FOBO [Fugate, s.n.]. SWRS [Pough 1962-15, SWRS 1959-96]. NMC [Wooton 7-1906]. ASU [Reeves 2742, 2983, 4560].

#### **Asclepias brachystephana** Engelm. ex Torr. Short-crowned milkweed

[3,500] 4,100 - 5,900 [7,000] ft. Jul - Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte. Common on roadsides, disturbed ground, dry plains and mesas. Mesquites.

Chiricahua Mts.: Willow Tanks; Straight Line Rd. Also Huachuca Mts., Animas Mts. Coconino, Yavapai, Graham, Cochise, Santa Cruz, and Pima counties. New Mexico: 16 mi. south of Animas, 1 mi. northwest of Rodeo; Kansas and Wyoming to Arizona, New Mexico, and northern Mexico. Plains,

Chihuahuan.

Exsicc: SWRS [Wittmann 165, Pough 1961-75].

#### **Asclepias engelmanniana** Woods

[4,000] - [7,000] ft. [Jun] - [Sep]. Perrenial deciduous forb, spreading chamaephyte. Uncommon in usually open pine forests, dry uplands.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Huachuca Mts., Sierra Ancha, Animas Mts., Pinaleño Mts. Navajo and Coconino to Cochise and Pima counties of Arizona. Nebraska to Texas and Arizona. Southwestern, Plains.

#### **Asclepias glaucescens** Kunth

*Asclepias elata* Benth.

Milkweed

[4,000] 5,250 - 6,000 ft. Aug - [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte. Uncommon in wooded canyons, openings in pine forests.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts., Mule Mts., Pinaleño Mts., Sierra de los Ajos. Graham, Cochise, Santa Cruz, and Pima counties of Arizona. New Mexico, Arizona, and Mexico. Madrean.

Exsicc: CHIR [Clark 9235, Reeves 3798, 4404, 4452]. SWRS [Schreoper s.n.].

#### **Asclepias hypoleuca** (Gray) Woods.

[6,000] 8,000 - 8,300 [9,000] ft. Jul - [Aug]. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte. Uncommon in open pine forests on all but north-facing slopes at upper elevations; on more mesic slopes at lower elevations.

Chiricahua Mts.: Wilderness Area; along Greenhouse Trail; Brfoot Park; Crest Trail; Morse Canyon. Also Santa Catalina Mts., Santa Rita Mts., Sierra de los Ajos. Mountains of Cochise, Santa Cruz, and Pima counties. Southern New Mexico and Arizona and northern Mexico. Madrean.

Exsicc: SWRS 1959-675A, Ordway s.n.]. CHWA [Leithlitter 174].

#### **Asclepias lemmoni** Gray

Milkweed

[4,000] - [6,000] 6,500 ft. Jul - [Aug]. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte. Uncommon in arroyos but mostly in open pine woods.

Chiricahua Mts.: Chiricahua Nat. Mon.; Stone Peak. Huachuca Mts. Mountains of Cochise and Pima counties. Endemic in southern Arizona. Apachian.

Exsicc: CHIR [Clark 9253]. SWRS [SWRS 1958-333].

#### **Asclepias linaria** Cav.

Milkweed

[1,500] 5,600 - 5,800 [6,000] ft. [Feb] Jun - Oct. Narrowleaf dicot shrub, nanophanerophyte. Uncommon on ledges on south-facing cliffs and mesas. *Pinus discolor*, *Bouteloua curtipendula*, *Quercus emoryi*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Greenhouse Trail; Portal-Onion Saddle rd. Also Huachuca Mts., Peloncillo Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleño Mts., Sierra de los Ajos. Graham, Gila, Maricopa, Pinal, Cochise, Santa Cruz, and Pima counties. Southern Arizona and Mexico. Southwestern.

Exsicc: CHIR [Clark 8942, Reeves 2369, 2777]. SWRS [Roth s.n.].

### **Asclepias macrotis** Torr.

[4,000] 4,500 - [6,000]. [Jun] - [Aug]. Narrowleaf dicot shrub, chamaephyte suffrutescent low shrub. May prefer, but is not limited to, limestone soils; dry south-facing grassland and savannah slopes. *Quercus arizonica*, *Q. emoryi*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Portal-Paradise rd. Also Huachuca Mts., Santa Catalina Mts., Mule Mts. Cochise and Pima counties. Western Texas to southeastern Arizona. Southwestern.

Exsicc: FOBO [MHoy, s.n.].

### **Asclepias nummularia** Torr.

#### Milkweed

[3,000] 5,200 - 6,000 ft. Mar - Jun. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon in grassland and grassland/scrub on dry mesas and slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; on trail to Ash Spring. Also Huachuca Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Cochise, Santa Cruz, Pima counties. Western Texas to southern Arizona and Sonora, Mexico. Madrean.

Exsicc: CHIR [Clark 9227, Reeves 3376]. SWRS [Walker s.n.].

### **Asclepias nyctaginifolia** Gray

#### Milkweed

[1,500] 4,900 - 6,500 ft. May - Sep. Summer annual forb, twining therophyte; microphyll, orthophyll. Uncommon on grassy slopes in open woodland; in drainages at lower elevations. *Fraxinus pennsylvanica*, *Juglans major*, *Celtis reticulata*, *Vitis arizonica*, *Chilopsis linearis*, *Rhus microphylla*, *Sideroxylon lanuginosa*, *Zizyphus obtusifolia*, *Prosopis glandulosa*, *Fouquieria splendens*, *Larrea tridentata*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in South Canyon. San Bernardino Valley. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Pinaleño Mts., Sierra de los Ajos. Mohave to Cochise, Santa Cruz and Pima counties. Arizona, southern California and Sonora, Mexico. Chihuahuan.

Exsicc: CHIR [Lehto 2304, Reeves 3873]. FOBO [MHoy 322]. SWRS [Wittmann 142].

### **Asclepias quinquedentata** Gray

#### Milkweed

5,500 - 8,280 ft. [Jun] Jul - [Aug]. Scapose or leafy-stemmed hemicryptophyte. Uncommon on canyon sides.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; Wilderness Area, Greenhouse Trail. Also Huachuca Mts., Pinaleño Mts., Rincon Mts., Santa Rita Mts. Western Texas to southern Arizona. Apachian.

Exsicc: CHIR [Clark 8415]. CHWA [Leithliter 172].

### **Asclepias subverticillata** (Gray) Vail

#### *Asclepias galloides* auct. non Kunth

#### Poison milkweed, horsetail milkweed

[2,500] - 5,400 [8,000] ft. [May] Jul - Aug [Sep]. Scapose or leafy-stemmed hemicryptophyte. Uncommon in meadow and lower canyons, disturbed ground, swales and lower slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; 6 mi. east of Portal; Southwestern Research Station; Pinery Canyon; Portal to Paradise rd. Also Huachuca Mts., Sierra Ancha, Animas Mts., Sierra de los Ajos. Apache to Coconino and Yavapai counties, south to

Cochise, Santa Cruz, and Pima counties. Kansas and Colorado to Texas, Arizona, and northern Mexico. Southwestern.

Very poisonous to livestock, especially to sheep, but fortunately the plant is unpalatable and eaten only in the absence of better forage.

Exsicc: CHIR [Clark 8242, 8255, Reeves 3755, 4551]. SWRS [Wittmann 63, Cazier s.n.].

### **Asclepias tuberosa** L. ssp. **interior** Woods.

#### *Asclepias tuberosa* ssp. *terminalis* Woods., *A.*

#### *tuberosa* var. *interior* (Woods.) Shinners

#### Butterfly-weed, pleurisy-root

[4,000] 5,400 - 6,100 [8,000] ft. [May] Jun - Jul [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon in wooded canyons and open places in pine forests, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Camp Stewart. Also Huachuca Mts., Pinaleño Mts., Sierra Ancha, Animas Mts., Santa Catalina Mts., Sierra de los Ajos. Coconino County south to Cochise, Santa Cruz, and Pima counties. Throughout much of the United States, Sonora, Mexico. Temperate.

The roots are used for afflictions of the lungs.

Exsicc: CHIR [Clark 8131, 8417, 8721, Reeves 1720, 3292, Reed 192]. SWRS [Roth s.n.].

### **Matelea producta** (Torr.) Woods.

#### *Gonolobus productus* Torr.

[4,100] ft. [Jun]. Perennial deciduous forb, bulb geophyte; microphyll, orthophyll. Rare in Arizona. Twining in ephedra bush.

San Simon Valley, Animas Mts., Galiuro Mts. Yavapai, Cochise, and Santa Cruz counties. Western Texas to Arizona. Southwestern.

This locality may lie outside of the Chiricahua flora limits, however its proximity in common habitat makes it worthwhile looking for.

Exsicc: ARIZ [VanDevender & Reichenbacher 779, Moir 636].

### **Sarcostemma crispum** Benth.

#### *Funastrum crispum* (Benth.) Schlechter,

#### *Sarcostemma lobata* Waterfall

#### Climbing milkweed

[4,000] 5,000 - 5,500 [6,000] ft. [Apr] Jul - [May] Aug. Perennial deciduous forb, twining hemicryptophyte; microphyll, orthophyll. Uncommon in wooded canyons, scrubland, grassland, upper desert bajadas. *Fraxinus pennsylvanica*, *Celtis reticulata*, *Chilopsis linearis*, *Rhus microphylla*, *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site along roadway east of headquarters; Portal, gate to dump. Also Huachuca Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Greenlee, Pinal, Cochise, and Santa Cruz counties. Western Texas to southern Arizona and northern Mexico. Southwestern.

Exsicc: CHIR [Clark 8448, Lehto 3322, Reeves 1348, 3719]. FOBO [MHoy 457]. SWRS [Walker s.n.].

### **Sarcostemma cyanoides** Dcne. ssp.

#### *hartwegii* (Vail) R. Holm

#### *Funastrum heterophyllum* (Engelm. ex Torr.) Standl.,

#### *F. lineare* (Dcne.) Macbr., *Philbertia heterophylla*

#### (Engelm. ex Torr.) Jepson

#### Climbing milkweed

[1,500] - 4,500 [4,975] ft. May - Aug [Sep]. Woody vine,

suffrutescent chamaephyte; microphyll, orthophyll. Climbing over bushes along draws and washes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Huachuca Mts., Santa Catalina Mts., Pinaleño Mts. Greenlee, Cochise, Pima, and Coconino counties. New Mexico, western Texas to southern Arizona and northern Mexico. Chihuahuan, Sonoran.

Exsicc: SWRS [Bottimer s.n., Walker s.n.].

## ASTERACEAE (COMPOSITAE)—Aster Family.

The family is composed of herbs, shrubs, and less commonly trees or climbers. The greatest portion are herbs, although 2 percent are trees which are mostly confined to the tropics. The largest family of vascular plants, Compositae has about 900 genera and approximately 20,000 species. They are distributed over most of the earth and in almost all habitats.

### **Achillea millefolium L. var. *occidentalis* DC.**

*Achillea angustifissima* Rydb., *A. asplenifolia* sensu auctt. non Vent., *A. eradiatia* Piper, *A. gracilis* Raf., *A. lanulosa* Nutt., *A. lanulosa* ssp. *typica* Keck, *A. lanulosa* var. *arachnoidea* Lunell, *A. lanulosa* var. *eradiata* (Piper) Peck, *A. laxiflora* Pollard & Cockerell, *A. millefolium* ssp. *lanulosa* (Nutt.) Piper, *A. millefolium* ssp. *occidentalis* (DC.) Hyl., *A. millefolium* var. *pallidotegula* Boivin, *A. millefolium* var. *asplenifolia* (Vent.) Farw., *A. millefolium* var. *gracilis* Raf. ex DC., *A. millefolium* var. *lanulosa* (Nutt.) Piper, *A. millefolium* var. *rosea* (Desf.) Torr. & Gray, *A. millefolium* var. *russeolata* Boivin, *A. occidentalis* (DC.) Raf. ex Rydb., *A. rosea* Desf., *A. tomentosa* Pursh, non L.

Yarrow, milfoil

[5,500] 7,240 - 9,790 [11,500] ft. Jun - Sep. Perennial evergreen forb, semirosette hemicryptophyte; microphyll, orthophyll. Common on open slopes and meadows at higher elevations, at lower elevations on shaded slopes and deep wet canyons.

Chiricahua Mts.: Greenhouse Trail; Pine Canyon; Barfoot Park; Rustler Park; along Crest Trail; Round Park; Cima Park; Centella Point; Antler Park; Long Park. Also Rincon Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Santa Rita Mts., Huachuca Mts. Apache, Navajo, and Coconino counties to Cochise and Pima counties. Manitoba to British Columbia, south to Kansas, New Mexico, Arizona and northern Mexico. Western.

Exsicc: SWRS [SWRS 1958-324]. CHWA [Leithliter 111, 156, 528]. ARIZ [Blumer 40, 1340, Strandberg 282, Barr 66-228, Spaulding 75-10-23].

### **Acourtia nana (Gray) Reveal & King**

*Perezia nana* Gray

Desert-holly

[2,500] 4,500 - [6,000] 6,250 ft. [Mar] May - Jun. Perennial evergreen forb, scapose or leafy-stemmed proto-chamaephyte; nanophyll, sclerophyll. Uncommon in grassland and shade of trees and shrubs, silty soil, along washes, disturbed ground. *Juniperus deppeana*, *Isocoma tenuisecta*, *Bouteloua gracilis*.

Chiricahua Mts.: Chiricahua Nat. Mon. in southwest corner; Fort Bowie Nat. Historic Site ruins; Halfmoon Valley (Pedregosa Mts.); Barfoot Park; Rustler Park; Mt. Desert; Straight Line Road

at Willow Tank. Also Santa Catalina Mts., Mule Mts., Animas Mts. Southern Yavapai, Greenslee, Gila, Maricopa, Pinal, Cochise, and Pima counties. Texas to Arizona and northern Mexico. Chihuahuan.

Exsicc.: CHIR [Reeves 2750]. SWRS [SWRS 1958-144]. FOBO [MHoy 199].

### **Acourtia thurberi (Gray) Reveal & King**

*Perezia thurberi* Gray

[4,000] 5,300 - 6,000 ft. [Jun] Jul - Oct. Perennial deciduous forb, scapose or leafy-stemmed erect hemicryptophyte; microphyll, orthophyll. Common on south-facing, rocky slopes and disclimax grassland. *Bouteloua eriopoda*, *Isocoma tenuisecta*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Cave Creek Canyon; along western pediment north of Rucker Canyon; Rucker Canyon, near Hermitage Forest Camp. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Mountains of Cochise, Santa Cruz, and Pima counties. Southwestern New Mexico and southern Arizona to central Mexico. Madrean.

Exsicc.: CHIR [Reeves 3381, 3520]. SWRS [Roth s.n.].

### **Acroptilon repens (L.) DC.**

*Centaurea repens* L., *Centaurea picris* Pall.

4,800 ft. May - [Aug]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Waste places.

Chiricahua Mts.: Troller's Orchard at Portal. Navajo, Yavapai, Greenlee, Cochise, and Pima counties. Uncommon or naturalized from Michigan and Missouri to Washington, Oregon, and California; native of eastern Europe and Asia. Western, Introduced.

Exsicc.: SWRS [Roth s.n.].

### **Acourtia wrightii (Gray) Reveal & King**

*Perezia wrightii* Gray; *Perezia arizonica* Gray Brownfoot

[2,500] - 5,400 [6,000] ft. [Jan] - Jun. Perennial evergreen forb, scapose or leafy-stemmed proto-chamaephyte. Common in foothills, canyons, flats in shade of trees and shrubs on rocky soil.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill northeast of Overlook; Tex Canyon. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleño Mts., Animas Mts. Throughout Arizona at suitable elevations. Western Texas to southern Utah, Arizona, and northern Mexico. Chihuahuan.

Indians use the root as a styptic. Pink flowers are honey-scented. Exsicc.: SWRS [SWRS 1959-270]. FOBO [MHoy 401].

### **Ageratina herbacea (Gray) King & H.E. Robins.**

*Eupatorium arizonicum* (Gray) Greene, *E. herbaceum* (Gray) Greene, *E. texense* (Torr. & Gray) Rydb., *Ageratina herbaceus* (Gray) King & Rob.

Thoroughwort

[5,000] 5,300 - 9,180 ft. Jun - Nov. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon in wooded canyons and chaparral sites; pine forests; riparian at lower elevations; north-facing talus slopes. *Cupressus arizonica*, *Platanus wrightii*, *Quercus emoryi*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. on Sugarloaf Mtn., Bonita Canyon below campground, Rhyolite Canyon, Massai Point; South Fork Cave Creek; Onion Saddle; Pine Canyon; Paradise; East Turkey Creek; Mormon Spring; Rustler Park;

Centella Point. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Navajo County, Coconino County, Mohave County, south to Greenlee, Cochise, Santa Cruz, and Pima counties. Utah, New Mexico, Arizona, and northern Mexico. Southwestern.

Exsicc.: CHIR [Moir 443, 449, Reeves 1764, 1853, 4496]. SWRS [Roth s.n.; Ordway s.n.]. CHWA [Leithliter 859].

### **Ageratina lemmoni** (B.L. Robins.) King & H.E. Robins.

*Eupatorium lemmoni* Rob.

6,700 - 7,400 ft. Sep - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte; microphyll, orthophyll. Shady drainages. *Pinus strobus*, *Pseudotsuga menziesii*, *Rhamnus betulaeifolia*.

Chiricahua Mts.: Pinery Canyon, Pine Canyon. Cochise County. Southeastern Arizona, northern Mexico. Madrean.

This plant described as new to science was collected by J.G. Lemmon and wife in the Chiricahua Mts. (no. 316) circa 1881.

Exsicc.: ARIZ [Bowers & McLaughlin 3205, Martin s.n., Blumer 1483].

### **Ageratina paupercula** (Gray) King & H.E. Robins.

*Eupatorium pauperculum* Gray, *Piptothrix arizonica* A. Nels.

Thoroughwort

[3,500] - [5,900] ft. [Mar] Apr - [May]. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte; microphyll, orthophyll. Uncommon on damp soil near streams and recesses under boulders, by streams in canyons.

Chiricahua Mts.: Chiricahua Nat. Mon. in Echo Canyon. Also Huachuca Mts., Pinaleno Mts., Santa Rita Mts. Greenlee, Graham, Cochise, Santa Cruz, and Pima counties. Southern Arizona and Sonora. Sonoran.

### **Ageratina wrightii** (Gray) King & H.E. Robins.

*Eupatorium wrightii* Gray

[5,000] 5,400 - 5,600 [6,000] ft. [May] - Oct. Suffrutescent shrub. Limestone slopes.

Chiricahua Mts.: Paradise; Maxon's Peak. Also Huachuca Mts., Mule Mts., Mustang Mts. Cochise and Santa Cruz counties. Western Texas, southeastern Arizona, and northern Mexico. Chihuahuayan.

### **Agoseris aurantiaca** (Hook.) Greene

Mountain dandelion

[5,000] 8,860 - 9,600 ft. Jun - Aug. Perennial deciduous forb, rosette herb; microphyll, orthophyll. Common in dry meadows and grassy slopes.

Chiricahua Mts.: Wilderness Area, Long Park, Cima Park, Round Park. Also Pinaleno Mts., Santa Catalina Mts. Coconino County, Apache County, Yavapai County, Gila County, Cochise County, Pima County. Alberta and British Columbia to New Mexico and southern Arizona. Rocky Mountain.

Exsicc.: CHWA [Leithliter 59, 645].

### **Agoseris glauca** (Pursh) Raf. var. *laciniata* (D.C. Eaton) Smiley,

*Agoseris glauca* (Pursh) Raf. var. *parviflora* (Nutt.)

Rydb., *A. parviflora* (Nutt.) Greene, *Macrorhynchus glaucus* (Pursh) D.C. Eat. var. *laciniatus* D.C. Eat., *Troximon parviflorum* Nutt.

Mountain dandelion

[6,500] - 7,800 [10,000] ft. [May] - [Oct]. Perennial deciduous forb, rosette geophyte; microphyll, orthophyll. Uncommon in meadows and open forests.

Chiricahua Mts.: Centella Point. Also Pinaleno Mts. Apache County to northeastern Mohave County south to Graham and Pima counties. British Columbia south to New Mexico, Arizona and Nevada. Western.

Fire successional.

Exsicc.: ARIZ [Fishbein 468].

### **Ambrosia confertiflora** DC.

*Franseria confertiflora* (DC.) Rydb., *F. strigulosa*

Rydb., *Gaertneria tenuifolia* Harvey & Gray

Slimleaf bursage

[1,000] 4,500 - 5,100 [6,500] ft. Apr - Oct. Summer-annual forb, scapose or leafy-stemmed therophyll; nanophyll, orthophyll. Common in encinal, desert grassland, on disturbed ground.

Chiricahua Mts.: Southwestern Research Station; Fort Bowie Nat. Historic Site on hill northeast of Overlook; Paradise to Portal road. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Coconino and Mohave counties south to Graham, Cochise, Santa Cruz, and Pima counties. Oklahoma and Colorado to California, south to northern Mexico. Southwestern.

Exsicc.: FOBO [MHoy 44]. SWRS [Roth s.n.].

### **Ambrosia psilostachya** DC.

*Ambrosia californica* Rydb., *A. cumanensis* auct. non Kunth, *A. psilostachya* var. *californica* (Rydb.) Blake, *A. psilostachya* var. *lindheimeriana* (Scheele) Blank., *A. rugelii* Rydb.

Ragweed

[2,500] 5,200 - 5,500 [7,000] ft. [Jul] Aug - Sep [Oct]. Summer-annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon in grasslands, meadows, mesic slopes. *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Silver Spur Meadow; West Turkey Creek; foothills of Rock Creek. Also Sierra Ancha, Huachuca Mts., Canelo Hills, Santa Rita Mts., Sulfur Springs Valley, Animas Mts., Sierra de los Ajos. Apache and Navajo counties, Coconino County south to Cochise and Pima counties. Illinois to Saskatchewan and Washington, south to northern Mexico. Western.

Exsicc.: CHIR [Reeves 1415, 4111]. SWRS [Roth s.n.]. ARIZ [Blumer 1779].

### **Ambrosia trifida** L. var. *texana* Scheele

*Ambrosia aptera* DC., *A. trifida* var. *aptera* (DC.)

Kuntze

Blood weed

[2,500] 4,800 - 5,380 [8,000] ft. [Jul] Aug - Sep [Oct]. Summer-annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Along mesotriparian creeks, roadsides, and on low ground.

Chiricahua Mts.: Southwestern Research Station; Cave Creek. Southern Apache, Navajo, and Coconino counties to Cochise, Santa Cruz, and Pima counties. Illinois to Colorado, south to Texas, Arizona and northern Mexico. Plains.

Exsicc.: SWRS [SWRS 1958-522]. ARIZ [Barr 66-184;

Darrow, Phillips, Pultz 1307-A].

**Anaphalis margaritacea** (L.) Benth. & Hook. f.  
ex Clarke

*Anaphalis margaritacea* var. *angustior* (Miq.)  
Nakai, *A. margaritacea* var. *intercedens* Hara, *A.*  
*margaritacea* var. *occidentalis* Greene, *A.*  
*margaritacea* var. *revoluta* Suksd., *A.*  
*margaritacea* var. *subalpina* Gray, *A. occidentalis*  
(Greene) Heller

Pearly everlasting

[4,500] - 9,200 ft. [Jul] Aug - [Oct]. Perennial deciduous  
forb, scapose or leafy-stemmed hemicryptophyte; microphyll,  
orthophyll. Uncommon among rocks, cracks in boulders. *Picea*  
*engelmannii*, *Abies concolor*, *Pseudotsuga menziesii*, *Mertensia*  
*franciscana*.

Chiricahua Mts.: Wilderness Area, along Crest Trail. Also  
Pinaleno Mts. Cochise, Pinal, and Coconino counties.  
Newfoundland to Alaska, south to Pennsylvania, Kansas, Utah,  
and northern Arizona; Asia. Holarctic.

**Antennaria parvifolia** Nutt.

*Antennaria aprica* Greene, *A. aprica* var. *minuscula*  
(Boivin) Boivin, *A. aureola* Lunell, *A. fusca* E. Nels.,  
*A. minuscula* Boivin, *A. obtusata* Greene, *A. pumila*  
Greene, *A. recurva* Greene, *A. rhodanthus* Suksdorf  
Pussy-toes

[5,000] 6,500 - 9,790 [10,000] ft. Apr - Sep. Perennial  
evergreen forb, rosette hemicryptophyte; microphyll, orthophyll.  
Common on shaded slopes, rock outcrops, dry meadows, along  
rills; sometimes on disturbed ground.

Chiricahua Mts.: Chiricahua Nat. Mon. on Sugarloaf  
Mountain; Wilderness Area, at Cima Cabin; along Saulsberry Trail;  
Rucker Canyon. Also Rincon Mts., Pinaleno Mts., Sierra Ancha,  
Santa Catalina Mts., Animas Mts., Santa Rita Mts., Sierra de los  
Ajos. White Mountains and Coconino County to the mountains of  
Cochise and Pima counties. Colorado, Utah, Arizona, and Sonora,  
Mexico. Western.

Hitchcock, Cronquist, Owenby, & Thompson (1955).  
Abrams (1940) Vol. IV, pp. 474-485.

Exsicc.: CHIR [Reeves 2900]. SWRS [Roth s.n.]. CHWA  
[Leithliter 54, 129, 348, 786, 800]. ARIZ [Shreve 5237; Loomis et  
al. 2278; Thornber 5371; Yatskievych 80-275; Peebles 13265].

**Antennaria rosulata** Rydb.

*Antennaria bakeri* Greene, *A. sierrae-blancae* Rydb.  
Pussy-toes

[5,500] - 8,900 [11,000] ft. [May] Jun - [Jul]. Evergreen  
perennial forb, rosette hemicryptophyte; microphyll, orthophyll.

Chiricahua Mts.: Fly Peak trail. Apache County, Coconino  
County, Cochise County. Colorado, Utah, Arizona. Southwestern.

Exsicc.: SWRS [SWRS 1958-136]. No holdings for  
southeast Arizona at ARIZ.

**Anthemis cotula** L.

*Maruta cotula* (L.) DC.

Mayweed, stink chamomile, dog fennel

[1,000] - 8,200 ft. Jul - Oct. Winter-annual forb, scapose or  
leafy-stemmed therophyte; microphyll, orthophyll. Common on  
disturbed ground, waste places.

Chiricahua Mts.: Barfoot Park. Apachian.  
Exsicc.: ARIZ [Blumer 230, UR7, 1573, 1870].

**Artemisia carruthii** Wood ex Carroth.

*Artemisia carruthii* var. *wrightii* (Gray) Blake, *A.*  
*kansana* Britt.

Sagebrush, wormwood

[6,000] 6,500 - 7,000 [9,000] ft. Aug - Oct [Nov]. Perennial  
deciduous forb, scapose or leafy-stemmed hemicryptophyte;  
nanophyll, orthophyll. Uncommon on rocky slopes, eroding  
slopes, open pine forest.

Chiricahua Mts.: Chiricahua Nat. Mon. on Sugarloaf  
Mountain; Chiricahua Mine; Swisshelm Mts. in Leslie Canyon.  
Also Animas Mts. White Mts., Hopi Indian Reservation, Kaibab  
Plateau, Grand Canyon. Carrizo Mts. to Hualapai Mtn., White,  
Pinaleno, Pinal, and Chiricahua Mts. Greenlee, Graham, Apache,  
Navajo, and Cochise counties. Missouri to Texas, west to Utah,  
and Arizona. Southwestern. Exsicc.: CHIR [Clark 8400,  
Reeves 1733]. ARIZ [Blumer n.152].

**Artemisia dracunculus** L. ssp. **dracunculus**

*Artemisia dracunculoides* Pursh, *A. dracunculoides*  
ssp. *glaucia* Pall. ex Willd.

False-tarragon

[3,500] 5,100 - 9,020 ft. Jun - Oct [Nov]. Perennial  
deciduous forb, scapose or leafy-stemmed hemicryptophyte;  
nanophyll, orthophyll. Uncommon on rocky, open wooded slopes,  
becoming mesic at lower elevations. Sometimes on disturbed  
ground.

Chiricahua Mts.: Chiricahua Nat. Mon. at summit of  
Sugarloaf Mtn.; Fort Bowie Nat. Historic Site north of Overlook;  
upper Pine Canyon; Wilderness Area; Barfoot Park, Rustler Park;  
Long Park; Pinery Canyon 2 mi. below Onion Saddle; along road 2  
mi. below Rustler Park, between Rustler and Long parks. Also  
Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa  
Catalina Mts., Pinaleno Mts., Animas Mts., Santa Rita Mts., Dos  
Cabezas Mts., Canelo Hills, Patagonia Mts., Quinlan Mts.,  
Baboquivari Mts., Sierra de los Ajos. Apache County to Mojave  
County south to the mountains of Cochise, Santa Cruz, and Pima  
counties. Manitoba to British Columbia, south to Texas, Arizona;  
Baja California and Sonora Mexico. Western.

Hall & Clements (1923).

Exsicc.: CHIR [Reeves 1004, 4141, 4423]. FOBO [MHoy  
298]. SWRS [SWRS 1959-665]. CHWA [Leithliter 568, 620].  
ARIZ [Blumer 135, 1372, McCormick et al. 327, 345, Parker et al.  
3568, Barr 67-293, Spaulding 75-10-8].

**Artemisia ludoviciana** Nutt. ssp. **albula**

(Woot.) Shinners

*Artemisia albula* Woot., *A. ludoviciana* var. *albula*  
(Woot.) Shinners

[1,000] - 6,000 [8,500] ft. Aug - Oct. Perennial deciduous  
forb, scapose or leafy-stemmed hemicryptophyte; nanophyll,  
orthophyll. Common. Tolerates limestone soils.

Chiricahua Mts.: Cave Creek; Paradise. Also Santa Catalina  
Mts., Patagonia Mts., Sierra Ancha, Dos Cabezas Mts., Santa Rita  
Mts., Pinaleno Mts., Huachuca Mts., Rincon Mts., Santa Rita Mts.,  
Baboquivari Mts., Wetstone Mts. Navajo and Coconino counties  
south to Cochise and Santa Cruz counties. Canada to northern  
Mexico. Western.

Exsicc.: ASU [Boehnlein s.n.]. ARIZ [Blumer 155 1798,  
Barr 67-301].

### **Artemisia ludoviciana** Nutt. var. **mexicana**

(Willd.) Keck

*Artemisia ludoviciana* var. *mexicana* (Willd. ex Spreng.) Gray, *A. mexicana* Willd. ex Spreng., *A. vulgaris* L. var. *mexicana* (Willd. ex Spreng.) Torr. & Gray

Sagebrush

[2,500] 5,400 - 8,200 [8,500] ft. [Aug] Sep - Oct [Sep]. Deciduous perennial forb, scapose or leafy-stemmed hemicycophyte; microphyll, orthophyll. Uncommon on dry slopes and flats, open woodlands, canyons at lower elevations; often on limestone. *Juniperus deppeana*, *Bouteloua curtipendula*. Chiricahua Mts.: Chiricahua Nat. Mon. at Bonita Canyon, Rhyolite Canyon, Jesse James Canyon; Whitetail Canyon; Paradise; Cave Creek Canyon; Fort Bowie Nat. Historic Site on hill northeast of overlook; Portal to Paradise Road, Barfoot Park, Rustler Park. Also Huachuca Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Cochise, Santa Cruz and Pima counties. Southern Canada to northern Mexico at Colonia Garcia, Sierra Madre. Western.

Exsicc.: CHIR [Borell 9, Moir 442, Reeves 1597, 1902]. FOBO [MHoy 43]. SWRS [MHoy s.n.], NMC [Blumer 1389]. ASU [Lehto 5332 Leithliter 641].

### **Artemisia ludoviciana** Nutt. ssp. **sulcata**

(Rydb.) Keck

*Artemisia sulcata* Rydb.

[2,500] 5,000 - 8,000 [8,500] ft. Aug - Nov. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte; microphyll, orthophyll. Common on shaded slopes and streambeds, often on limestone, dry uplands. *Quercus arizonica*, *Q. hypoleucoides*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Wilderness Area; South Fork Cave Creek; Barfoot Park; Rustler Park; Whitetail Canyon; Paradise, East Turkey Creek; Onion Saddle. Also Rincon Mts., Sierra Ancha, Mule Mts., Pinaleno Mts., Baboquivari Mts., Dos Cabezas Mts., Peloncillo Mts., Santa Catalina Mts., Santa Rita Mts., Huachuca Mts. Apache and Coconino counties to the mountains of Cochise, Santa Cruz, and Pima counties. Southern Canada to northern Mexico. Western.

Keck (1946).

Exsicc.: CHWA [Leithliter 641]. ASU [Cazier & Lehto 251; Lehto 2286; Cazier & Lehto 654, 659, 701; Harlan s.n.]; Simbwa-Bunnya s.n.]. ARIZ [Moir 442, Blumer 152, 1389].

### **Aster falcatus** Lindl. ssp. **commutatus** (Torr. & Gray) A.G. Jones var. **commutatus** (Torr. & Gray) A.G. Jones

*Aster commutatus* (Torr. & Gray) Gray, *A. commutatus polycephalus* Blake non *A. polycephalus* Rydb., *A. cordineri* A. Nels., *A. ericoides* L. var *commutatus* (Torr. & Gray) Boivin, pro parte, *A. falcatus* (Torr. & Gray) Gray ssp. *commutatus* (Torr. & Gray) A.G. Jones, *A. multiflorus* Ait. var. *commutatus* Torr. & Gray

Aster

[5,000] 5,400 - 6,100 [8,000] ft. Aug - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte; leptophyll, orthophyll. Uncommon in sun or partial shade, wet soil in drainages and flats, dry uplands. *Juglans major*, *Platanus wrightii*, *Quercus emoryi*, *Q. arizonica*, *Prunus serotina*.

Chiricahua Mts.: Chiricahua Nat. Mon. in East Whitetail Canyon, near Silver Spur Meadow, Bonita Canyon; Pinery

Canyon. Also Rincon Mts., Sierra Ancha. Minnesota to British Columbia, south to Texas, New Mexico and Arizona. Western.

Exsicc.: CHIR [Moir 469, Reeves 1417, 1517, 4529]. SWRS [s.c. s.n.].

### **Aster subulatus** Michx. var. **ligulatus** Shinners

*Aster exilis* Ell.

[1,000] - 5,400 ft. [Jun] - [Oct]. Summer-annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Seep in lawn.

Chiricahua Mts.: Southwestern Research Station. Also Sierra Ancha, Pinaleno Mts., Huachuca Mts. Eastern Yavapai, Maricopa, Pinal, Cochise, Santa Cruz, Pima and Yuma counties. South Carolina to Florida, west to California, south to tropical America. Temperate, Latin American.

Exsicc.: SWRS [Roth s.n.].

### **Baccharis bigelovii** Gray

[4,500] 5,100 - 6,000 [7,000] ft. [Sep] - Oct. Suffrutescent shrub. Sunny dry lower canyon sideslopes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hills northeast of overlook; South Fork. Also Huachuca Mts., Animas Mts., Mule Mts. Southwestern Texas, southeastern Arizona and northern Mexico. Madrean.

Exsicc.: FOBO [MHoy 49]. SWRS [Roth s.n.].

### **Baccharis pteronioides** DC.

Yerba-de-pasmo

[3,000] 4,500 - 6,000 [7,000] ft. Apr - Dec. Narrowleaf dicot shrub, nanophanerophyte. Common on dry northerly and intermediate grassland and grassland disclimax slopes; rocky soils.

Chiricahua Mts.: Chiricahua Nat. Mon. at Bonita Park, Rhyolite Canyon, Sugarloaf Mtn.; Fort Bowie Nat. Historic Site along trail; Portal; Jhus Canyon; north of Beacon and west of Bernardino; Rucker Canyon. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Sierra Ancha, Mule Mts., Animas Mts., Sierra de los Ajos. Yavapai, Greenlee, Graham, Gila, Pima, Maricopa, Pinal, Cochise and Santa Cruz counties. Western Texas, southern New Mexico, Arizona; Mexico south to Puebla. Madrean.

Exsicc.: CHIR [Clark 8934, Reeves 1593, 2580, 3402]. FOBO [MHoy 196]. SWRS [Roth s.n.]; SWRS 1959-115, 1959-262].

### **Baccharis salicifolia** (Ruiz & Pavon) Pers.

*Baccharis glutinosa* Pers., *B. viminea* DC., *Molina salicifolia* Ruiz & Pavon

Seep-willow, water-willow, water-wally, batamote, water-motie

[3,000] 4,800 - 5,800 ft. Mar - Dec. Broadleaf deciduous shrub, microphanerophyte; nanophyll, sclerophyll. Common in and along washes and riparian scrub.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at Massacre site; Chiricahua Nat. Mon. in East Whitetail Canyon; Stephens Ranch. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Huachuca Mts., Sierra de los Ajos. Coconino County and northern Mohave County, to Greenlee, Graham, Cochise, Santa Cruz, Pima and Yuma counties. Colorado and Texas to California and Mexico; South America. Southwestern, Latin American.

Exsicc.: FOBO [MHoy 149]. CHIR [Clark 8327, Reeves 4211, 4394]. SWRS [Roth s.n.].

### **Baccharis sarothrodes** Gray

Broom baccharis, rosin-bush, desert-broom

[1,000] - [5,500] 6,850 ft. Feb - Sep. Broadleaf deciduous shrub, nanophanerophyte; nanophyll, sclerophyll. Uncommon at upper elevations on sunny slopes but in canyons and arroyos at lower elevations. Disturbed soil and roadsides, may colonize burn sites. *Quercus turbinella*, *Arctostaphylos pungens*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill northeast of overlook. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Sierra de los Ajos. Mohave, Yavapai, Greenlee, Graham, and Gila counties to Cochise, Santa Cruz, Pima and Yuma counties. Southwestern New Mexico, to southern California, northern Mexico, and Baja California. Sonoran.

Exsicc.: CHIR [Reeves 1741]. FOBO [MHoy 50].

### **Baccharis sergiloides** Gray

[2,000] - 5,500 ft. [Feb] - Nov. Broadleaf deciduous shrub, nanophanerophyte; nanophyll, orthophyll. Along washes but occasionally on sandy flats.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Coconino County to Mohave, Yavapai, Greenlee, and Maricopa counties, Cochise County. Utah, Arizona, southeastern California, and Sonora. Southwestern, Sonoran, Madrean.

Exsicc.: ARIZ [Blumer 1506].

### **Baccharis thesioides** Kunth

[4,000] 5,100 - [8,000] 8,500 ft. Aug - Oct. Suffrutescent shrub, suffrutescent chamaephyte; nanophyll, orthophyll. Common in partial shade on canyon slopes and north-facing slopes; and arroyos at lower elevations. *Quercus emoryi*, *Arctostaphylos pungens*, *Pinus discolor*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Bonita Canyon near headquarters; Fort Bowie Nat. Historic Site; Barfoot Park; Wilderness Area; Rucker Canyon; Cave Creek. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Sierra de los Ajos. Mogollon Escarpment (Coconino County) and mountains of Greenlee, Graham, Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona, south to central Mexico. Madrean.

Exsicc.: CHIR [Clark 8396, Reeves 1374, 1605, 1780, 4436]. SWRS [Walker s.n.; Day s.n.]. CHWA [Leithlitter 738].

### **Baccharis wrightii** Gray.

[5,000] ft. - [6,000] ft. [May] - [Jul]. Suffrutescent shrub, suffrutescent low shrub; leptophyll, orthophyll.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; 5 mi. northwest of Chiricahua Nat. Mon. Also Animas Mts. Apache, Navajo, Coconino and northern Yavapai counties. Kansas and western Texas to Arizona and Durango. Madrean.

Exsicc.: SWRS [Mouat s.n.].

### **Bahia absinthifolia** Benth. var. **dealbata** (Gray) Gray

[2,500] 4,700 - 9,020 ft. Apr - Oct. Perennial evergreen forb, semirosette proto-chamaephyte. Dry, gravelly slopes, upper bajadas, tolerates limestone.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hillside east of ruins; 2 mi. northeast of Portal. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Cochise County near the Mexican boundary. Southern Texas and southeastern Arizona to central Mexico. The variety is more common and found in Greenlee, Graham, Gila, Maricopa, Pinal, Cochise, Santa Cruz, and Pima counties.

Chihuahuan.

Exsicc.: FOBO [MHoy 450]. SWRS [Barnes s.n.].

### **Bahia biternata** Gray

[1,000] - 5,300 ft. [May] - Sep [Oct]. Summer-annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon on roadsides, open oak woodland, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. near entrance. Also Sierra Ancha, Pinal Mts. (Gila County), near Sacton (Pinal County). Western Texas to central-southern Arizona and Sonora. Madrean.

Exsicc.: CHIR [Reeves 1694].

### **Bahia dissecta** (Gray) Britt.

Yellow-ragweed

[3,880] 5,300 - 9,020 ft. Aug - Oct. Perennial deciduous forb, semirosette hemicryptophyte. Common on xeric open southerly-facing gravelly slopes; often on disturbed soil.

Chiricahua Mts.: Chiricahua Nat. Mon. on north-face Sugar Loaf Mtn., Echo Canyon, Bonita Park; south-facing slope above lower Pinery Canyon; Rustler Park; Wilderness Area; San Simon Cienega; Rucker Canyon; lower Pinery Canyon; Onion Saddle. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Wyoming to northern Mexico and Arizona. Rocky Mountain.

Exsicc.: CHIR [Borell 13, Reeves 1514, 1834, 1784, 4448]. SWRS [s.c., s.n.]. CHWA [Leithlitter 573, 659].

### **Baileya multiradiata** Harv. & Gray ex Gray

*Baileya multiradiata* var. *thurberi* (Greene) Kittell, *B. perennans* (A. Nels.) Rydb.

Desert-marigold

[2,500] 4,700 - 6,900 ft. [Mar] Jul - Aug [Nov]. Perennial evergreen forb, semirosette proto-chamaephyte. Common on open xeric slopes and flats; gravelly or sandy soil; along or in washes; sometimes on disturbed sites; often beside paved roadsides where the plants enjoy enhanced moisture.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site parking lot; 2 mi. northeast of Portal; Portal to Paradise road; along Silver Creek. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Sierra Ancha, Animas Mts. Coconino County and Mohave County to Graham, Cochise, Santa Cruz, Pima and Yuma counties. Western Texas to southern Utah and Nevada, southeastern California, and Chihuahua. Southwestern.

Exsicc.: CHIR [Reeves 3590, 3954, 4188]. FOBO [MHoy 95]. SWRS [s.c. s.n.].

### **Baileya pleniradiata** Harv. & Gray ex Gray

*Baileya multiradiata* Harvey & Gray ex Gray var. *pleniradiata* (Harvey & Gray ex Gray) Coville  
Woolly marigold

[200] - 4,400 [6,000] ft. Jul - Aug. Evergreen perennial forb, semirosette hemicryptophyte. Common on xeric slopes on silty soil; often beside paved roads where the plants enjoy increased moisture.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; east of Portal in San Simon Valley. Also Santa Catalina Mts., Mule Mts., Animas Mts. Mohave County to Cochise, Pima, and Yuma counties. Western Texas to southern Utah and Nevada, southwestern California, and northern Mexico. Southwestern.

No specimen in Fort Bowie Nat. Historic Site herbarium.

This species may be represented by a sheet misidentified as *Baileya pauciradiata*.

Exsicc.: SWRS [1958-302, Ordway s.n.].

### **Berlandiera lyrata** Benth.

*Berlandiera lyrata* var. *macrophylla* Gray

Green-eyes

[4,000] 5,000 - 7,000 ft. Apr - Sep [Oct]. Perennial deciduous forb, semirosette herb; microphyll, orthophyll. Uncommon in grassland.

Chiricahua Mts.: Chiricahua Nat. Mon. in Silver Spur Meadow and North Fork of Pinery Canyon; Fort Bowie Nat. Historic Site north of overlook; lower Pine Canyon; Onion Creek; Pinery Canyon; Cave Creek. Also Pinaleno Mts., Canelo Hills, Animas Mts. Cochise, Santa Cruz, and eastern Pima counties. Kansas and Arkansas to Texas, southeastern Arizona, and northern Mexico. Plains, Southwestern.

Reputedly, Indians used the flower-heads as seasoning in foods.

Exsicc.: CHIR [Clark 8545, Reeves 1411, 2588, 2755]. FOBO [MHoy 205]. SWRS [SWRS 1960-217, Walker s.n.].

### **Bidens bigelovii** Gray

Spanish-needles

[3,000] - 5,400 [6,500] ft. Jul - Sep [Oct]. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon on shaded, wooded, rocky slopes, dry uplands, stream banks and moist shady places. *Juglans major*, *Platanus wrightii*, *Prunus serotina*, *Quercus emoryi*, *Q. arizonica*, *Cupressus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. north of meadow. Also Huachuca Mts., Sierra Ancha, Pinaleno Mts. Southern Apache, Greenlee, Gila, Cochise, and Santa Cruz counties. Colorado to western Texas, New Mexico, Arizona, and Sonora. Madrean.

Exsicc.: CHIR [Reeves 1543, 4547, 4565]. SWRS [Roth s.n.].

### **Bidens bipinnata** L.

*Bidens bipinnata* var. *biterratoides* Sherff

[3,000] 4,500 - 5,200 [6,000] ft. Aug - Sep. Summer annual, therophyte; microphyll, orthophyll. Uncommon on open gravelly slopes, sometimes undisturbed soils.

Chiricahua Mts.: Pinery Canyon at Miss Rhoda Riggs Ranch and at Paradise in Cedar Gulch. Also in mule Mts., Huachuca Mts. and Big Lue Range. Northeast southward to Kansas and Arizona, westward to California and south into South America.

Exsicc.; Repository unknown [Blumer 1486, 1712]

### **Bidens heterosperma** Gray

Spanish-needles

5,400 - 8,650 [9,000] ft. Aug - Sep. Summer-annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon in woodland and chaparral.

Chiricahua Mts.: Chiricahua Nat. Mon.; junction of Onion Saddle Road and Paradise Road; Wilderness Area, Saulsbury Trail. Also Rincon Mts., Pinaleno Mts. Coconino County and Graham, Cochise, Santa Cruz, and Pima counties. Southern Colorado to New Mexico, Arizona, and Northern Mexico. Madrean.

Exsicc.: CHIR [Lehto 3318, Moir 562]. SWRS [Walker s.n.]. CHWA [Leithliter 796].

### **Bidens lemmonii** Gray

[4,000] - 8,000 ft. Sep - Oct. Summer-annual forb, scapose

or leafy-stemmed therophyte; nanophyll, orthophyll. Rare in shaded forest and woodland on rocky soils.

Chiricahua Mts.: Apache Pass. Also Rincon Mts., Huachuca Mts., Patagonia Mts., Santa Rita Mts., Animas Mts. Cochise, Santa Cruz, and Pima counties. Southern Arizona and Mexico. Apachian.

Plant described as new to science collected by J.G. Lemmon and wife in 1881 in Apache Pass (s.n.).

### **Bidens leptocaula** Sherff

Spanish-needles

[3,000] 5,000 - 6,000 ft. Aug - Sep [Oct]. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon in openings in oak woodland on gravelly slopes, cool moist slopes, mostly along streams, preferring shaded, sandy soil.

Chiricahua Mts.: Chiricahua Nat. Mon. in Whitetail Canyon; Fort Bowie Nat. Historic Site; Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Mule Mts., Pinaleno Mts. Apache, Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona, Chihuahua, and Baja California. Madrean.

Type was collected in the Chiricahua Mts. by J.C. Blumer.

Exsicc.: CHIR [Clark 8723, Moir 483, Reeves 1575A, 4432]. SWRS [MHoy s.n., Ordway 137]. ARIZ [Blumer 1712].

### **Bidens pilosa** L.

*Bidens pilosa* var. *minor* (Blume) Sherff

[3,500] - 5,500 ft. Sep. Summer annual, therophyte; microphyll, orthophyll.

Chiricahua Mts. Also Huachuca Mts., Patagonia Mts., Oro Blanco Mts., Mule Mts., and Baboquivari Mts. Cochise, Santa Cruz, and Pima counties. Florida to California; tropical and subtropical regions of the world. Latin American.

Exsicc.: SWRS [Leutcke s.n.].

### **Bidens tenuisecta** Gray

[6,000] 8,000 - [8,000] 9,300 ft. [Jul] Aug - [Oct]. Summer annual forb, scapose or leafy-stemmed thereophyte; leptophyll, orthophyll. Scrub slopes and open pine forest.

Chiricahua Mts.: Centella Point; Barfoot Park. Also Santa Rita Mts., Huachuca Mts., Santa Catalina Mts. Sierra Madre Occidental: Rio Mayo. Apache, Coconino, Pima, and Cochise counties. Idaho to western Texas, New Mexico, Arizona, and Chihuahua. Rocky Mountain.

Exsicc.: ARIZ [Fishbein 426, Blumer 182, 1386, 1593].

### **Brickellia amplexicaulis** B.L. Robins

[3,000] - 7,000 ft. Sep - Oct. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte; microphyll, orthophyll. Uncommon on shaded slopes and canyons.

Chiricahua Mts.: South Fork Cave Creek; Rucker Canyon near Hermitage Forest Camp. Also Rincon Mts., Mule Mts. Pinal, Cochise, Santa Cruz, and Pima counties. Southern Arizona and northern Mexico. Madrean.

### **Brickellia baccharidea** Gray

[500] - [5,500] ft. [Sep] - [Nov]. Suffrutescent shrub, chamaephyte suffrutescent low shrub. Xeric rocky slopes, well-drained flats, along desert washes; tolerates limestone soil.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts. Greenlee, Cochise, Santa Cruz, Pima, and Yuma counties. Western Texas to southwestern Arizona. Chihuahuan.

### **Brickellia betonicaefolia** Gray

[4,500] 5,400 - 7,000 [7,200] ft. [Jun] Aug - Oct. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte. Common in woodland openings, shaded slopes, cool drainages.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon below campground, Picket Park; Paradise; Whitetail Canyon; Cave Creek; Rucker Canyon; near Onion Saddle; Chiricahua Mine. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleño Mts., Animas Mts. Southern parts of Navajo and Coconino counties, south to Greenlee, Graham, Cochise, Santa Cruz, and Pima counties. New Mexico and central Arizona to Sonora and Chihuahua. Madrean.

Exsicc.: CHIR [Lehto 3306, Moir 420, 447, Reeves 1432, 1550, 1604, 1786, 4417]. SWRS [Walker s.n.].

### **Brickellia californica** (Torr. & Gray) Gray

#### Pachaba

[3,300] 5,400 - 6,400 [7,500] ft. [Jul] Sep - Nov. Suffrutescent shrub, suffrutescent chamaephyte; microphyll, orthophyll. Common in woodland openings, dry rocky north-facing slopes and more mesic habitats on other exposures and at lower elevations. *Pinus discolor*, *Quercus emoryi*, *Garrya wrightii*, *Opuntia spinosior*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Massai Point; Fort Bowie Nat. Historic Site; Cave Creek; Rucker Canyon near Hermitage Forest Camp; East Turkey Creek. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleño Mts., Animas Mts. Throughout Arizona. Colorado to western Texas, west to California, south to Sonora and Baja California. Southwestern.

Called *pachaba* by the Hopi Indians, who are reported to rub it on the head for headache.

Exsicc.: CHIR [Reeves 1775, 1825].

**Brickellia eupatorioides** (L.) Shinners var. **chlorolepis** (Woot. & Standl.) B.L. Turner  
*Brickellia chlorolepis* (Woot. & Standl.) Shinners, *B. leptophyll* (Scheele) Shinners var. *mexicana* (Shinners) Shinners, *B. rosemarinifolia* (Vent.) W.A. Weber var. *chlorolepis* (Woot. & Standl.) W.A. Weber, *B. shaffneri* (Gray) Shinners, *Kuhnia chlorolepis* Woot. & Standl., *K. leptophylla* Scheele var. *mexicana* Shinners, *K. microphylla* Shinners, *K. rosmarinifolia* Vent., *K. rosmarinifolia* var. *chlorolepis* (Woot. & Standl.) Blake, *K. shaffneri* Gray

[4,500] 4,900 - 9,790 ft. Apr - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; leptophyll, orthophyll. Common in forest openings, woodlands, roadsides; north slopes and arroyos at lower elevations.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon below campground, Picket Park, upper Bonita Canyon, Whitetail Canyon, north face of Sugarloaf Mtn.; Fort Bowie Nat. Historic Site in South Canyon; Portal; Paradise; Barfoot Park; Rustler Park; Cave Creek; Wilderness Area. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleño Mts., Animas Mts., Sierra de los Ajos. Apache, Navajo, and Coconino counties to Cochise, Santa Cruz, and Pima counties. Texas to Arizona, south to Mexico. Madrean.

Exsicc.: CHIR [Clark 8179, Moir 422, Reeves 2753, 2969, 3789, 4514]. FOBO [MHoy 302]. SWRS [Roth s.n.; Walker s.n.]. CHWA [Leithliter 805, 855].

### **Brickellia fendleri** Gray

*Brickellia fendleri* (Gray) King & H.E. Robins., *Eupatorium fendleri* (Gray) Gray

[6,000] 7,220 - 9,510 ft. Jul - Sep. Broadleaf deciduous shrub, nanophanerophyte; leptophyll, orthophyll. Uncommon in woods, rocky outcrops.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; Wilderness Area; Onion Saddle; northwest-face Buena Vista Peak; Greenhouse Trail at Winn Falls overlook; near Barfoot Park. Also Pinaleño Mts. Graham, Cochise counties. New Mexico and southeastern Arizona. Apachian.

Exsicc.: CHIR [Clark 8282]. CHWA [Leithliter 308, 567].

### **Brickellia floribunda** Gray

[3,000] 4,800 - 5,400 [5,500] ft. Sep - Oct. Suffrutescent shrub, suffrutescent chamaephyte. Uncommon in riparian oak woodland, moist rich soil.

Chiricahua Mts.: Chiricahua Nat. Mon.; near Portal Store; Cave Creek Canyon. Also Santa Catalina Mts., Animas Mts. Southern part of Navajo and Coconino counties and eastern Mohave County, south to Cochise, Santa Cruz, and Pima counties. Southwestern New Mexico, southern Arizona, Sonora, and Chihuahua. Madrean.

Exsicc.: CHIR [Reeves 1785]. SWRS [Roth s.n.].

### **Brickellia grandiflora** (Hook.) Nutt.

*Brickellia grandiflora* var. *petiolaris* Gray, *Coleosanthus umbellatus* Greene

[5,000] 5,400 - 8,530 [9,000] ft. Aug - Nov. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Uncommon in wooded canyons, shaded slopes, dry uplands, rich soil, mostly in coniferous forests.

Chiricahua Mts.: Chiricahua Nat. Mon.; Greenhouse Trail; East Turkey Creek; Cave Creek Canyon; Hunt Canyon; along crest south of Rustler Park. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Lukachukai Mts. and Kaibab Plateau, Pinaleño Mts., Animas Mts., Sierra de los Ajos. Apache and Coconino counties south to Cocohise, Santa Cruz, and Pima counties. Missouri and Arkansas to Montana and Washington, south to New Mexico, southern Arizona, California; northern Baja California and Sonora, Mexico. Western.

Exsicc.: CHIR [Clark 8740, Reeves 1433, 1856, 1884, 4414]. SWRS [Walker s.n.]. CHWA [Leithliter 651, 705, 746].

### **Brickellia lemmontii** Gray

5,400 - 8,200 ft. Aug - Nov. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte; microphyll, orthophyll. Common on rocky slopes and woodland. *Pinus arizonica*, *P. engelmannii*, *P. leiophylla*, *Quercus rugosa*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon near Sugarloaf Mtn.; Cave Creek Canyon at Sunny Flat and Forest Camp; Wilderness Area; Rucker Canyon; West Turkey Creek. Also Huachuca Mts., Animas Mts., Mule Mts. Cochise County. Southeastern Arizona and Chihuahua. Madrean.

Plant described as new to science collected by J.G. Lemmon in the Chiricahua Mts. (no. 306) circa 1881.

Exsicc.: CHIR [Clark 9246, Reeves 1782, 1792, 1884A]. SWRS [s.c. s.n.]. CHWA [Leithliter 849, 852, 860]. ARIZ [McLaughlin 1915, Barr 66-223, Blumer 1786, Niles 630, Jones & Thornber 8823, Gould & Haskell 4581, 4583, McCormick 725, Baquaert s.n.].

### **Brickellia pringlei** Gray

[4,200] - 5600 ft. Jul. Broadleaf deciduous shrub, nanophanerophyte; microphyll, orthophyll. Uncommon on mesic partly shaded soil in woodland.

Chiricahua Mts.: Chiricahua Nat. Mon.: Surprise Canyon. Also Rincon Mts., Santa Catalina Mts., Huachuca Mts., Santa Rita Mts. Cochise, Santa Cruz, and Pima counties. Southern Arizona, south to Mexico. Madrean.

Exsicc.: CHIR [Reeves 3258].

### **Brickellia rusbyi** Gray

[4,500] 5,400 - 6,900 [9,000] ft. [Aug] - Sep [Oct].

Suffrutescent shrub, suffrutescent chamaephyte. Uncommon on rocky pine-forested mesic slopes and along streams and washes, often in shade.

Chiricahua Mts.: Cave Creek at South Fork crossing; West Turkey Creek; Mormon Canyon at Sycamore Camp; upper Pinery Canyon; along crest north of Rustler Park. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Sierra de los Ajos. Southern Apache and Gila counties to Cochise, Santa Cruz, and Pima counties. New Mexico, southeastern Arizona, Sonora, and Chihuahua. Madrean.

Exsicc.: SWRS [s.c. s.n.].

### **Brickellia simplex** Gray

[5,000] - 6,000 [8,000] ft. Aug - [Sep]. Perennial deciduous forb, scapose or leafy-stemmed proto-hemicryptophyte; microphyll, orthophyll. Uncommon in rocky canyons. *Pinus discolor*, *Quercus emoryi*, *Nolina microcarpa*.

Chiricahua Mts.: Chiricahua Nat. Mon. at China Boy; Rustler Park; Cave Creek Canyon. Also Huachuca Mts., Patagonia Mts., Animas Mts. Cochise and Santa Cruz counties. Southeastern Arizona, Sonora, and Chihuahua. Madrean.

Exsicc.: CHIR [Reeves 1362].

### **Brickellia squamulosa** Gray

*Asanthus squamulosus* (Gray) King & H.E. Robins.

4,000 - 6,000 ft. May - Sep. Broadleaf deciduous shrub, nanophanerophyte; leptophyll, orthophyll. Lower slopes and mesic canyons.

Chiricahua Mts.: Cave Creek Canyon. Also Mule Mts., Huachuca Mts., Animas Mts. Southwestern New Mexico, southeastern Arizona, south to Mexico. Chihuahuan.

### **Brickellia venosa** (Woot. & Standl.) Rob.

*Coleosanthus venosus* Woot. & Standl.

[4,000] 5,000 - 5,400 [5,500] ft. Sep - Oct. Suffrutescent shrub, scapose or leafy-stemmed proto-chamaephyte. Uncommon on wooded, warm sunny rocky slopes, tolerates limestone.

Chiricahua Mts.: Chiricahua Nat. Mon. north of Meadow; Fort Bowie Nat. Historic Site on hills northeast of Overlook; Maxon's Peak. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts. Greenlee, Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Southern New Mexico and Arizona, and Chihuahua. Madrean.

Exsicc.: CHIR [Reeves 1528]. FOBO [MHoy 41].

### **Carminatia tenuiflora** Moc. ex DC.

[4,000] - 5,400 [7,000] ft. Aug - Oct. Summer-annual forb, scapose or leafy-stemmed therophyll. Common in wooded canyons and slopes with forest openings; rich soil, tolerates limestone; north-facing slopes; along streams. *Quercus emoryi*, *Q. arizonica*, *Platanus wrightii*, *Arbutus arizonicana*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon at

campground, on hills north of Faraway Ranch; Southwestern Research Station; Paradise; Cave Creek; Rucker Canyon, 1 mi. below lake; Hospital Canyon Saddle. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Greenlee County and mountains of Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona, south to Central America. Latin American.

Exsicc.: CHIR [Moir 522, 556, Reeves 1574, 1781, 1791]. SWRS [Roth s.n.].

### **Carphochaete bigelovii** Gray

Bristlehead

[4,000] 4,200 - 7,000 ft. Mar - May [Jul]. Suffrutescent shrub, suffrutescent chamaephyte. Common on open wooded slopes, encinal; north-facing slopes and washes at lower elevations. *Cupressus arizonica*, *Pinus engelmannii*, *Quercus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Echo Canyon, Bonita Canyon below Shake Springs, hills near Faraway Ranch; Fort Bowie Nat. Historic Site in upper Cut Off Canyon; Whitetail Canyon; South Fork Cave Creek. Also Huachuca Mts., Rincon Mts., Peloncillo Mts., Guadalupe Canyon, Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts. Southern Apache, Greenlee, Gila, Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and Chihuahua. Madrean.

Exsicc.: CHIR [Fish 45, Reeves 2261, 2445, 2519, 2622]. FOBO [MHoy 71]. SWRS [Walker s.n.].

### **Centaurea melitensis** L.

Star-thistle

[3,000] - 5,400 ft. Jun. Winter-annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon on roadsides and waste places, open, rocky slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; just north of Portal. Also Rincon Mts. Apache, Yavapai, Maricopa, Pinal, Cochise, and Pima counties. Uncommon weed in much of the United States, common in the west; native of Europe. Introduced.

Exsicc.: CHIR [Clark 8108].

### **Centaurea rothrockii** Greenm.

[6,000] - 8,800 ft. [Jul] Aug - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Along streams, wet places, roadsides. *Pinus arizonica*, *P. strobus*, *P. engelmannii*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; on road to Long Park; Pine Canyon; near Bootlegger Saddle. Also Huachuca Mts., Canello Hills, Sierra de los Ajos. Cochise County. Southwestern New Mexico and southeastern Arizona to Oaxaca. Madrean.

Exsicc.: SWRS [Walker s.n.]. ARIZ [Fishbein 427, Niles 625, Blumer 1480, Fugate s.n., Reichenbacher 874].

### **Chaenactis stevioides** Hook. & Arn.

[1,000] - 4,400 [6,000] ft. [Feb] Apr - [May]. Winter-annual forb, semirosette therophyte. Rocky southerly-facing slopes and gravelly flats. *Acacia constricta*, *Flourensia cernua*.

Chiricahua Mts.: 3 mi. east of Portal on Peach Orchard Road. Also Rincon Mts., Santa Catalina Mts. Throughout Arizona. Wyoming to Idaho, south to New Mexico, southern California, and Sonora. Western.

Exsicc.: SWRS [Elliott s.n.].

### **Chaetopappa ericoides** (Torr.) Nesom

*Aster arenosus* (Heller) Blake, *A. hirtifolius* Blake, *A. leucelene* Blake, *Leucelene arenosus* Heller, L. eriocoides (Torr.) Greene

[3,800] 4,700 - 5,500 ft. Mar - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Common on gravelly soils in encinals, semidesert grassland, and desert scrub; often found on disturbed soil.

*Bouteloua rothrockii*, *Quercus emoryi*, *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Pinery Canyon, lower Little Jesse James Canyon; Fort Bowie Nat. Historic Site on hill east of Overlook; lower Tex Canyon; 3 mi. north of Bernardino. Also Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Canelo Hills, Chihuahuan.

Exsicc.: CHIR [Clark 8634, Dole 110, Moir 507, Reeves 1591, 2388, 3070, 4042]. FOBO [MHoy 69]. SWRS [SWRS 1959-85, Walker s.n.]

***Chrysothamnus nauseosus* (Pall.) Britt. ssp. *latisquameus* (Gray) Hall & Clem.**

*Chrysothamnus nauseosus* var. *latisquameus* (Gray)

Hall

Rabbit-brush

[4,000] - 5,400 [7,000] ft. Sep - Oct. Broadleaf evergreen shrub, nanophanerophyte; nanophyll, sclerophyll. Common along roadsides and open woods, chiefly along streams.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Bonita Canyon; Fort Bowie Nat. Historic Site; Portal to Paradise road; 3.5 mi. east of Southwestern Research Station. Also Huachuca Mts., Santa Rita Mts., Pinaleno Mts., Animas Mts. Northern Navajo County and Cochise, Santa Cruz, and eastern Pima counties. Widely distributed in the western United States. Western.

Exsicc.: CHIR [Fish 33, Reeves 1743, 1898, Reed 243]. SWRS [Ordway 40].

***Cirsium arizonicum* (Gray) Petr.**

[3,000] - 6,500 [7,000] ft. [May] Jun - [Oct]. Perennial deciduous forb, semirosette hemicryptophyte. Common on dry uplands and rocky slopes, riparian at lower elevations.

Chiricahua Mts.: along Portal to Onion Saddle road. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Coconino County, Mohave County, south to Cochise, Santa Cruz, and Pima counties. Utah, Arizona and Sonora, Mexico. Southwestern.

Exsicc.: SWRS [SWRS 1958-143].

***Cirsium neomexicanum* Gray**

[1,000] 4,800 - 7,250 ft. [Mar] May - Jun [Sep]. Evergreen perennial forb, semirosette hemicryptophyte. Common on dry slopes, ridges and disturbed areas. *Quercus emoryi*, *Pinus discolor*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site along Apache Pass Road; foothills near Silver Creek. Also Huachuca Mts., Rincon Mts., Swisshelm Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Coconino, Yavapai, and northern Mohave counties, south to Cochise, Santa Cruz, Pima, and Yuma counties. Colorado to Nevada, south to New Mexico, Arizona, and southern California. Southwestern.

Exsicc.: CHIR [Clark 8922, Reeves 2747]. FOBO [MHoy 241]. SWRS [Mouat s.n.]

***Cirsium ochrocentrum* (Gray) Gray**

*Cnicus ochrocentrus* (Gray) Gray

[4,500] 5,200 - 6,000 [8,000] ft. [May] Jun - Sep [Oct]. Summer-annual therophyte. Uncommon on disturbed grassland; slopes, open land. Pinyon-juniper.

Chiricahua Mts.: Chiricahua Nat. Mon. in East Whitetail Canyon; Fort Bowie Nat. Historic Site; San Simon Valley 6 mi.

east of Portal. Also Pinaleno Mts., Animas Mts. Apache, Navajo, Coconino, and northern Yavapai counties, south to Cochise, Santa Cruz, and Pima counties. Nebraska to Texas and Arizona. Southwestern.

Exsicc.: CHIR [Clark 8233, Reeves 1637, 2916]. SWRS [Crazier s.n.]

***Cirsium rothrockii* (Gray) Petr.**

*Cirsium diffusum* (Eastw.) Rydb., *C. pulchellum* (Greene) Woot. & Standl. ssp. *diffusum* (Eastw.) Petr.

[4,000] 5,600 - 9,000 ft. Jun - Aug [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Uncommon on forested dry canyon slopes. *Pinus arizonica*, *Abies concolor*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; West Turkey Creek at Saulsbury Canyon Trail. Also Pinaleno Mts. Coconino County and in southern Navajo, Gila, and Cochise counties. Arizona. Southwestern.

Exsicc.: CHIR [Clark 8197, Reeves 1766, 2779, 3121, 3629, 3668]. SWRS [Wittmann 311]. CHWA [Leithliter 553].

***Cirsium undulatum* (Nutt.) Spreng. var. *undulatum***

*Carduus helleri* Small, *Cirsium megacephalum* (Gray) Cockrell, *C. ochrocentrum* (Gray) Gray var. *helleri* (Small) Petrak, *C. undulatum* var. *megacephalum* (Gray) Fern.

5,300 [7,000] - 9,790 ft. Jun - Oct. Perennial deciduous forb, semirosette hemicryptophyte. Uncommon on rocky slopes, forest openings, dry meadows; south-facing slopes.

Chiricahua Mts.: South Fork Cave Creek; Wilderness Area; Anita Park. Also Rincon Mts., Huachuca Mts., Santa Catalina Mts., Animas Mts. Apache County, Coconino County, Cochise and Pima counties. Michigan to British Columbia, south to Texas and Arizona. Plains.

Exsicc.: SWRS [Pough 1961-36]. CHWA [Leithliter 187, 781].

***Conyza canadensis* (L.) Cronq.**

*Erigeron canadensis* L.

Horseweed

[1,000] 5,000 - 6,000 [7,400] ft. Jun - Oct. Summer-annual forb, scapose or leafy-stemmed therophyte. Common on canyon slopes, dry uplands, alluvium, disturbed soil, cultivated fields, waste places. *Quercus emoryi*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in lower Bonita Canyon; Whitetail Canyon; Fort Bowie Nat. Historic Site in Cut Off Canyon and South Canyon; Southwestern Research Station; Cave Creek; Pine Canyon; East Turkey Creek. Also Huachuca Mts., Pinaleno Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Throughout most of Arizona except the extreme western portion. Widely distributed in North and South America; naturalized in the Old World. Temperate, Latin American.

Exsicc.: CHIR [Clark 8719, 8937, 9232, Reeves 1724, 4047, 4345, 4420, 4466]. FOBO [MHoy 278]. SWRS [Roth s.n.]

***Cosmos parviflorus* (Jacq.) Kunth**

[4,000] 5,200 - 9,200 ft. [Jul] Aug - Oct. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon in open pine forests, cool hillsides, soil pockets in canyon bottoms, sometimes on cultivated land.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; Rustler Park; Goldenrod Park; 3 mi. up road from Southwestern

Research Station on Onion Saddle Road; Wilderness Area, Crest Trail near northern boundary; Rucker Canyon; Pinery Canyon. Also Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Huachuca Mts., Sierra de los Ajos. Southern Apache and Coconino counties to Cochise, Standl. Santa Cruz, and Pima counties. Southeastern Colorado to southwestern Texas, Arizona, and Mexico. Southwestern.

Exsicc.: CHIR [Fish 23, Reeves 1248, 1716]. SWRS [Roth s.n.]. CHWA [Leithliter 684].

### **Dugaldia hoopesii** (Gray) Rydb.

*Helenium hoopesii* Gray.

Western sneezeweed, orange sneezeweed

[7,000] 7,710 - 9,790 [11,000] ft. Jun - Oct. Perennial deciduous forb, semirosette hemicryptophyte. Common on mesic forested slopes but often in dry meadows at upper elevations; riparian at bottom of elevational range.

Chiricahua Mts.: Greenhouse Trail; Rustler Park; Long Park; Wilderness Area along Crest Trail, Round Park, Cima Park; Barfoot Park; Pinery Canyon near woodcutter's graves; Centella Point; Anita Park; Antler Park. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts. Apache, Coconino, Greenlee, Graham, Cochise, and Pima counties. Wyoming to Oregon, south to New Mexico, Arizona, and California. Western.

Contains a toxic glucoside, dugaldin, which causes "spewing sickness" in sheep. Also poisonous to cattle but rarely eaten by them. Exsicc.: SWRS [Ordway s.n.]. CHWA [Leithliter 184, 424, 665, 833].

### **Dyssodia papposa** (Vent.) Hitchc.

*Boebera papposa* (Vent.) Rydb., *Tagetes papposa* Vent.

[4,500] - 5,400 [7,000] ft. [Aug] - Sep [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; leptophyll, orthophyll. Fields, roadsides, and waste places.

Chiricahua Mts.: Paradise beside the creek; Cave Creek Canyon. Also Canelo Hills, Sierra Ancha. Navajo, Coconino, Greenlee, Gila, Cochise, and Santa Cruz counties. Illinois to Montana, south to Louisiana and Arizona. Temperate.

Exsicc.: SWRS [Walker s.n.]. ARIZ [Blumer 54, Hesselberg 880, Harrison et al. 6143].

### **Ericameria laricifolia** (Gray) Shinners

*Haplopappus laricifolius* Gray, *Aplopappus laricifolius* Gray

Turpentine-brush

[3,000] 4,600 - 5,400 [6,000] ft. Jun [Aug] - Oct [Nov]. Narrowleaf dicot shrub, nanophanerophyte; nanophyll, sclerophyll. Common in grassland and scrub, dry or moist moderately saline fine-textured upland soils, lower bajadas or along arroyos, full sun. *Quercus arizonica*, *Q. emoryi*, *Cupressus arizonica*, *Arcostaphylos pungens*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; Fort Bowie Nat. Historic Site; Portal - San Simon road, 2 mi. east of Portal. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Greenlee County to Mohave County, south to Cochise, Pima, and Yuma counties. Western Texas to Arizona and northern Mexico. Southwestern.

Presence in significant quantity on rangelands usually indicates overgrazing.

Exsicc.: CHIR [Reeves 1330, 1767, 2269]. SWRS [SWRS 1959-241, Walker s.n.].

### **Erigeron arizonicus** Gray

*Erigeron huachucanus* Greene, *E. rusbyi* Gray

[6,500] 8,200 - 8,800 [10,500] ft. [Jul] Aug - Sep [Oct]. Perennial deciduous forb, semirosette hemicryptophyte; microphyll, orthophyll. Uncommon on mesic forested slopes, in openings at higher elevations and mesic canyons lower down. *Pinus arizonica*, *P. strobus*, *P. discolor*, *Pseudotsuga menziesii*, *Quercus arizonica*, *Q. hypoleuca*, *Abies concolor*.

Chiricahua Mts.: Wilderness Area, near P.K. Spring turnout. Also Santa Catalina Mts., Santa Rita Mts., Huachuca Mts., Pinaleno Mts., Sierra de los Ajos. Cochise and Pima counties. Known only from southern Arizona and Sonora, Mexico. Apachian.

Exsicc.: CHWA [Leithliter 488, 812, 857]. ARIZ [Goodding 261, 349; Shreve 5094; Reichenbacher 2688; Nessom 4531; Bowers & McLaughlin 3302, 3360, 3562; Peebles et al. 2414; Livingston & Thornber s.n.; Bertelsen s.n.; 346; Warren & Reichardt s.n.; Benson 9033].

### **Erigeron colomexicanus** A. Nels.

*Erigeron divergens* Torr. & Gray var. *cinereus* Gray, Fleabane, sprawling daisy

[4,000] 5,100 - 7,600 ft. Mar - Oct. Evergreen perennial forb, semirosette hemicryptophyte; leptophyll, orthophyll. Common on sunny grassy flats and openings on rocky wooded slopes, loamy soil. *Juniperus deppeana*, *Quercus arizonica*, *Q. rugosa*, *Q. hypoleuca*, *Cupressus arizonica*, *Platanus wrightii*, *Pinus leiophylla*, *P. engelmannii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Pickett Canyon, slopes of Bonita Canyon and Hunt Canyon; Fort Bowie National Historic Site in Cut Off Canyon; Portal to Paradise Road; Portal; Rucker Canyon near Hermatage Forest Camp; West Turkey Creek at Rock Creek; Onion Saddle; below Rustler Park; Whitetail Canyon near Hands Pass; lower Pinery Canyon; Centella Point. Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. and Canelo Hills. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Colorado and Utah to Texas, New Mexico, Arizona, and northern Mexico. Western.

Exsicc.: CHIR [Clark 8270, 8455, 8639; Fish 37; Reeves 1880, 2617, 3956, 4013, 4210]. FOBO [MHoy 73]. SWRS [Roth s.n.; Luetke s.n.; Amadon s.n.].

### **Erigeron concinnus** (Hook. & Arn.) Torr. & Gray var. **concinnus**

*Erigeron pumilus* Nutt. ssp. *concinnoides* Cronq. var. *concinnoides* Cronq., *E. pumilus* ssp. *concinnoides* var. *euconcinnoides* Cronq.

[3,000] - [8,000] ft. [Apr] - [Oct]. Evergreen perennial forb, semirosette hemicryptophyte. Common on dry uplands, sandy or stony mesas and slopes, with pine and juniper.

Chiricahua Mts. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts. Northern Apache County to northern and eastern Mohave County, south to Cochise and Pima counties. Montana to British Columbia, south to New Mexico, Arizona, and California. Western.

### **Erigeron eximius** Greene

*Erigeron superbus* Greene ex Rydb.

5,500 - 9,790 [10,500] ft. Jul - Nov. Perennial deciduous forb, semirosette hemicryptophyte; microphyll, orthophyll. Uncommon in mesic canyons, ravines, springs, on east- or west-facing slopes in coniferous forest openings. *Picea*

*engelmannii*, *Abies lasiocarpa*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; Wilderness Area. Also Huachuca Mts., Rincon Mts., Pinaleno Mts. Coconino, Graham, Cochise, and Pima counties. Wyoming to Utah, New Mexico, and Arizona. Rocky Mountain.

The validity of these collections should be evaluated in view of Bowers (1987) comments on *Erigeron speciosus*.

Exsicc.: CHIR [Borell 23, Reeves 1756, 1837, 4264]. CHWA [Leithliter 182, 551, 588]. ARIZ [Kearney & Peebles 9946, 14138; Darrow, et al. 1109, 1148].

### **Erigeron flagellaris** Gray

*Erigeron flagellaris* var. *typicus* Cronq., *E. nudiflorus* Buckl.

[3,000] 5,200 - 6,100 [9,600] ft. [Apr] Jun - Aug [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Common in open, oak, pinyon, juniper woods, cool moist slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; Cave Creek Canyon, lower East Turkey Creek; North Fork Cave Creek; Centella Point. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Animas Mts., Sierra de los Ajos. Northern Apache, Navajo, and Coconino counties to Cochise, Santa Cruz, and Pima counties. South Dakota and Wyoming to Texas, New Mexico, southern Arizona and Sonora, Mexico. Plains, Rocky Mountain.

Exsicc.: CHIR [Reeves 1412, 3807].

### **Erigeron kuschei** Eastw.

[6,000] 6,875 - 9,080 ft. Jun - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon on cliffs and rocky openings in pine forest.

Chiricahua Mts.: Wilderness Area, Crest Trail at Paint Rock, Crest Trail south of Rustler Park, Rucker Canyon; Raspberry Peak; Cave Creek; base of Winn Falls; above Ruster Park. Endemic to the Chiricahua Mts. Cochise County. Apachian.

Exsicc.: SWRS [Roth s.n.]. CHWA [Leithliter 117, 757].

### **Erigeron neomexicanus** Gray

*Erigeron delphinifolius* Willd. ssp. *neomexicanus* (Gray) Cronq. var. *euneomexicanus* Cronq., *E. delphinifolius* Willd. ssp. *neomexicanus* (Gray) Cronq.

[4,000] 5,400 - 8,800 [9,000] ft. Jul - Oct. Perennial deciduous forb, semirosette hemicryptophyte; leptophyll, orthophyll. Common throughout, dry uplands, wet canyon bottoms with oaks or pines. *Pseudotsuga menziesii*, *Pinus arizonica*, *P. discolor*, *P. strobus*, *Juniperus deppeana*, *Quercus hypoleucoides*, *Q. arizonica*, *Q. emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. in upper Whitetail Canyon, north slope Sugarloaf Mtn., upper Sara Deming Canyon; Greenhouse Trail; roadcut above Turkey Park; Southwestern Research Station; Barfoot Park; lower Pinery Canyon; Rustler Park; Wilderness Area; Cave Creek Canyon; Paradise. Also Huachuca Mts., Santa Catalina Mts., Sierra Ancha, Mule Mts., Animas Mts., Sierra de los Ajos. Coconino County, to Greenlee, Graham, Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and Sonora, Mexico. Madrean.

Exsicc.: CHIR [Clark 8701, Moir 464, Reeves 1261, 1498, 1712]. SWRS [Pough 1962-32, Roth s.n., Ordway 108, Nesson 138]. CHWA [Leithliter 592, 647, 709, 754, 807].

### **Erigeron oreophilus** Greenm.

*Erigeron delphinifolius* Willd. var. *oreophilus* (Greenm.) Cronq.

Fleabane, wild daisy

[4,500] 5,100 - 8,860 [9,500] ft. May - Nov. Perennial deciduous herb, semirosette hemicryptophyte; nanophyll, orthophyll. Uncommon in wooded canyons, along streams and dry forest slopes, oak chaparral and open pine forests.

Chiricahua Mts.: Chiricahua Nat. Mon. in upper Sara Demming Canyon, East Whitetail Canyon; Fort Bowie Nat. Historic Site at Massacre Site, Apache Pass; 2 mi. east of Onion Saddle on Portal Road; Rustler Park; Silver Peak Trail; Wilderness Area; Centella Point. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts. Apache, Navajo, and Coconino counties to Graham, Cochise, Santa Cruz, and Pima counties. Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8455, Reeves 1880, 3956]. FOBO [MHoy 496]. SWRS [Ordway s.n.; Roth s.n.]. CHWA [Leithliter 520, 611].

### **Erigeron scopulinus** Nesom & Roth

7,200 - 9,200 ft. May - Jun. Perennial deciduous forb, semirosette proto-chamaephyte; nanophyll, orthophyll. Rare on cool but not wet cliffs, latite or rhyolite tuff derived soils; east- and northeast-facing rock faces. *Acer glabrum*, *Pseudotsuga menziesii*, *Populus tremuloides*, *Pinus strobus*, *Abies concolor*, *Physocarpus monogynus*, *Philadelphus microphyllus*, *Eriogonum jonesii*, *Thalictrum fendleri*, *Penstemon pinifolius*, *Draba petrophila*, *Heuchera versicolor*, *Poa fendleri*, *Carex geophila*, *Sedum griffithsii*, *Erigeron kuschei*, *Selaginella underwoodii*, *Saxifraga eriophora*, *Dryopteris runcinatum*, *Gallium fendleri*, and *Dermatocarpon moulinii* (lichen).

Chiricahua Mts.: Winn Falls, Crest Trail at Paint Rock; Rucker Canyon. New Mexico, Sierra Co., Black Range. Apachian.

Nesom & Roth (1981).

Exsicc.: SWRS [Wittmann 100; Roth s.n. (isotype)].

### **Erigeron speciosus** (Lindl.) DC. var.

*macranthus* (Nutt.) Cronq.

*Erigeron macranthus* Nutt.

6,000 - 8,300 [9,500] ft. May - Oct. Perennial deciduous forb, hsc; microphyll, orthophyll. Uncommon on rich soil or rocky slopes, oak thickets and pine woods.

Chiricahua Mts: Chiricahua Nat. Mon. in Whitetail Canyon; Hunt Canyon; Barfoot Park. Also Rincon Mts., Pinaleno Mts. Apache, Navajo, Coconino, Graham, and Cochise counties. Alberta and British Columbia, south to New Mexico and Arizona. Western.

"Collections of this taxon from the Rincon Mountains will key in Arizona Flora (Kearn et al. 1960) to *Erigeron superbus* Greene. *E. speciosus* var. *macranthus* is robust and many-stemmed, while *E. superbus* is slender and few-stemmed". Bowers 1987.

### **Erigeron vreelandii** Greene

*Erigeron platyphyllus* Greene, *E. patens* Greene, *E. foliostissimus* Greene

[4,000] 6,000 - 8,120 [9,800] ft. Jul - Oct. Perennial deciduous forb, semirosette hemicryptophyte. Uncommon in wooded, mesic canyons, rich soil in coniferous forests.

Chiricahua Mts.: Chiricahua Nat. Mon.; upper Pinery Canyon; East Turkey Creek; Wilderness Area. Also Pinaleno Mts.,

Catalina Mts., Animas Mts., Sierra de los Ajos. Southern Apache and Navajo counties, Coconino County, Mohave County, south to Cochise and Pima counties. New Mexico, Arizona, and Sonora, Mexico. Apachian.

Exsicc.: CHIR [Clark 8514, Reeves 1837A, 3768]. SWRS [Roth s.n.; Walker s.n.]. CHWA [Leithliter 163, 429, 646].

### **Eupatorium greggii Gray**

*Conoclinium greggii* (Gray) Small

[3,500] - 5,800 [6,000] ft. [Jun] - [Oct]. Perennial deciduous forb. Plains and mesas, limestone soils.

Chiricahua Mts.: Mt. Desert. Mule Mts. Throughout Cochise County. Western Texas, southeastern Arizona, and Mexico southward to Zacatecas. Chihuahuan.

### **Eupatorium pycnocephalum Less.**

*Fleischamnna pycnocephalum* (Less.) King and H.E. Robins.

[3,500] - 6,000 ft. [May] - Sep [Oct]. Deciduous perennial forb, scapose or leafy-stemmed hemicryptophyte. Rocky slopes and ledges along streams, in the shade of trees and boulders; on humus-rich soils.

Chiricahua Mts.: South Fork Cave Creek. Also Rincon Mts., Santa Catalina Mts., Superstition Mts., Mule Mts. Pinal, Cochise, Santa Cruz, and Pima counties. Southern Arizona to South America. Southwestern, Latin American.

Exsicc.: SWRS [Cummins 212-61].

### **Flourensia cernua DC.**

Black brush, hojase, tar bush

[3,500] - 4,500 [5,000] ft. [Jul] - Oct [Dec]. Broadleaf evergreen shrub, nanophanerophyte. Common in lower encinal and desert grassland, middle to lower bajada slopes, tolerates limestone soils.

Chiricahua Mts.: 0.5 mi. northwest of Portal; Fort Bowie Nat. Historic Site; San Simon Cienega. Also Santa Catalina Mts., Mule Mts. Cochise County. Western Texas to southeastern Arizona and northern Mexico. Chihuahuan.

Exsicc.: SWRS [Ordway 41, Roth s.n.].

### **Gaillardia pinnatifida Torr.**

*Gaillardia multiceps* Greene, *G. mearnsii* Rydb., *G. linearis* Rydb., *G. crassa* Rydb., *G. globosa* A. Nels. Blanket-flower

[3,100] 5,000 - [7,000] 8,200 ft. Mar - Oct. Summer annual forb, semirosette therophyte; nanophyll, orthophyll. Common in grassland and grassland/scrub, roadsides, dry uplands, mesas, plains, mesic canyons, open pine forests; often on limestone.

*Platanus wrightii*, *Juglans major*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; along Herb Martyr Road, below Cave Creek Ranger Station; lower Rucker Canyon; Paradise; lower Whitetail Canyon; Rustler Park. Also Rincon Mts., Sierra Ancha, Animas Mts. Apache, Navajo, Coconino, and eastern Mohave counties, south to Cochise, Santa Cruz, and Pima counties. Colorado and Utah to Texas, Arizona, and Mexico. Western.

Used by Hopi Indians as a diuretic.

Exsicc.: CHIR [Dodd 2-3, Reeves 2871, 2910, 3470, 4214]. SWRS [Graber s.n., SWRS 1958-35].

### **Gaillardia pulchella Foug. var. *pulchella***

*Gaillardia drummondii* (Hook.) DC., *G.*

*neomexicana* A. Nels., *G. villosa* Rydb.

Blanket-flower, Indian blankets, firewheel

[3,500] 5,000 - 6,200 ft. Mar - Aug [Sep]. Winter-annual forb, semirosette thereophyte; nanophyll, orthophyll. Common along roads in grasslands, mountain sides. Does well on moderately disturbed sites. Plains.

Chiricahua Mts.: Chiricahua Nat. Mon. in Sarah Deming Canyon. Fort Bowie Nat. Historic Site at trailer; Portal to Paradise road; West Turkey Creek road. San Simon Valley. Also Animas Mts. Yavapai, Greenlee, Graham, Gila, Pinal, Cochise, and Pima counties. Nebraska and Missouri to Louisiana, west to Colorado and southeastern Arizona. Southwestern, Plains.

Striking, showy flowers.

Exsicc.: CHIR [Clark 8964]. FOBO [MHoy 170]. SWRS [Orway s.n., Roth s.n.].

### **Galinsoga parviflora Cav.**

*Galinsoga semicalva* (Gray) St. John & White, *G. parviflora* var. *semicalva* Gray, *G. semicalva* var. *percalva* Blake

5,300 - 8,400 ft. Sep - Oct. Summer-annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon in soil pockets in rocks, rich soil in shade. *Juniperus deppeana*, *Pinus discolor*, *Quercus arizonica*.

Chiricahua Mts.: Rustler Park Meadow; East Turkey Creek; Rucker Canyon; Cave Creek Canyon; Paradise; Centella Point. Also Rincon Mts., Animas Mts., Mule Mts., Huachuca Mts., Baboquivari Mts., Patagonia Mts., Santa Catalina Mts., Santa Rita Mts., Pinaleno Mts., Sierra de los Ajos. Southern Apache, Graham, Cochise, and Pima counties. Southern New Mexico and Arizona, and northern Mexico. Southwestern.

Exsicc.: SWRS [Clarke s.n., Todsens s.n.]. ARIZ [Harrison et al. 6142, 6203, Gould & Haskell 4591, Blumer 51, 92, 1652, 1713].

### **Gamochaeta falcata (Lam.) Cabrera**

*Gamochaeta calviceps* (Fern.) Cabrera, *Gnaphalium calviceps* Fern., *G. falcatum* Lam., *G. purpureum* L. var. *falcatum* (Lam.) Torr. & Gray

Cud-weed, everlasting

[3,000] 5,250 - 6,300 [7,500] ft. [Mar] Apr - [May]. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon in grassland, arroyos, seeps; disturbed ground. *Juniperus deppeana*, *Bouteloua* sp., *Gnaphalium wrightii*, *Bahia divaricata*.

Chiricahua Mts.: Chiricahua Nat. Mon. on slopes north of Pinery Canyon; Rucker Canyon. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Boboquivari Mts. Cochise and Pima counties. Maine to Kansas and southern Arizona, British Columbia to California. Temperate.

Exsicc.: CHIR [Reeves 2595].

### **Gnaphalium canescens DC.**

*Gnaphalium wrightii* Gray, *Pseudognaphalium canescens* (DC.) W.A. Weber

Cud-weed, everlasting

[3,500] 4,900 - 7,490 ft. [May] Aug - Oct. Perennial deciduous forb, semirosette proto-chamaephyte; nanophyll, orthophyll. Uncommon on xeric rocky woodland slopes; arroyos at lower elevations; disturbed soils. *Juniperus deppeana*, *Bahia dissecta*, *Bouteloua gracilis*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Chiricahua Nat. Mon. at junction of West Turkey Creek road and highway 181, Rhyolite Canyon; Wilderness Area, South Fork Cave Creek;

north of Whitewater Draw; Paradise. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Grand Canyon (Coconino County) and eastern Mohave County to Greenlee, Cochise, Santa Cruz, and Pima counties. Western Texas to southern California and northern Mexico. Southwestern.

Exsicc.: CHIR [Fish 4, Reeves 1742, 4371A, 4469, 4568]. SWRS [Pough 1961-139].

### **Gnaphalium pringlei** Gray

Cud-weed, everlasting

[4,000] - 6,300 [8,000] ft. Jul - [Oct]. Perennial deciduous forb, semirosette hemicryptophyte. Uncommon on mesic slopes, becoming riparian at lower elevations.

Chiricahua Mts.: Chiricahua Nat. Mon. in Sarah Deming Canyon. Also Sierra Ancha, Santa Catalina Mts., Mazatzal Mts., Animas Mts. Gila, Cochise, Santa Cruz, and Pima counties. Southern Arizona and Chihuahua. Apachian.

Exsicc.: CHIR [Clark 8368].

### **Gnaphalium stramineum** Kunth

*Gnaphalium chilense* Spreng., *G. chilense* var. *confertifolium* Greene, *Pseudognaphalium*

*stramineum* (Kunth) W.A. Weber

Cud-weed, everlasting

[100] 5,200 - 7,200 ft. [May] Aug - Sep [Oct].

Winter-annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon on alluvium in canyons, disturbed soil and ruderal areas, along streams. *Quercus arizonica*, *Pinus leiophylla*, *P. engelmannii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in lower Pickett Canyon. West Turkey Creek. Also Rincon Mts., Animas Mts. Apache County, Coconino County, and Mohave County to Cochise, Santa Cruz, Pima, and Yuma counties. Montana and Washington, south to Texas, southern Arizona, and California. Western.

Exsicc.: CHIR [Reeves 3925, 3995, 4371, 4468].

### **Gnaphalium viscosum** Kunth

*Gnaphalium ducurrens* Ives non L., *G. macounii* Greene, *Pseudognaphalium viscosum* (Kunth) W.A. Weber

Cud-weed, everlasting

[5,500] 6,000 - 9,000 [10,000] ft. Jul - Oct. Scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Common in dry uplands, *Cupressus* woods, and other open coniferous forests.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; Wilderness Area, Crest Trail near Painted Rocks; Barfoot Park; Centella Point; Long Park. Also Sierra Ancha, White Mts., Rincon Mts., Pinaleno Mts., Sierra de los Ajos. Apache County, Coconino County, and Mohave County, to Cochise and Pima counties. Canada south to West Virginia, Texas, southern Arizona, northern California and Sonora, Mexico. Northern.

Exsicc.: CHIR [Reeves 4500]. SWRS [Luetcke s.n.]. CHWA [Leithliter 495, 726, 846].

### **Grindelia nuda** Wood var. **aphanactis** (Rydb.)

Nesom

*Grindelia aphanactis* Rydb.

[5,000] - 4,500 [7,000] ft. [Jun] Jul - [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Disturbed ground and roadsides. *Prosopis*

*glandulosa*, *Juglans major*, *Juniperus deppeana*, *Opuntia spinosor*, *Baccharis salicifolia*, *Fraxinus pennsylvanica velutina*.

Chiricahua Mts.: Lower Cave Creek near Cave Creek Ranch. Also Animas Mts. Apache, Navajo, Coconino, Yavapai, and Cochise counties. Southeastern Utah and southern Colorado to western Texas, New Mexico, and eastern Arizona. Southwestern.

Exsicc.: SWRS [Wittmann 111].

### **Gutierrezia microcephala** (DC.) Gray

*Brachyris microcephala* DC., *Gutierrezia glomerella* Greene, *G. lucida* Greene, *G. sarothrae* (Pursh) Britt. & Rusby var. *microcephala* (DC.) L. Benson, *Xanthocephalum microcephalum* (DC.) Shinners

Three leaf snakeweed

[3,500] - [6,500] ft. [Jun] Sep - Oct. Narrowleaf dicot shrub, suffrutescent chamaephyte. Uncommon on dry north-facing slopes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; 4 mi. southeast of Portal toward Rodeo. Also Huachuca Mts., Rincon Mts., Peloncillo Mts., Pinaleno Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Navajo, Coconino, and eastern Mohave counties, south and southeast to Cochise County. Texas to Idaho, south to Arizona and Coahuila. Southwestern.

Type collected in the Chiricahua Mts. by J.C. Blumer.

Exsicc.: SWRS [Walker s.n., 1958-813]. ARIZ [Blumer s.n.].

### **Gutierrezia sarothrae** (Pursh) Britt. & Rusby

*Gutierrezia diversifolia* Greene, *G. lepidota* Greene, *G. linearifolia* Lag., *G. linearis* Rydb., *G. linooides* Greene, *G. longipappa* Blake, *G. pomariensis* (Welsh) Weslsh, *G. sarothrae* var. *pomariensis* Welsh, *G. tenuis* Greene, *Solidago sarothrae* Pursh, *Xanthocephalum sarothrae* (Pursh) Shinners, *X. sarothrae* var. *pomariense* (Welsh) Welsh, *X. tenuie* (Greene) Shinners

Snake-weed

[3,000] 5,400 - 7,200 [8,000] ft. [Jul] Aug - Sep [Nov]. Narrowleaf dicot shrub, suffrutescent chamaephyte; leptophyll, sclerophyll. Common in open woodland and chaparral, dry uplands. May be invasive following heavy grazing.

Chiricahua Mts.: Chiricahua Nat. Mon. on north face Sugarloaf Mtn.; Fort Bowie Nat. Historic Site; Silver Creek; 2 mi. northeast of Portal; grassland in lower Pinery Canyon. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Saskatchewan to Kansas, south to northern Mexico, and Baja California. Southwestern.

Exsicc.: CHIR [Clark 8395, Reeves 1321, 1402, 3992, 4426]. SWRS [sn. sc.].

### **Gutierrezia wrightii** Gray

*Greenella discoidea* Gray, *Xanthocephalum wrightii* (Gray) Gray

[4,500] - 6,000 [9,000] ft. [Aug] - Oct. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. *Pinus engelmannii*, *P. discolor*, *Juniperus deppeana*, *Quercus arizonica*.

Chiricahua Mts.: Rucker Canyon. Also Huachuca Mts., Animas Mts., Santa Rita Mts., Mule Mts., Canello Hills, Patagonia Mts. Sierra Madre Occidental: Sierra del Tigre, Sierra de los Ajos. Southern Apache and Navajo counties to the mountains of Cochise, Santa Cruz and Pima counties. New Mexico, Arizona

and Sonora, Mexico. Madrean.

Exsicc.: ARIZ [Gould & Haskell 4603].

### **Gymnosperma glutinosum** (Spreng.) Less.

*Gutierrezia glutinosa* (Spreng.) Schultz-Bip. *Selloa glutinosa* Spreng., *Gymnosperma corymbosum* DC., *Xanthocephalum glutinosum* (Spreng.) Shinners, *X. sphaerocephalum* (Gray) Shinners

[1,000] 5,000 - 7,308 ft. [Mar] Jul - Oct [Dec]. Narrowleaf dicot shrub, suffrutescent chamaephyte; nanophyll, sclerophyll. Common on rocky xeric slopes above, becoming confined to drainages at lower elevations. *Quercus arizonica*, *Pinus leucophylla*, *P. discolor*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Whitetail Canyon, Echo Canyon, Bonita Canyon; along Cave Creek road 5.5 miles west of Southwestern Research Station; Wilderness Area, South Fork Cave Creek; Silver Creek; Paradise; East Turkey Creek. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Greenlee, Maricopa, Pinal, Cochise, Santa Cruz, Pima, and Yuma counties. Texas to southern Arizona, south to Central America. Southwestern, Latin American.

In Mexico the plant is used in decoctions for treating diarrhea, and the gum is used externally in cases of rheumatism and ulcers. Becomes invasive on over-grazed ranges.

Exsicc.: CHIR [Borell 3, Clark 8350, Reeves 1003, 1519, 1818, 1852]. CHWA [Leithliter 640].

### **Helianthella quinquenervis** (Hook.) Gray

*Helianthella quinquenervis* Hook.

[5,000] - 8,200 [10,000] ft. [Jul] - Oct. Perennial deciduous forb, semirosette hemicryptophyte; mesophyll, orthophyll. Uncommon in shallow ravines, meadows. *Abies concolor*, *Pseudotsuga manziesii*.

Chiricahua Mts.: Barfoot Park. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Huachuca Mts. Coconino County, Cochise County, Apache, Greenlee, Graham, and Pima counties. South Dakota to Idaho (?), south to New Mexico, Arizona, and Chihuahua. Chihuahuayan.

Exsicc.: ARIZ [Toolin 1061; Harrison & Porter 3048; Blumer 1442].

### **Helianthus annuus** L.

*Helianthus annuus* ssp. *jaegeri* (Heiser) Heiser, *H. annuus* ssp. *lenticularis* (Dougl. ex Lindl.) Cockerell, *H. annuus* ssp. *texanus* Heiser, *H. annuus* var. *lenticularis* (Dougl.) Steyermark, *H. annuus* var. *macrocarpus* (DC.) Cockerell, *H. annuus* var. *texanus* (Heiser) Shinners, *H. aridus* Rydb., *H. lenticularis* Dougl.

Sunflower

[100] 4,200 - 4,900 [7,000] ft. [Mar] Jun - Oct. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon on dry uplands, flats, and fields but growing well in low spots, and along roadsides.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at gate. San Simon Valley. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Nearly throughout Arizona. Saskatchewan to Texas and westward, cultivated and escaping or becoming established elsewhere throughout the United States. Western.

Exsicc.: FOBO [MHoy 348]. SWRS [Wittmann 229, Roth s.n.].

### **Helianthus petiolaris** Nutt.

Sunflower

[500] 5,000 - 5,400 [7,500] ft. [Mar] Jun - Sep [Oct]. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon in disturbed soil, arroyos, roadsides, cultivated land, alluvial soils. *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. north of Pinery Canyon; Fort Bowie Nat. Historic Site, western foot of Apache Pass; mouth of Little Pickett Canyon. Also Huachuca Mts., Animas Mts., Apache, Navajo, and Coconino counties, south to Cochise, Santa Cruz, Pima, and Yuma counties. Saskatchewan to Missouri and Texas, west to British Columbia and California, uncommon farther east as an introduction. Western.

Exsicc.: CHIR [Clark 9233, Reeves 1656, 4044]. SWRS [Roth s.n.].

### **Heliomeris longifolia** (Robins. & Greenm.)

Cockerell var. *annua* (M.E. Jones) Yates

*Heliomeris annual* (M.E. Jones) Cockerell, *Viguiera annua* (M.E. Jones) Blake, *V. longifolia* var. *annua* (M.E. Jones) Welsh

[2,500] 4,600 - 5,400 [7,000] ft. [May] Jul - Oct. Summer-annual forb, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Uncommon on hills in the desert grassland - desert ecotone, disturbed slopes and flats, in washes; often grows in the shade of other plants.

Chiricahua Mts.: Chiricahua; 2 mi. south of Portal; Chiricahua Nat. Mon. in Bonita Canyon, Weather Station Hill. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Canelo Hills, Sierra de los Ajos. Apache County to eastern Mohave County, south to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Chihuahuayan.

Good forage for sheep, invasive on over-grazed range.

Exsicc.: SWRS [SWRS 1960-297]. CHIR [Reeves 1770].

### **Heliomeris longifolia** (Rob. & Greenm.) var. *longifolia*

*Gymnolomia longifolia* Rob. & Greenm., *Viguiera longifolia* (Robins. & Greenm.) Blake

Longleaf goldeneye

[4,500] 5,400 - 8,860 [9,000] ft. Jul - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; leptophyll, orthophyll. Common in pine and oak woods, dry slopes and plains. *Quercus emoryi*, *Q. arizonica*, *Garrya wrightii*, *Arctostaphylos pungens*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; Wilderness Area. Also Pinaleno Mts. Coconino County to Greenlee, Cochise, Santa Cruz, and Pima counties. Arizona, New Mexico, Texas, Mexico. Southwestern.

Blake, S.F., 1918, A revision of the Genus *Viguiera*; Harvard Univ. Contrib. Gray Herbarium (n.s.) 54:1-205.

Exsicc.: CHIR [Reeves 1312, 1601, 1779, 4518]. CHWA [Leithliter 721, 748, 815, 824].

### **Heliomeris multiflora** Nutt. var. *brevifolia*

(Greene) Yates

*Viguiera ovalis* Blake

[6,000] 7,000 - 9,200 ft. Jun - Jul [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon on rocky slopes and outcrops.

Chiricahua Mts.: Wilderness Area, above Winn Falls, Centella Point. Cochise County, at Cave Creek. Summit of Huachuca Peak. Southwestern New Mexico and southeastern Arizona. Apachian.  
Exsicc.: SWRS [Roth s.n.]. CHWA [Leithliter 405].

**Heliomeris multiflora** Nutt. var. **multiflora**  
*Viguiera multiflora* (Nutt.) Blake var. *multiflora*,  
*Heliomeris multiflora* Nutt.

Showy goldeneye, rosinweed

[4,500] 4,900 - 9,510 ft. May - Nov. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; leptophyll, orthophyll. Uncommon in wooded canyons, somewhat intolerant of shade, dry slopes and mountain meadows. *Arctostaphylos pungens*, *Pinus discolor*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Sugarloaf Parking Lot; Rustler Park; Southwestern Research Station; Fort Bowie Nat. Historic Site in South Canyon; Wilderness Area; Centella Point; Sierra de los Ajos. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Apache County to northeastern Mohave County, south to the mountains of Cochise, Santa Cruz, and Pima counties. Southern Montana to New Mexico, Mexico, Arizona, California and Idaho. Western. Blake (1918).

Exsicc.: CHIR [Moir 463, Reeves 1512, 1758, 1897]. SWRS [Roth s.n.]. FOBO [MHoy 526]. CHWA [Leithliter 301, 844].

**Heliopsis parvifolia** Gray

Ox-eye

[4,000] 6,560 - 9,020 ft. Jun - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Common on dry slopes, rock outcrops, rich soil in canyons. *Quercus hypoleucoides*, *Q. arizonica*, *Juniperus deppeana*, *Platanus wrightii*, *Pinus engelmannii*.

Chiricahua Mts.: Rustler Park; Wilderness Area; Onion Saddle; Pinery Canyon; Long Park; Cave Creek; Paradise; Barfoot Park. Also Huachuca Mts., Santa Rita Mts., Mule Mts., Baboquivari Mts. Cochise, Santa Cruz, and Pima counties. Southwestern Texas to southern Arizona and northern Mexico. Madrean.

Exsicc.: SWRS [Ordway s.n.]. CHWA [Leithliter 450, 475, 580, 660]. ARIZ [Spaulding 75-10-12, Bowers & McLaughlin 4308, Goodding 35-61, 162-47, Darrow, et al. 1249, Parker et al. 6677, Hesselberg s.n., Stone s.n., Lehto 3368, Barr 60-182, 63-495 64-429, McCormick 234, 326, 428, Kaiser 49-159, Blumer 1436, Shreve 6350].

**Heterosperma pinnatum** Cav.

[4,000] 5,000 - 6,000 [7,000] ft. [Aug] - Sep. Summer annual forb, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Common in openings in disclimax grassland, woodland and chaparral, rich soil, sometimes on limestone. *Ceanothus* sp., *Arctostaphylos pungens*, *Quercus toumeyi*, *Q. emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Picket Park; Fort Bowie Nat. Historic Site along Apache Pass Road; Southwestern Research Station at West Turkey Creek, El Coronado Ranch; Paradise; mouth of Bonita Canyon. Also Huachuca Mts., Rincon Mts., Mule Mts., Animas Mts., Canelo Hills. Coconino County, Yavapai County, south to Greenlee, Cochise, Santa Cruz, and Pima counties. Southwestern Texas to Arizona, south to Guatemala. Southwestern, Latin American.

Exsicc.: CHIR [Moir 569, Reeves 1233, 1537, 1630]. FOBO [MHoy 520]. SWRS [Roth s.n.].

**Heterotheca subaxillaris** (Lam.) Britt. & Rusby  
*Heterotheca psammophila* Wagenkn.

Telegraph-plant, camphor weed

[1,000] 4,300 - 5,400 ft. [Mar] Aug - Oct [Nov]. Summer-annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Common on dry slopes and flats, roadsides and along ditches; sometimes on disturbed soil. *Quercus emoryi*, *Q. arizonica*, *Pinus leiophylla*, *P. engelmannii*, *Arctostaphylos pungens*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; Cave Creek, Southwestern Research Station; grasslands along west slope of the range north of Rucker Canyon. San Simon Valley. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Southern Navajo County to Yavapai County, south to Graham, Cochise, Santa Cruz, and Pima counties. Delaware to Kansas, south to Florida, Texas, Arizona, and Mexico. Temperate.

Exsicc.: CHIR [Clark 8657, Reeves 4455]. SWRS [Wittmann 168, Ordway s.n.].

**Heterotheca villosa** (Pursh) Shinners var.  
**hispida** (Hoop.) Harms

*Chrysopsis arida* A. Nels., *C. butleri* Rydb., *C. canescens* (DC.) Torr. & Gray var. *nana* Gray, *C. columbiana* Greene, *C. hirsutissima* Greene, *C. hispida* (Hoop.) DC., *C. horrida* Rydb., *C. villosa* (Pursh) Nutt. ex var. *hispida* (Hoop.) Gray, *C. viscida* (Gray) Greene ssp. *cinerascens* Blake, *C. wisconsinensis* Shinners, *Heterotheca horrida* (Rydb.) Harms, *H. horrida* ssp. *cinerascens* (Blake) Semple, *H. wisconsinensis* (Shinners) Shinners Golden-aster

6,750 ft. Aug - Nov. Uncommon on rocky slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Totem Canyon.

Exsicc.: CHIR [Reeves 1917].

**Heterotheca viscida** (Gray) Harms

*Chrysopsis viscida* (Gray) Greene, *C. villosa* (Pursh) Nutt. ex DC. var. *viscida* Gray  
Golden-aster

[5,000] 5,600 - 9,680 ft. May - Oct. Perennial evergreen forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Common in rocky places in wooded canyons and chaparral, dry ledges of cliffs.

Chiricahua Mts.: Chiricahua Nat. Mon. on north face Sugarloaf Mtn.; north of Silver Peak; Wilderness Area, along Crest Trail near Painted Rocks; Barfoot Park; below Winn Falls. Also Huachuca Mts., Santa Rita Mts. Navajo, Cochise and Santa Cruz counties. Colorado to Texas and Arizona. Southwestern.

Exsicc.: CHIR [Clark 8178, Reeves 2798, 2895]. SWRS [Walker s.n., Roth s.n.]. CHWA [Leithliter 115, 410, 468, 753].

**Hieracium carneum** Greene

Hawkweed

5,300 - 6,100 [7,000] ft. [Jul] Aug - Oct. Perennial deciduous forb, semirosette hemicryptophyte; microphyll, orthophyll. Common in south-facing openings in evergreen woodland, wooded canyons. *Pinus engelmannii*, *P. leiophylla*, *Cupressus arizonica*, *Juniperus deppeana*, *Quercus emoryi*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. on Echo Canyon

Trail, Picket Park, Lower Bonita Canyon; Cave Creek near John Hands picnic area. Also Santa Catalina Mts., Huachuca Mts., Patagonia Mts., Rincon Mts. Cochise, Santa Cruz, and Pima counties. Southwestern Texas to southeastern Arizona and adjacent Mexico. Madrean.

Exsicc.: CHIR [Moir 423, Reeves 1310, 1429, 4155].

### **Hieracium fendleri** Schultz-Bip. var. **discolor** Gray Hawkweed

[6,000] 6,200 - 9,250 [9,500] ft. May - Aug. Evergreen perennial forb, rosette hemicycophyte. Uncommon in dry meadows, conifer forests, dry uplands; riparian at lower elevations. *Pinus arizonica*, *P. engelmannii*, *Pseudotsuga menziesii*, *Acer grandidentatum*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Far Upper Totem Canyon; Wilderness Area; Barfoot Park; Rucker Canyon below Round Park; 0.5 mi. east of Monte Vista Lookout. Also Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Rincon Mts., Animas Mts., Huachuca Mts., Santa Rita Mts. Apache County, Coconino County, southward to Graham, Cochise, and Pima counties. South Dakota to New Mexico, Arizona, and Mexico. Rocky Mountain.

Exsicc.: CHIR [Reeves 3000, 4257]. SWRS [SWRS 1959-472, Walker s.n.]. CHWA [Leithliter 511]. ARIZ [Blumer 1434, Gould & Haskell 4565].

### **Hieracium fendleri** Schultz-Bip. var. **fendleri** *Chlorocrepis fendleri* (Schultz-Bip.) W.A. Weber Hawkweed

[6,000] - 8,200 [9,500] ft. [May] - Aug. Perennial deciduous forb, rosette herb; microphyll, orthophyll. Pine forests, stony poor soil, western exposure. *Quercus hypoleucoides*, *Pseudotsuga menziesii*, *Acer grandidentatum*, *Pinus arizonica*, *P. engelmannii*.

Chiricahua Mts.: Barfoot Park. Also Pinaleno Mts., Santa Rita Mts., Navajo Mts., Santa Catalina Mts., Pajarito Mts., Rincon Mts., Sierra Ancha, Santa Rita Mts., Huachuca Mts., Sierra de los Ajos, Sierra Madre Occidental: Rio Mayo. Apache to Coconino counties south to Graham, Cochise, and Pima counties. South Dakota to New Mexico, Arizona, and Chihuahua, Mexico. Rocky Mountain, Madrean.

May be fire successional.

Exsicc.: ARIZ [Blumer 1597].

### **Hieracium lemmontii** Gray

6,200 [7,000] - 8,250 ft. Jul - Oct. Perennial deciduous forb, hsc; mesophyll, orthophyll. Uncommon. *Pinus arizonica*, *Quercus gambelii*.

Chiricahua Mts.: Wilderness Area, along Crest Trail; Rucker Canyon; Barfoot Park. Also Huachuca Mts. Cochise and Pima counties. Southwestern New Mexico and southeastern Arizona. Apachian.

Exsicc.: SWRS [Luetcke s.n.]. CHWA [Leithliter 734, 744].

### **Hieracium pringlei** Gray

7,800 ft. [Jun] Sep - [Sep]. Perennial deciduous forb, semirosette herb; microphyll, orthophyll. Uncommon in shade.

Chiricahua Mts.: Wilderness Area. Also Huachuca Mts., Santa Rita Mts., Animas Mts. Cochise and Santa Cruz counties. Southwestern New Mexico and southeastern Arizona, south to Rio Mayo, Sonora, Mexico. Madrean.

Exsicc.: CHWA [Leithliter 715].

### **Hieracium rusbyi** Greene

6,000 - 9,300 ft. Aug. Perennial deciduous forb, semirosette herb; microphyll, orthophyll. Rare on dry slopes.

Chiricahua Mts.: Long Park. Also Pinaleno Mts. Western Texas to southeastern Arizona. Southwestern.

### **Hymenoclea monogyra** Torr. & Gray ex Gray Burro bush

[1,000] 4,100 - 5,200 ft. Jul - Oct. Narrowleaf dicot shrub, nanophanerophyte. Uncommon in washes and beside roads; full sun; sandy soil.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in wash east of gate; lower Silver Creek; Rucker Canyon. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Mohave, southern Yavapai, Graham, Gila, Pinal, Maricopa, Cochise, Santa Cruz, and Pima counties. Western Texas to southern California and northern Mexico. Southwestern.

Exsicc.: FOBO [MHoy 521]. SWRS [SWRS 1960-299].

### **Hymenopappus mexicanus** Gray

5,000 - 9,000 [10,000] ft. Jun - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte; microphyll, orthophyll. Common in open forest on acidic soil.

Chiricahua Mts.: upper Rock Creek Canyon. Also Pinaleno Mts., Santa Catalina Mts., Huachuca Mts., Rincon Mts. Cochise and Pima counties, Coconino County. Western Texas to Arizona and Mexico. Madrean.

Type collected in the Chiricahua Mts. by J.C. Blumer.

Exsicc.: ARIZ [Blumer 16, 202, 1202, 2215].

### **Hymenothrix wislizenii** Gray

*Hymenothrix wislizenii* Gray var. *setiformis* M.E. Jones

[2,500] 4,100 - [5,500] 5,800 ft. Jun - Sep [Dec]. Summer-annual forb, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Uncommon on grassy plains and along sandy washes; often on disturbed soil. *Juniperus deppeana*, *Bouteloua rothrockii*, *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. in hills north of Pinery Canyon Road. Fort Bowie Nat. Historic Site in South Canyon, Apache Pass; West Turkey Creek, El Coronado Ranch; San Simon Valley; near Portal. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts. Greenlee, Graham, Gila, Cochise, Santa Cruz, Pima, and Pinal counties. Southern New Mexico, southern Arizona, and northern Mexico. Southwestern.

Exsicc.: CHIR [Dodd 5-6, Reeves 1642, 4471, 4557]. FOBO [MHoy 440]. SWRS [SWRS 1959-618, 1959-216].

### **Hymenothrix wrightii** Gray

[4,000] - 5,300 [8,000] ft. [Jun] - Sep [Nov]. Summer-annual forb, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Uncommon in evergreen woodland, south-facing slopes; rocky soil and on outcrops. *Agave*, *Fouquieria*, *Opuntia*.

Chiricahua Mts.: Chiricahua Nat. Mon. on Bonita-Faraway Hills, lower Rhyolite Canyon; Fort Bowie Nat. Historic Site in Apache Pass; Rucker Canyon; Paradise; Galeyville. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Sierra de los Ajos. Greenlee, southern Navajo, northern Yavapai, and eastern Mohave counties, south to Cochise, Santa Cruz, and Pima counties. Southern New Mexico, central and southern Arizona, southern California, and northwestern Mexico. Southwestern.

Exsicc.: CHIR [Fish 30, Moir 547, Reeves 1689]. SWRS [Cummins 226-61].

### **Hymenoxys odorata DC.**

#### Bitterweed

5,250 - 5,400 [6,000] ft. [Jan] Apr - May [Jun]. Winter-annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon on moist, alluvial soil.

Chiricahua Mts.: Paradise; South Fork Cave Creek near ford. Also Animas Mts. South-central Navajo and eastern Coconino counties, to Greenlee, Cochise, Pima, and Yuma counties. Kansas to Texas, west to southeastern California, south into Mexico. Western.

Exsicc.: SWRS [SWRS 1959-65A, Walker s.n.].

### **Isocoma acradenia (Greene) Greene**

*Haplopappus acradenius* (Greene) Blake,

*Aplopappus acradenius* (Greene) Blake

3,880 - [4,000] ft. [Jun] - Sep [Oct]. Narrow leaf dicot shrub, nanophanerophyte; nanophyll, sclerophyll. Uncommon on dry uplands with subsurface moisture, often in saline soil.

Chiricahua Mts.: San Simon Cienega. Also Sierra Ancha. Coconino, Mohave, Gila, Maricopa, Pinal, Pima, Cochise, and Yuma counties. Southern Utah to Arizona, southern California, and northern Mexico. Southwestern.

### **Isocoma coronopifolia (Gray) Greene**

[3,300] 5,000. - 5,400 ft. May - Aug [Nov]. Narrow leaf dicot shrub, nanophanerophyte; nanophyll, sclerophyll. Common on grassland slopes and flats. *Prosopis velutina*, *Opuntia phaeacantha*, *Juniperus erythrocarpa*, *Calliantha eriophylla*.

Chiricahua Mts.: Jhus Canyon; Fort Bowie Nat. Historic Site. Also Santa Catalina Mts., Santa Rita Mts., Rincon Mts., Little Dragoon Mts., Huachuca Mts., Baboquivari Mts. Graham and Gila counties south to Cochise, Santa Cruz, and Pima counties. Chihuahuan.

Exsicc.: ARIZ [McCormick 59-113; Strandberg 357].

### **Isocoma tenuisecta Greene**

*Haplopappus tenuisectus* (Greene) Blake

#### Burroweed

[2,000] 4,900 - 5,400 [5,500] ft. [Aug] - Sep [Oct].

Narrowleaf dicot shrub, suffrutescent chamaephyte; nanophyll, sclerophyll. Common in pine-oak woodland but more common in oak woodland and desert grassland, especially on overgrazed ranges. *Pinus engelmannii*, *P. leiophylla*, *P. discolor*, *Quercus emoryi*, *Q. arizonica*, *Arctostaphylos pungens*, *Garrya wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in residential area, grassland west of monument; Fort Bowie Nat. Historic Site in South Canyon. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Pinaleno Mts. Bowie to Portal road. Greenlee, Graham, Gila, Pinal, Cochise, and Pima counties. Southwestern Texas, southern Arizona, and northern Mexico. Chihuahuan.

Not eaten by cattle. Indicator of overgrazed, disclimax grasslands.

Exsicc.: CHIR [Reeves 4472]. FOBO [MHoy 317]. SWRS [Roth s.n.].

### **Iva ambrosiifolia (Gray) Gray**

*Iva ambrosiaeefolia* Gray

#### Marsh elder

[1,000] - 4,900 [5,500] ft. [May] Sep - [Oct].

Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon on open southerly-facing slopes and along washes; rocky, sandy soils.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in wash east of trailer. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts.,

Mule Mts. Greenlee, Pinal, Cochise, and Pima counties. Western Texas to southern Arizona and northern Mexico. Chihuahuan.

Exsicc.: FOBO [MHoy 510].

### **Iva dealbata Gray**

#### Woolly sumpweed

5,000 ft. Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicyclopedia; microphyll, orthophyll. Disturbed ground in vicinity of adobe ruins.

Chiricahua Mts.: Fort Bowie Nat. Historic Site amongst ruins. Chihuahuan.

Exsicc.: FOBO [MHoy 342].

### **Lactuca graminifolia** Michx.

Lettuce

[5,000] 5,200 - 9,020 ft. May - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Common in seasonally wet stream beds and canyons, shade, dry uplands. *Platanus wrightii*, *Cupressus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Paradise; Wilderness Area; South Fork Cave Creek. Also Rincon Mts., Sierra Ancha, Pinaleno Mts., Animas Mts., Santa Rita Mts., Sierra de los Ajos. Apache, Coconino, Graham, Gila, Cochise, Santa Cruz, and Pima counties. South Carolina to Florida, west to Arizona. Temperate, Southeastern.

Exsicc.: CHIR [Reeves 2854, 3469]. SWRS [Walker s.n.]. CHWA [Leithliter 427, 658].

### **Lactuca serriola** L.

*Lactuca scariola* L.

Prickly lettuce

[1,000] 5,000 - 6,000 [7,000] ft. [May] Jun - Sep. Summer-annual forb, scapose or leafy-stemmed therophyte; mesophyll, orthophyll. Uncommon on alluvium in canyons and disturbed soil, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; Fort Bowie Nat. Historic Site around ruins; Southwestern Research Station; Paradise; Cave Creek. Also Rincon Mts., Sierra Ancha, Animas Mts., Canelo Hills. Navajo and Coconino counties, south to Greenlee, Cochise, Pima, and Yuma counties. Southern Canada and the United States; naturalized from Europe. Holarctic, Introduced.

Exsicc.: CHIR [Clark 8417, Reeves 3067, 4409]. FOBO [MHoy 416]. SWRS [Pough 1961-82; Walker s.n.; SWRS 1958-448]. ARIZ [Blumer 1335].

### **Lactuca tatarica** (L.) C.A. Mey. ssp. **pulchella** (Pursh) Steb.

*Lactuca oblongifolia* Nutt., *L. pulchella* (Pursh) DC., *L. tatarica* var. *heterophylla* (Nutt.) Boivin, *L. tatarica* var. *pulchella* (Pursh) Breitung, *Sonchus tataricus* L. p.p.

Lettuce

5,000 - 5,499 [7,500] ft. Jul - Aug. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon in mesic canyon bottoms and seeps. *Quercus emoryi*, *Platanus wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Madrone Canyon, Bonita Canyon, Silver Spur Meadow. Apache, Navajo, Coconino, and Cochise counties. Saskatchewan to British Columbia, south to Missouri, New Mexico, Arizona, and California. Temperate.

Exsicc.: CHIR [Fish 16].

### **Laennecia coulteri** (Gray) Nesom

*Conyza coulteri* Gray, *Eschenbachia coulteri* (Gray) Rydb. [1,500] 5,400 - 9,370 ft. [Apr] Jul - Aug [Oct]. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon in deep mesic canyons, washes, and shallow drainages; along roadsides where the plants enjoy rainfall runoff. *Quercus emoryi*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Headquarters area; Fort Bowie Nat. Historic Site; Greenhouse Trail; Wilderness Area, Monte Vista Peak. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Coconino County to Greenlee, Cochise, and Pima counties. Colorado and Texas to

California and Mexico. Southwestern.

Exsicc.: CHIR [Clark 9214].

### **Laennecia schiedeana** (Less.) Nesom

*Conyza schiedeana* (Less.) Cronq., *Erigeron schiedeanus* Less., *Leptilon integrifolium* Woot. & Standl.

5,400 [7,000] - 8,800 [9,300] ft. [Jul] Sep - Oct. Summer annual forb, scapose or leafy-stemmed therophyte. Uncommon on disturbed areas, shaded wooded rocky slopes, open pine forests.

Chiricahua Mts.: Chiricahua Nat. Mon. north of Meadow; Onion Saddle; Barfoot Park; below Rustler Park; Centella Point. Also Pinaleno Mts., Rincon Mts., White Mts., Santa Catalina Mts., Mule Mts. Coconino, Apache, Graham, Cochise, and Pima counties. Southwestern Colorado, New Mexico, Arizona, and Mexico. Chihuahuan.

Exsicc.: CHIR [Reeves 4567]. SWRS [Ordway s.n.].

### **Laennecia sophiifolia** (Kunth) Nesom

*Conyza sophiaefolia* Kunth, *Conyza coulteri* Gray var. *tenuisecta* Gray, *Eschenbachia tenuisecta* (Gray) Woot. & Standl.

[2,500] - 5,400 [6,000] ft. [Aug] Sep - [Oct]. Summer-annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon on disturbed soil, mesic canyons, dry uplands, cultivated fields. *Quercus arizonica*, *Q. emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Rucker Canyon; Cave Creek Canyon. Also Huachuca Mts., Sierra Ancha, Animas Mts. Cochise, Santa Cruz, and Pima counties. Southwestern New Mexico, southeastern Arizona, and Mexico. Madrean.

Exsicc.: CHIR [Reeves 4464].

### **Lasianthaea podocephala** (Gray) K. Becker

*Verbesina podocephala* Gray, *Zexmenia podocephala* Gray

[4,500] 5,500 - 6,200 ft. Aug - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon in open woodland and chaparral. *Pinus engelmannii*, *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Park, Rhyolite Canyon; Tex Canyon. Also Huachuca Mts., Rincon Mts., Mule Mts., Canelo Hills. Cochise, Santa Cruz, and Pima counties. Southwestern New Mexico, southeastern Arizona, and northern Mexico. Madrean.

Exsicc.: CHIR [Fish 1, Reeves 1265, 1556, 4352]. SWRS [SWRS 1959-825].

### **Lasthenia californica** DC. ex Lindl.

*Baeria chrysostoma* Fisch. & Mey., *B. chrysostoma* ssp. *gracilis* (DC.) Ferris, *B. chrysostoma* ssp. *hirsutula* (Greene) Ferris, *B. chrysostoma* var. *gracilis* (DC.) Hall, *Lasthenia chrysostoma* (Fisch. & Mey.) Greene Goldfields

[1,500] - [4,500] ft. [Mar] Oct - Oct [May]. Winter-annual forb, scapose or leafy-stemmed therophyte. Common on xeric gravelly flats and rocky slopes, makes its best growth on north-facing aspects.

Chiricahua Mts.: Fort Bowie Nat. Historic Site beside trail. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts. Graham, Gila, Maricopa, Pinal, Cochise, and Pima counties. Central and southern Arizona to Oregon, California, and Baja California.

Southwestern.  
Ornduff (1966).

**Leibnitzia seemanii** (Schultz-Bip.) Nesom  
*Chaptalia alsophila* Greene, *C. leucocephala* Greene,  
*C. seemanii* (Schultz-Bip.) Hemsl.

6,500 - [8,400] ft. [May] - Oct. Perennial deciduous forb, rosette herb; mesophyll, orthophyll. Uncommon on shaded slopes, coniferous forests. *Pinus arizonica*.

Chiricahua Mts.: Rucker Canyon. Also Rincon Mts., White Mts., Huachuca Mts., Swisshelm Mts. Southern Apache County, Cochise, and Pima counties. Southwestern New Mexico, southeastern Arizona, and Mexico. Madrean.

**Machaeranthera bigelovii** (Gray) Greene var. *bibelovii*

*Aster aquifolius* (Greene ex Woot. & Standl.) Blake, *A. bigelovii* Gray, *A. pattersonii* Gray,  
*Machaeranthera aquifolia* Greene ex Woot. & Standl., *M. centaureoides* Greene ex Woot. & Standl., *M. pattersonii* (Gray) Greene, *M. rubricaulis* Rydb.

[3,000] - 5,200 [7,000] ft. [Mar] Jun - [Nov]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon on dry uplands, canyons and slopes.

Chiricahua Mts.: Cave Creek 2 mi. east Southwestern Research Station. Also Sierra Ancha, Coconino, Mohave, Yavapai, Greenlee, Graham, Gila, Maricopa, Pinal, and Pima counties. Colorado, New Mexico, and Arizona. Southwestern.

Exsicc.: SWRS [Pough 1962-17].

**Machaeranthera cansescens** (Pursh) Gray ssp. *cansescens*

*Aster attenuatus* sensu Frye & Rigg, non Lindl., *A. casescens* Pursh, *A. casescens* var. *viscosus* (Nutt.) Gray, *A. inornatus* Greene, *A. leucanthemifolius* Greene, *Dieteria asteroides* Torr., *D. canescens* (Pursh) Nutt., *D. pulverulenta* Nutt., *D. sessiliflora* (Nutt.) Greene, *D. viscosa* Nutt., *Diplopappus incanus* Lindl., *Machaeranthera asteroides* (Torr.) Greene, *M. attenuata* (Frye & Rigg) T.J. Howell, *M. incana* (Lindl.) Greene, *M. inornata* Greene, *M. leucanthemifolia* (Greene) Greene, *M. linearis* sensu Rydb. non Greene, *M. pulverulenta* (Nutt.) Greene, *M. sessiliflora* (Nutt.) Greene, *M. spinulosa* Greene, *Amellus spinulosus* Pursh, *M. viscosa* (Nutt.) Greene [150] - 5,400 [8,000] ft. Jun - Nov. Summer annual forb, semirosette therophyte; microphyll, orthophyll. Common on dry soil in open pine forests, chaparral, and roadsides.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; Cave Creek; Southwestern Research Station; Paradise. Apache to Mohave County, south to Pima, Cochise, and Yuma counties. Colorado to British Columbia, south to Arizona and California. Western.

This plant, described as new to science, was collected by J.C. Lemmon and wife in Apache Pass (s.n.) circa 1881.

Exsicc.: NMC [Blumer 1748].

**Machaeranthera canescens** (Pursh) Gray var. *incana* (Lindl.) Gray

*Aster attenuatus* (T.J. Howell) M.E. Peck, non Lindl. ex Hook., *A. tephrodes* (Gray) Blake, *Dieteria incana* (Lindl.) Torr. & Gray, *Diplopappus incanus* Lindl., *Machaeranthera attenuata* T.J. Howell, *M. incana* (Lindl.) Greene, *M. tephrodes* (Gray) Greene

[150] 4,600 - 6,100 [7,000] ft. [Mar] Aug - Oct. Perennial deciduous forb, semirosette hemicryptophyte; microphyll, orthophyll. Uncommon on gravelly or sandy soil in wooded canyons, along washes, and on flats. *Quercus arizonica*, *Q. emoryi*, *Juniperus deppeana*, *Cupressus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon, lower Rhyolite Canyon; Fort Bowie Nat. Historic Site in South Canyon; Southwestern Research Station. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Animas Mts. Southern Apache and Navajo counties, Coconino County, Mohave County, south to Graham, Cochise, Pima, and Yuma counties. New Mexico to Nevada and southern California. Southwestern.

Exsicc.: CHIR [Borell s.n., Clark 8656, Reeves 1757, 4422]. FOBO [MHoy 316]. SWRS [s.c. s.n.]

**Machaeranthera gracilis** (Nutt.) Shinners  
*Dieteria gracilis* (Nutt.), non *Aster gracilis* (Nutt.) Gray, *Haplopappus gracilis* (Nutt.) Gray,  
*Sideranthus gracilis* (Nutt.) A. Nels.

[5,300] 5,500 - 7,000 ft. [Feb] Jun - Sep [Nov]. Summer-annual forb, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Common on sunny flats, wooded canyon benches, openings in scrublands. *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; 6 mi. east of Portal. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Colorado to Texas, throughout Arizona, southeastern California, and Mexico. Southwestern.

An indicator of over-grazing grasslands.

Exsicc.: CHIR [Borell 21, Reeves 1739, 1745, 2776, 4408]. SWRS [Cazier s.n.]

**Machaeranthera parviflora** Gray

*Aster parviflorus* Gray non Nees; *A. parvulus* Blake, *Machaeranthera pygmaea* (Gray) Woot. & Standl.

[1,000] - 7,000 ft. [Feb] - Aug [Oct]. Winter-annual forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Mesas and plains.

Chiricahua Mts.: Whitetail Canyon. Coconino, Mohave, Graham, Pinal, Maricopa, Cochise, and Pima counties. Utah, New Mexico, and Arizona. Chihuahuan.

**Machaeranthera pinnatifida** (Hook.) Shinners  
ssp. *gooddingii* Turner & Hartman  
*Haplopappus gooddingii* (Nels.) Munz and Johnston, *H. spinulosus* (Pursh) DC. var. *gooddingii* (A. Nels.) Blake, *Sideranthus gooddingii* A. Nels.

Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll.

Chiricahua Mts.: FOBO [MHoy s.n.]

**Machaeranthera pinnatifida** (Hook.) Shinners  
ssp. **pinnatifida** var. **pinnatifida**.

*Amellus spinulosus* Pursh non *Machaeranthera spinulosus* Greene, *Aster pinnatifida* (Hook.) Kuntze, *Dieteria spinulosus* (Pursh) Nutt., *Diplopappus pinnatifida* Hook., *Eriocarpum spinulosus* (Pursh) Greene, *E. wootonii* Greene, *Haplopappus coulteri* (Harv. & Gray) Gray, *H. spinulosus* (Pursh) DC., *H. spinulosus* ssp. *cotula* (Small) Hall, *H. spinulosus* ssp. *laevis* (Woot. & Standl.) Hall, *H. spinulosus* var. *canescens* Gray, *H. spinulosus* var. *glaber* Gray, *H. spinulosus* var. *turbinellus* (Rydb.) Blake, *Machaeranthera laevis* (Woot. & Standl.) Shinners, *M. pinnata* (Nutt.) Shinners, *M. texensis* (R.C. Jackson) Shinners, *Sideranthus cotula* Small, *S. laevis* Woot. & Standl., *S. machaeranthera* Small, *S. puberulus* Rydb., *S. sideranthus* (Pursh) Sweet ex Rydb., *S. turbinellus* Rydb., *S. wootonii* (Greene) Standl., *Starkea pinnata* Nutt.

[2,800] 4,900 - 6,100 ft. Feb - Aug. Suffrutescent shrub, scapose or leafy-stemmed proto-chamaephyte. Gravelly flats and rocky slopes, often on disturbed areas. *Prosopis glandulosa*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Park. Fort Bowie Nat. Historic Site at Apache Spring; 6 mi. east of Portal; Cave Creek just inside forest boundary gate. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Southwestern, Plains.

Exsicc.: CHIR [Reeves 2754, 3005, 3525]. FOBO [MHoy 105]. SWRS [Cazier s.n., SWRS 1959-37].

**Machaeranthera tagetina** Greene

*Aster tagetinus* (Greene) Blake

[1,500] - [4,500] 4,900 ft. Mar - Nov. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon on disturbed ground and roadsides, gravelly slopes and upper bajadas.

Chiricahua Mts.: Bonita Canyon; Fort Bowie Nat. Historic Site in South Canyon; lower Tex Canyon. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Western Coconino and northern Mohave counties to Graham, Cochise, and Pima counties. Utah, New Mexico, and Arizona. Southwestern.

Exsicc.: FOBO [MHoy 316]. SWRS [SWRS 1959-850].

**Machaeranthera tanacetifolia** (Kunth) Nees

*Machaeranthera coronopifolia* (Nutt.) A. Nels., *M. parthenium* Greene, *Aster tanacetifolius* Kunth

[1,000] 4,800 - 6,500 ft. [Jun] Aug - Oct. Summer annual forb. Common on roadsides, disturbed soil, grassland and open woods, waste ground.

Chiricahua Mts.: Chiricahua Nat. Mon.; eastern foothills; Pine Canyon at Methodist Camp. Also Mule Mts., Animas Mts. Northern Navajo County, Coconino County to Yavapai, Graham, Cochise, Santa Cruz, and Pima counties. South Dakota to Alberta, south to Texas, Arizona, and Mexico. Western.

Exsicc.: CHIR [Fish 28, Reeves 3871, 4429, 4454]. SWRS [SWRS 1958-824].

**Malacothrix fendleri** Gray

[2,000] 4,900 - 6,000 ft. [Mar] Apr - May [Jun]. Summer annual forb, rosette therophyte; nanophyll, orthophyll. Uncommon on grassland, grassland/scrub and chaparral, sandy plains, mesas,

and rocky slopes. *Quercus emoryi*, *Q. arizonica*, *Q. hypoleucoides*, *Pinus engelmannii*, *P. leiophylla*, *Cupressus arizonica*, *Garrya wrightii*, *Arctostaphylos pungens*.

Chiricahua Mts.: Chiricahua Nat. Mon. at mouth of Rhyolite Canyon, lower Bonita Canyon; Fort Bowie Nat. Historic Site in Siphon Canyon; east of Galeyville townsite; Pinery Canyon. Also Huachuca Mts., Rincon Mts., Peloncillo Mts., Animas Mts. Navajo, Yavapai, Greenlee, Graham, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona. Southwestern.

Exsicc.: CHIR [Fish 43, Reeves 2541, 2570, 2591, Roseberry 75]. FOBO [MHoy 392]. SWRS [Walker s.n.; SWRS 1959-57].

**Melampodium longicorne** Gray

[4,000] 5,150 - 5,600 ft. [Aug] - Sep. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon in grassy or gravelly openings in open oak woods, canyons, often on limestone. *Pinus discolor*, *P. leiophylla*, *Quercus emoryi*, *Q. arizonica*, *Arctostaphylos pungens*.

Chiricahua Mts.: Chiricahua Nat. Mon. on north slope of Garfield Peak. Also Huachuca Mts., Canelo Hills, Sierra de los Ajos. Cochise, Santa Cruz, and Pima counties. Southeastern Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [Reeves 1496, 4536].

**Melampodium sericeum** Lag.

*Melampodium hispidum* Kunth

[4,000] - 5,400 [5,500] ft. [Aug] - Sep. Summer-annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Dry hillsides.

Chiricahua Mts.: near Southwestern Research Station. Cochise, Santa Cruz, and Pima counties. Southern Arizona and Mexico. Madrean.

Exsicc.: SWRS [Roth s.n.].

**Melampodium strigosum** Stuessy

5,200 - 6,000 ft. Aug - Sep. Summer-annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon in grassland and grassy openings in woods, limestone. *Ceanothus greggii*, *Quercus emoryi*, *Bouteloua gracilis*, *Gnaphalium wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in lower Bonita Canyon, Faraway Hills; Paradise. Also Huachuca Mts., Santa Rita Mts., Mule Mts., Rincon Mts., Pajarito Mts. Madrean.

Exsicc.: CHIR [Moir 549, Reeves 1670, 4447A]. ARIZ [Blumer 1665].

**Microseris lindleyi** (DC.) Gray

*Microseris linearifolia* (DC.) Schultz-Bip., *Uropappus linearifolius* Nutt.

Silver puff

[4,600] 5,150 - 5,400 ft. Mar - May [Jun]. Winter-annual forb, rosette therophyte; leptophyll, orthophyll. Common in encinal, shrub savannah, grasslands; rocky or gravelly well-drained soil; full sun. *Quercus emoryi*, *Q. arizonica*, *Q. hypoleucoides*, *Cupressus arizonica*; *Pinus leiophylla*, *P. engelmannii*, *Arctostaphylos pungens*.

Chiricahua Mts.: Chiricahua Nat. Mon. at mouth of Rhyolite Canyon; Fort Bowie Nat. Historic Site at Apache Spring. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Grand Canyon (Coconino County) and Mohave County to Cochise, Santa Cruz, and Pima counties. Idaho and Washington to New Mexico, Arizona, and Baja California. Western.

Exsicc.: FOBO [MHoy 390]. CHIR [Fish 43, Reeves 2349,

2504, 2593].

### **Parthenium incanum** Kunth

Mariola

[2,500] 5,100 - 5,800 [6,000] ft. [Jun] Jul - Sep [Oct]. Suffrutescent shrub, suffrutescent chamaephyte; nanophyll, sclerophyll. Common on sunny xeric desert scrub flats. *Isocoma tenuisecta*, *Bouteloua rothrockii*, *Agave sp.*, *Fouquieria splendens*.

Chiricahua Mts.: Chiricahua Nat. Mon. in lower Pickett Canyon; Fort Bowie Nat. Historic Site at Overlook in Apache Pass; east of Portal; Portal - Paradise road; San Simon Cienega; Pedrigosa Mts. foothills. Also Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Coconino County, Mohave County, south to Greenlee (?), Cochise, and Pima counties. Western Texas to Arizona and Mexico. Chihuahuan.

Rarely browsed. It contains rubber like that of guayule (*Partenium argentatum* Gray) but in smaller amount. Has been cultivated in Arizona as a source of rubber.

Exsicc.: CHIR [Reeves 903, 3429, 4006, 4070]. FOBO [MHoy 250].

### **Pectis angustifolia** Torr. var. **angustifolia**

Limoncillo

[3,500] - 5,500 [7,000] ft. [Aug] - Sep. Summer-annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon in openings in oak-pine woodland, dry, sandy, or gravelly mesas.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Animas Mts. Southern Apache, Navajo, eastern Coconino, and western Gila counties. Nebraska to Texas, Arizona, and Mexico. Southwestern.

Exsicc.: CHIR [Reeves 1491].

### **Pectis filipes** Harv. & Gray var. **subnuda** Fern.

Threadstem pectis, fetid marigold

[3,000] 4,900 - 6,000 ft. Aug - Sep [Oct]. Summer-annual forb, scapose or leafy-stemmed therophyte. Common in xeric south-facing openings in woodlands, chaparral and disclimax grassland. *Pinus discolor*, *Juniperus deppeana*, *Garrya wrightii*, *Aristida orcuttiana*, *Quercus emoryi*, *Q. hypoleucoides*, *Q. arizonica*, *Piptochaetium fimbriatum*.

Chiricahua Mts.: Chiricahua Nat. Mon. in lower Rhyolite Canyon, Bonita Canyon near campground, Bonita-Faraway Hills; Fort Bowie Nat. Historic Site in South Canyon; Southwestern Research Station; Cave Creek Canyon; Paradise. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Canelo Hills. Greenlee, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and northern Mexico. Southwestern.

Keil (1977).

Exsicc.: CHIR [Clark 8670, Dodd 44, Moir 523, 554, Reeves 974, 1267, 1297, 4384]. SWRS [Roth s.n.]. FOBO [MHoy 314].

### **Pectis longipes** Gray

Fetid marigold

[3,500] 5,000 - 5,500 ft. Apr - Sep. Perennial deciduous forb, semirosette proto-chamaephyte; nanophyll, orthophyll. Uncommon on grassland, rocky slopes, gravelly flats.

Chiricahua Mts.: Chiricahua Nat. Mon.; mouth of Little Jesse James Canyon near monument boundary; Fort Bowie Nat. Historic Site on hill west of first fort. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Animas Mts., Canelo Hills. Greenlee, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to southeastern Arizona and northern Mexico. Chihuahuan.

Exsicc.: CHIR [Dole 119]. FOBO [MHoy 198].

### **Pectis papposa** Harv. & Gray var. **papposa**

Chinchweed

[2,800] - 5,650 [6,000] ft. [Jun] Aug - Sep [Nov]. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon on grassy slopes and open oak woodland, drainages, dry uplands, sandy-gravelly plains and mesas.

Chiricahua Mts.: Chiricahua Nat. Mon. in Jesse James Canyon Natural Area; 6 mi. east of Portal. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Greenlee, Coconino, and Mohave counties, south to Graham, Pima, and Yuma counties. New Mexico to California and northern Mexico. Southwestern.

Exsicc.: CHIR [Reeves 1583]. SWRS [Crazier s.n.].

### **Pectis prostrata** Cav.

*Pectis multisetosa* Rydb., *P. prostrata* var. *urceolata* Fern.

Fetid marigold

[4,000] 5,000 - 6,200 ft. Aug - Sep [Oct]. Summer-annual forb, semirosette therophyte. Common in a variety of mesic and xeric habitats; always in well-drained soil and full sun.

Chiricahua Mts.: Chiricahua Nat. Mon. in lower Rhyolite Canyon; Fort Bowie Nat. Historic Site at Apache Pass; near Southwestern Research Station; Paradise; along road east of Onion Saddle; base of mountains north of Rucker Canyon, Straight Line Road at Willow Tank. Also Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts. Greenlee, Graham, Gila, Cochise, Santa Cruz, and Pima counties. Western Texas to southeastern Arizona, south to northern South America; also in Florida, Cuba, and Jamaica. Latin American.

Exsicc.: CHIR [Clark 8724, Reeves 1272, 1489, 1700, 4026, 4184, 4383]. SWRS [Roth s.n.]. FOBO [MHoy 522].

### **Pericome caudata** Gray

*Pericome caudata* var. *glandulosa* (Goodm.)

Harrington

[6,000] 7,130 - 9,020 ft. Jul - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon along streams, forested slopes, rich soil in coniferous forests.

Chiricahua Mts.: 7 mi. northwest of Southwestern Research Station; Wilderness Area; upper pine Canyon; Barfoot Peak; near Mormon Spring; northwest face Bonita Peak; Barfoot Park; Buena Vista Peak. Also Pinaleno Mts., Santa Rita Mts., Baboquivari Mts., Huachuca Mts. Apache, Navajo, Coconino, Greenlee, Graham, Cochise, Santa Cruz, and Pima counties. Southern Colorado and New Mexico to southern Nevada, California, and Chihuahua. Southwestern.

Exsicc.: SWRS [Ordway s.n.]. CHWA [Leithliter 624, 678, 842]. ARIZ [Blumer 1470, Van Devender & Eiber s.n., 85-199, (& Nishida s.n.), Peterson s.n.].

### **Perityle cochisensis** (Niles) Powell

*Laphamia cochisensis* Niles

5,500 - 7,100 ft. Oct - Nov. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Common in crevices of vertical, rhyolite cliffs and boulders, wooded canyons, slopes and chaparral. *Cupressus arizonica*, *Quercus rugosa*, *Q. hypoleucoides*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Organ Pipe area, Echo Canyon Trail; South Fork Cave Creek. Apachian.

Apparently endemic to the northern Chiricahua Mountains.

Exsicc.: CHIR [Clark 8611 UNM, Holotype, Reeves 1788, 1824, 1849, 1908]. SWRS [Todsen s.n.].

Exsicc.: SWRS [Roth s.n.].

### **Perityle lemmonii** (Gray) Macbr.

*Laphamia dissecta* Torr., *Laphamia dissecta* Torr., *L. lemmoni* Gray, *L. lemmoni* var. *pedata* Gray

Rock daisy

[3,000] - [7,000] ft. [May] Aug - [Oct]. Suffrutescent shrub, suffrutescent chamaephyte. Uncommon on open southerly-facing rock outcrops, cliffs, canyons, and crevices.

Chiricahua Mts.: entrance to South Fork Cave Creek. Also Rincon Mts., Pinaleño Mts., Santa Catalina Mts., Galiuro Mts. Greenlee, Graham, Cochise, and Pima counties. Southwestern Texas to southeastern Arizona. Southwestern.

Exsicc.: SWRS [Wittmann 321].

### **Pinaropappus roseus** Less. var. **foliosus**

(Heller) Shinners

*Pinaropappus foliosus* Heller

6,600 - 8,250 ft. Jun - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon in mesic canyons, grassy pine forests. *Pinus arizonica*, *P. strobus*, *Helianthella quinquenervis*, *Acer grandidentatum*.

Chiricahua Mts.: Wilderness Area; Barfoot Park. Also Huachuca Mts., Santa Catalina Mts. Cochise and Pima counties. Texas and Arizona, south to Guatemala. Madrean.

Type collected from the Chiricahua Mts. by J.C. Blumer.

Exsicc.: CHWA [Leithliter 350]. ARIZ [Blumer 1448, 1571, 213, 1448, IR. 4].

### **Plummera floribunda** Gray

[5,000] 5,300 - 7,000 ft. Jul - Nov. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Common in woodland types throughout. *Platanus wrightii*, *Juglans major*, *Pinus engelmannii*, *Juniperus deppeana*, *Quercus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon, Whitetail Canyon, Sugarloaf Mtn.; Fort Bowie Nat. Historic Site at Bowie Mtn.; Bonita Park, Rucker Canyon, Sulphur Springs Valley, and Swisshelm, Dos Cabezas, and Mule Mts. Also Dragoon Mts., Dos Cabezas Mts. Cochise County. Known only from southeastern Arizona. Apachean.

This plant, described as new to science was collected by J.G. Lemmon and wife in Apache Pass (s.n.) circa 1881. Gray named the genus to commemorate Mrs. Lemmon's maiden name, Plummer.

Exsicc.: CHIR [Clark 8346, 8651, Darrow s.n., Reeves 1285, 1889, 3133A, 3663A, 3958A]. SWRS [SWRS 1959-708]. ARIZ [Bowers & McLaughlin 3208, Gould & Haskell 4620, Darrow s.n., Clark s.n., Bingham 2428, Blumer 144].

### **Porophyllum ruderale** (Jacq.) Cass. ssp.

**macrocephalum** (DC.) R.R. Johnson

*Kleinia glandulosa* Moc. & Sessé, *Porophyllum latifolium* Benth, *P. macrocephalum* DC., *P. ruderale* var. *macrocephalum* (DC.) Cronq. Cronq.

[3,500] - 7,000 ft. [Aug] - Oct. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon in drainages and rocky slopes of canyons; gravelly soil.

Chiricahua Mts.: South Fork Cave Creek. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Peloncillo Mts., Baboquivari Mts., Animas Mts., Canelo Hills. Cochise, Santa Cruz, and Pima counties. Southern Arizona, south to South America. Southwestern, Latin American.

### **Psacalium decompositum** (Gray) Robbins & Bretell

*Cacalia decomposita* Gray, *Odontotrichum decompositum* (Gray) Rydb.

Indian plantain

5,000 - 9,000 ft. Jul - Nov. Perennial deciduous forb, scapose or leafy-stemmed proto-hemicryptophyte; mesophyll, orthophyll. Uncommon on loamy soil, shade. *Pinus arizonica*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in far upper Totem Canyon; Onion Saddle; Cave Creek Canyon; Barfoot Park; Round Park; Rucker Canyon; Pine Canyon. Also Huachuca Mts., Patagonia Mts., Animas Mts. Southwestern New Mexico, southeastern Arizona, and Sonora. Madrean.

Robins & Bretell (1973).

Exsicc.: CHIR [Reeves 4253]. SWRS [SWRS 1958-410]. CHWA [Leithliter 487, 828]. ARIZ [Harrison et al. 6194, Blumer 141, McCormick 930].

### **Psilostrophe cooperi** (Gray) Greene

*Riddellia cooperi* Gray

Paper flower

[2,000] - 5,150 ft. [Jan] - [Dec]. Narrowleaf dicot shrub, suffrutescent chamaephyte. Common on rocky slopes and deep gravelly bajada soils, along washes; disturbed grasslands; full sun.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Silver Creek along Paradise Road. Also Rincon Mts., Pinaleño Mts., Santa Catalina Mts. Navajo County to Mohave County, south to Cochise, Pima, and Yuma counties. Utah and western New Mexico to southern California and northwestern Mexico. Southwestern.

Exsicc.: SWRS [SWRS 1958-668].

### **Psilostrophe sparsiflora** (Gray) A. Nels.

*Riddellia tagetina* (Nutt.) Greene var. *sparsiflora* Gray

[4,500] 5,100 - 5,300 [7,500] ft. [May] Sep - [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; leptophyll, orthophyll. Dry mesas, slopes, and open pine forests, tolerates lime soils.

Chiricahua Mts.: 6 mi. east of Portal; Portal-Paradise road; Fort Bowie Nat. Historic Site at Overlook; Silver Creek Road. Apache County to eastern Mohave and Yavapai counties, and in Cochise County. Utah, New Mexico, Arizona, and Chihuahua. Chihuahuayan.

Exsicc.: SWRS [Ordway s.n.]. FOBO [MHoy 513].

### **Psilostrophe tagetina** (Nutt.) Greene var. *tagetina*

*Psilostrophe tagetina* var. *grandiflora* (Rydb.) Heiser, *P. tagetina* var. *lantata* A. Nels., *Riddellia tagetina* (Nutt.) Greene

[4,000] 5,000 - 5,100 [7,000] ft. [Apr] Jun - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; leptophyll, orthophyll. Open plains and mesas and pine forests.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on northside of Overlook; Silver Creek Road; Cave Creek. Also Animas Mts. Apache, Navajo, Coconino, Greenlee, Graham, and Cochise counties. Western Texas to eastern Arizona and northern Mexico. Chihuahuayan.

Exsicc.: SWRS [MHoy s.n.]. FOBO [MHoy 38]. ARIZ [Blumer 1709 (type)].

### **Rafinesquia neomexicana** Gray

*Nemoseris neomexicana* Greene

Desert chicory, desert dandelion

[200] - 4,500 ft. [Feb] May - [Jul]. Winter-annual forb, semirosette therophyte. Common on rocky southerly-facing slopes, gravelly flats, in open or partly shaded.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at foot of Harris Mtn. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts. Apache County, Mohave, Graham, Gila, Maricopa, Pinal, Pima, Cochise, and Yuma counties. Western Texas to southern Utah, southern California, and northern Baja California. Southwestern.

Exsicc.: SWRS [Walker s.n.].

### **Ratibida columnifera** (Nutt.) Woot. & Standl.

*Lepachys columnifera* (Nutt.) Rydb., *Ratibida columnaris* (Sims) D. Don, *C. columnaris* var. *pulcherrima* (DC.) D. Don, *Rudbeckia columnaris* Sims, *R. columnaris* Pursh, non Sims, *R. columnifera* Nutt.

Prairie cone-flower

4,100 - 5,400 [7,500] ft. Jun - [Nov]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Plains and openings in pine woods.

Chiricahua Mts.: Fort Bowie Nat. Historic Site around fort ruins; Paradise; junction Portal road and Highway 80. Also Animas Mts. Apache, Navajo, Coconino, Greenlee, and Santa Cruz counties. Minnesota to British Columbia, south to Tennessee, Colorado, and Arizona. Temperate.

Exsicc.: FOBO [MHoy 225]. SWRS [Walker s.n., Morse s.n.].

### **Rudbeckia laciniata** L.

*Rudbeckia umbrosa* Greene

Brown-eyed Susan, cut-leaf coneflower

[5,000] 5,400 - 7,000 [8,500] ft. Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Common in rich soil along mountain streams, swales and lower slopes, flats in the ponderosa zone. An indicator of abused ranges and impoverished soils. *Pseudotsuga menziesii*, *Pinus strobus*, *Abies concolor*, *Nasturtium officinale*, *Viola canadensis*, *Aquilegia chrysanthia*, *Mimulus cardinalis*, *Mimulus guttatus*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Pine Canyon. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Huachuca Mts., Santa Catalina Mts., Sierra Ancha, Rincon Mts., Santa Rita Mts. Apache County to Coconino County, south to Cochise and Pima counties. Maine to Saskatchewan and Idaho, south to Florida, Colorado, and southern Arizona. Temperate.

Reputedly poisonous to cattle, sheep, and swine.

Exsicc.: SWRS [Ordway 101]. CHWA [Leithliter 506].

### **Sanvitalia abertii** Gray

[3,500] 5,000 - 6,000 [7,500] ft. Aug - Sep. Summer-annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Common in southerly-facing openings in woodland, grassland, grassland scrub, and along washes. *Quercus arizonica*, *Q. emoryi*, *Pinus discolor*, *P. engelmannii*, *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Whitetail Canyon,

Bonita Canyon; Fort Bowie Nat. Historic Site around fort ruins; Cave Creek, Southwestern Research Station; Paradise; East Turkey Creek; Sulfur Draw; Hands Pass. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Apache County to eastern Mohave County, south to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Southwestern.

Exsicc.: CHIR [Borell 1, Clark 8708, Dodd 57, Moir 452, Reeves 1297A, 1591, 4437]. FOBO [MHoy 299]. SWRS [Ordway s.n.].

### **Schkuhria wislizenii** Gray

4,000 - 6,000 ft. Jul - Oct. Summer-annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Grassy mesas and slopes. Waste places and disturbed ground. *Quercus emoryi*, *Opuntia spinosior*, *Nolina microcarpa*, *Juniperus deppeana*, *Rhus virens*, *Baccharis thesioides*, *Bouteloua gracilis*, *Arctostaphylos pungens*.

Chiricahua Mts.: Chiricahua Nat. Mon. in lower Pinery Canyon, Bonita Canyon; West Turkey Creek at El Coronado Ranch. Also Huachuca Mts., Pinaleno Mts., Canelo Hills, Santa Rita Mts., Mule Mts., Atascosa Mts., Canelo Hills, Whetstone Mts., Animas Mts. Cochise, Santa Cruz, and Pima Counties. Apachian.

Exsicc.: ARIZ [Blumer 38, 39, 1635, Moir 502, Reichenbacher & Van Devender s.n., Fish s.n.].

### **Senecio bigelovii** Gray

*Ligularia bigelovii* (Gray) J.M. Webber  
Groundsel

[7,000] 7,220 - 9,510 [11,000] ft. Jul - Sep. Perennial deciduous forb, semirosette hemicryptophyte; leptophyll, orthophyll. Common in hydro- and meso-riparian canyons, near seeps, meadow edges in coniferous forests; moist loamy soils.

Chiricahua Mts.: Greenhouse Trail; Long Park; Wilderness Area along Crest Trail; Long Park; Round Park; Barfoot Park. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts., White Mts. San Francisco Peaks to the Mogollon Escarpment (Coconino County), Apache, Greenlee, Graham, Cochise, and Pima counties. New Mexico and Arizona. Rocky Mountain.

Exsicc.: SWRS [Walker s.n.]. CHWA [Leithliter 664, 858].

### **Senecio eremophilus** Rich. var. **macdougallii**

(Heller) Cronq.

*Senecio eremophilus* ssp. *macdougallii* (Heller) G.W. & G.R. Dougl.

[6,500] 7,050 - 9,180 [10,500] ft. Jul - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon on northerly-facing slopes of coniferous forest openings.

Chiricahua Mts.: 2 mi. east of Onion Saddle; Barfoot Park; Wilderness Area; Pinery Canyon; Greenhouse Canyon; Chaperon Canyon; Barfoot Park; Rustler Park; Centella Point. Also Sierra Ancha, Pinaleno Mts. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Wyoming, Colorado, New Mexico and Arizona. Southwestern.

Hitchcock, et al. (1955).

Exsicc.: SWRS [Orwday s.n.]. CHWA [Leithliter 317, 801].

### **Senecio flaccidus** Less. var. **douglasii** (DC.)

B.L. Turner & T.M. Barkl.

*Senecio douglasii* DC. *S. douglasii* var. *tularensis* Munz *S. monoensis* Greene, *S. regiomontanus* DC., *S. douglasii* DC. var. *monoensis* (Greene) Jepson

### Sand wash groundsel

[1,000] - 5,000 [6,000] ft. [Jan] - [Dec]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common on xeric upland slopes, openings on south-facing canyon walls, open flats; sandy or gravelly soils. *Chrysothamnus nausiosus*, *Bouteloua curtipendula*, *B. gracilis*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Portal to Paradise road; lower West Turkey Creek. Also Sierra Ancha, Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts. Almost throughout Arizona. Utah and Arizona to California and Mexico. Sonoran.

Ediger (1970).

Exsicc.: SWRS [MHoy s.n.]

### Senecio flaccidus Less. var. *flaccidus*

*Senecio douglasii* DC. ssp. *longilobus* (Benth.) W.A. Weber, *S. douglasii* DC. var. *longilobus* (Benth.) L. Benson, *S. douglasii* var. *jamesii* (Torr. & Gray) Ediger ex Correll & Johnson, *S. filifolius* Nutt., non Berg., *S. longilobus* Benth.

#### Threadleaf groundsel

[2,500] 3,900 - 8,400 ft. [Jan] May - Oct [Dec].

Suffrutescent shrub, scapose or leafy-stemmed proto-chamaephyte; nanophyll, orthophyll. Common on rangeland, disturbed soil, dry plains, slopes and washes. *Prosopis glandulosa*, *Bouteloua gracilis*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon, lower Little Pickett Canyon; Fort Bowie Nat. Historic Site at Apache Pass Road, on hill northeast of Overlook; West Turkey Creek; Rustler Park; Hands Pass; along Silver Creek Road; Big Emigrant Canyon; near Portal; Canelo Hills; Sierra de los Ajos. Also Huachuca Mts., Mule Mts., Pinaleno Mts., Animas Mts. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Colorado and Utah, south to Texas and Mexico. Southwestern.

Used extensively in the domestic medicine of the Indians.

Clawson (1933). Ediger (1970).

Exsicc.: CHIR [Clark 8115, Reeves 995, 1541, 2744].

FOBO [MHoy 46, 146]. SWRS [Ordway s.n., SWRS 1959-102].

### Senecio multicapitatus Greenm. ex Rydb.

*Senecio spartioides* Torr. & Gray var. *multicapitatus* (Greenm. ex Rydb.) Welsch

[5,000] 7,220 - 9,790 ft. May - Oct [Nov]. Perennial deciduous forb, scapose or leafy-stemmed proto-hemicryptophyte; mesophyll, orthophyll. Uncommon on dry uplands, plains, mesas, canyons, and pine forest.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Wilderness Area. Also Sierra Ancha. Apache, Navajo, Coconino, Yavapai, Greenlee, and Gila counties. Colorado, Utah, New Mexico, and Arizona. Southwestern.

Exsicc.: CHWA [Leithliter 300, 312].

### Senecio multidentatus Schultz-Bip. ex Hemsl.

var. *huachucanus* (Gray) T.M. Barkl.

*Senecio huachucanus* Gray

[7,000] - 8,750 [9,500] ft. [Aug] Sep - [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Uncommon.

Chiricahua Mts.: Wilderness Area, Snowshed Trail. Also Huachuca Mts., Santa Rita Mts. Cochise and Santa Cruz counties. Southeastern Arizona and Chihuahua. Madrean.

This collection should be critically examined.

Exsicc.: CHWA [Leithliter 829].

### Senecio neomexicanus Gray

*Senecio toumeyi* Greene, *S. blumeri* Greene, *S. encelia* Greene, *S. eurypterus* Greenm., *S. papagonius* A. Nels., *Packera neomexicanus* (Gray) Weber & Löve  
Groundsel

[3,000] 4,900 - 9,020 ft. Apr - Aug. Evergreen perennial forb, semirosette hemicryptophyte; leptophyll, orthophyll. Common in openings on dry south-facing pine forest slopes but in more mesic habitats at lower elevations. *Pseudotsuga menziesii*, *Pinus arizonica*, *P. strobiformis*, *P. discolor*, *Juniperus deppeana*, *Quercus hypoleucoes*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon, Totem Canyon; Fort Bowie Nat. Historic Site in Cut Off Canyon; Flys Peak Trail; Barfoot Park; Tex Canyon; Flys Peak; Rucker Canyon; Whitetail Canyon; South Fork Cave Creek; Centella Point. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., White Mts., Animas Mts., Sierra de los Ajos. Apache, Navajo, Greenlee, Coconino counties, to Cochise, Santa Cruz, and Pima counties. Colorado, New Mexico, Arizona, and Sonora, Mexico. Rocky Mountain.

Exsicc.: CHIR [Clark 8918, Reeves 2800, 2821]. FOBO [MHoy 115]. SWRS [1958-142]. CHWA [Leithliter 337]. ARIZ [Blumer 1553 (type)].

### Senecio parryi Gray

Mountain groundsel

[5,000] 5,800 - 6,100 [7,000] ft. [Jul] Aug - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon on talus slopes. *Quercus emoryi*, *Pinus leiophylla*, *P. discolor*.

Chiricahua Mts.: Chiricahua Nat. Mon. in East Whitetail Canyon, east side of Erikson Mtn.; Cave Creek Canyon. Also Pinaleno Mts., Santa Rita Mts., Santa Catalina Mts., Sierra de los Ajos. Greenlee, Graham, Cochise, Santa Cruz, and Pima counties. Western Texas to southern California, Sonora, Mexico. Madrean.

Exsicc.: CHIR [Fish 62, Reeves 4439]. SWRS [Walkr s.n.].

### Senecio quercketorum Greene

*Senecio macropus* Greenm.

[3,500] 5,200 - [6,000] ft. [Mar] Apr - [May]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Chiefly in the oak belt.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on south boundary hills. Western and southern Coconino County and mountains of Graham, Gila, Cochise, and Pima counties. Known only from Arizona. Apachian.

Exsicc.: FOBO [MHoy 378].

### Senecio wootonii Greene

*Senecio percalvus* A. Nels.

Groundsel

5,300 - 9,790 ft. Mar - Sep. Perennial deciduous forb, semirosette hemicryptophyte; microphyll, orthophyll. Common in wooded canyons, shaded edges of meadows in coniferous forests, in shade of conifers. *Pseudotsuga menziesii*, *P. engelmannii*, *P. discolor*, *Quercus arizonica*, *Q. hypoleucoes*.

Chiricahua Mts.: Picket Park, Rhyolite Canyon, Bonita Canyon; Barfoot Park; Rustler Park; Onion Saddle; upper Pine Canyon; Wilderness Area, southwest slope of Flys Peak; along Crest Trail, Flys Peak; South Fork Cave Creek; Rucker Canyon; Cima Park; Paradise; Centella Point; Long Park. Also Pinaleno Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Coconino, southern Apache, Greenlee, Graham, Gila,

Cochise, and Pima counties. Colorado, New Mexico, Arizona, Chihuahua, and Sonora, Mexico. Rocky Mountain.  
Exsicc.: CHIR [Fish 38, Reeves 2521, 2434, 2465]. SWRS [SWRS 1958-141, Roth s.n.]. CHWA [Leithliter 6, 29, 34].

### **Solidago canadensis L. var. scabra Torr. & Gray**

*Solidago altissima* L., *S. altissima* var. *canescens* (Gray) M.C. Johnston, *S. altissima* var. *pluricephala* M.C. Johnston, *S. altissima* var. *procera* (Ait.) Fern., *S. hirsutissima* P. Mill., *S. lunellii* Rydb.

#### **Goldenrod**

[3,000] 5,000 - 8,200 ft. [Aug] Sep - Oct. Perennial deciduous forb, rhizome geophyte; leptophyll, orthophyll. Locally common on rocky slopes, loamy flats. *Juniperus deppeana*, *Bouteloua rothrockii*, *Pinus engelmannii*, *Quercus hypoleucoides*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Silver Spur Meadow, Rhyolite Canyon; South Fork Cave Creek at crossing; Rustler Park. Also Huachuca Mts. San Francisco Peaks and Grand Canyon (Coconino County), eastern Yavapai, western Gila, Cochise, Santa Cruz, and Pima counties. Newfoundland to Virginia, westward to Montana, Nevada, and central Arizona. Temperate.

Exsicc.: CHIR [Reeves 1407, 4521]. SWRS [Cummins s.n.].

### **Solidago missouriensis Nutt. var. missouriensis**

*Solidago missouriensis* var. *montana* Gray

#### **Goldenrod**

[5,000] 5,400 - 7,200 [9,000] ft. [Jun] Jul - Oct. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon on creek banks, dry uplands, open pine forest and along streams.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; 2 mi. east of Onion Saddle; Rustler Park. Also Rincon Mts., Pinaleno Mts., Sierra Ancha. Southern Apache and Navajo counties to North Rim of the Grand Canyon(?), Flagstaff, Mormon Lake, and Oak Creek (Coconino County), southward to the mountains of Cochise, Santa Cruz, and Pima counties. Michigan and Tennessee to British Columbia, Oregon, and Arizona. Plains.

Exsicc.: CHIR [Clark 8646]. SWRS [Ordway s.n.].

### **Solidago parryi (Gray) Greene**

*Haplappus parryi* Gray, *Oreochrysum parryi* (Gray) Ridb.

7,220 - 9,790 [11,500] ft. Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Alpine meadow. *Pinus arizonica*.

Chiricahua Mts.: Wilderness Area, on Crest Trail near Painted Rock; Centella Point; near Bootlegger Saddle; Barfoot Park. Also Pinaleno Mts., Santa Catalina Mts. Coconino County, Apache County, Cochise County, Graham County, Pima County. Wyoming to New Mexico and Arizona. Rocky Mountain.

Exsicc.: SWRS [Walker, Wittmann 205]. CHWA [Leithliter 181, 677]. ARIZ [Fishbein 424, 457, Reichenbacher 1092, Blumer 190, 1427].

### **Solidago velutina DC.**

*Solidago arizonica* (Gray) Woot. & Standl., *S. californica* Nutt. var. *S. canadensis* L. var. *arizonica* Gray, *S. howellii* Woot. & Standl., *S. sparsiflora*

Gray, *S. trinervata* Greene, *S. velutina* var. *nevadensis* (Gray) C. & J. Taylor

#### **Goldenrod**

[2,000] 5,000 - 6,100 [8,500] ft. [Jun] Jul - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon in woodland openings on dry south-facing slopes, chaparral; mesic grasslands and drainages at lower elevations. *Quercus arizonica*, *Q. emoryi*, *Pinus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Park and Headquarters Area; Fort Bowie Nat. Historic Site along Apache Pass Road; Pinery Canyon; Onion Saddle. Also Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Almost throughout Arizona. South Dakota and Wyoming to Texas, New Mexico, Arizona, and Sonora, Mexico. Rocky Mountain.

This plant, described as new to science, was collected by J.C. Lemmon and wife, circa 1881, in Rucker Canyon.

Exsicc.: CHIR [Moir 431, Reeves 1759, 1774 1892, 3553, 3991]. FOBO [MHoy 466]. SWRS [Ordway s.n.].

### **Solidago wrightii Gray var. adenophora Blake**

*Solidago bigelovii* Gray

#### **Goldenrod**

[4,700] 6,000 - 9,790 ft. Jul - Oct [Nov]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon in dry meadows, wooded slopes, and drainages at lower elevations.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon near Headquarters, Rhyolite Canyon, South Fork Cave Creek at ford; Wilderness Area; Rustler Park; Barfoot Park. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Graham, Pinal, Cochise, and Pima counties. Western Texas to Arizona and Sonora, Mexico. Southwestern.

Exsicc.: CHIR [Borell 19, Fish 31, Reeves 1761, 1836, 3993]. SWRS [Roth s.n.]. CHWA [Leithliter 303, 552, 701, 797, 831, 841].

### **Sonchus asper (L.) Hill**

#### **Sow-thistle**

[150] 5,400 - 8,200 ft. [Feb] May - Oct. Winter-annual forb, semirosette therophyte; microphyll, semi-sclerophyll. Uncommon in meso-riparian canyon grasslands, xeric uplands, roadsides, and waste ground; on disturbed sites. *Quercus emoryi*, *Q. arizonica*, *Arctostaphylos pungens*, *Garrya wrightii*, *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon as a lawn weed, Bonita Canyon, Pickett Canyon; Southwestern Research Station; Barfoot Park; Centella Point. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Apache and Coconino counties to Cochise, Santa Cruz, Pima, and Yuma counties. Nearly throughout North America; naturalized from Europe. Temperate.

Exsicc.: CHIR [Clark 8944, Reeves 1633, 1725, 2867]. SWRS [SWRS 1959-126].

### **Sonchus oleraceus L.**

#### **Sow-thistle**

[4,500] 5,400 - 6,325 ft. Aug - Sep. Summer-annual forb, scapose or leafy-stemmed therophyte; mesophyll, orthophyll. Uncommon in wooded canyons, disturbed sites, roadsides and waste places.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; Paradise. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts. Alien species. Coconino and Mohave counties to Graham, Cochise, Pima and Yuma counties. In most parts of North

America; naturalized from Europe. Temperate, Introduced.  
Exsicc.: CHIR [Reeves 4137, 4227]. ARIZ [Blumer U.184].

### **Stephanomeria exigua** Nutt.

Annual mitra

[2,000] 4,600 - 6,000 [8,000] ft. [Apr] May - Jul [Sep].  
Summer-annual forb, scapose or leafy-stemmed therophyte;  
mesophyll, orthophyll. Uncommon on dry uplands, plains, mesas,  
and hillsides, often among shrubs. *Quercus emoryi*.  
Chiricahua Mts.: Chiricahua Nat. Mon.; San Simon Valley.  
Also Huachuca Mts., Sierra Ancha. Throughout Arizona.  
Wyoming to New Mexico, Arizona, and California. Western.  
The Navajo Indians use this plant as a diuretic.  
Exsicc.: SWRS [Pough 1962-2].

### **Stephanomeria pauciflora** (Torr.) Nutt.

*Lygodesmia pauciflora* (Torr.) Shinners, *Ptiloria pauciflora* (Torr.) Raf., *Stephanomeria cincerea* (Blake) Blake, *S. neomexicana* (Greene) Cory, *S. pauciflora* var. *parishii* (Jepson) Munz  
Wire-lettuce, stick-weed

[150] 4,900 - 6,450 [7,000] ft. [Jan] May - Jul [Dec].  
Narrowleaf dicot shrub, scapose or leafy-stemmed  
proto-chamaephyte. Uncommon in grassland in grassland/scrub  
and openings in woodland, dry plains, mesas, and slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat.  
Historic Site in upper South Canyon; Cave Creek Canyon. Also  
Huachuca Mts., Rincon Mts., Santa Catalina Mts., Pinaleno Mts.,  
Animas Mts. Almost throughout Arizona. Kansas to Texas,  
Arizona, and California. Southwestern.

The Hopi Indians, according to one authority, apply the plant  
both internally and externally to stimulate milk flow in women.

Exsicc.: CHIR [Reeves 3531, 3855, 3872]. FOBO [MHoy  
182]. SWRS [Barnes s.n.].

### **Stephanomeria tenuifolia** (Torr.) Hall

[4,500] - 6,000 [8,000] ft. [May] Jun - [Sep]. Perennial  
deciduous forb, scapose or leafy-stemmed hemicryptophyte;  
nanophyll, orthophyll. Uncommon on dry uplands. *Quercus*  
*emoryi*, *Q. hypoleucoes*, *Pinus leiophylla*.

Chiricahua Mts.: on side slopes of Sara Deming Canyon.  
Also Sierra Ancha, Pinaleno Mts., Animas Mts. Apache, Navajo,  
Coconino, and Yavapai counties. Montana to Washington, south  
to Colorado, Arizona, and California. Western.

Exsicc.: CHIR [Clark 8963].

### **Stephanomeria thurberi** Gray

*Lygodesmia thurberi* (Gray) Shinners

Wire-lettuce, stick-weed

[4,000] 5,100 - 6,000 [8,000] ft. [Apr] May - Aug. Perennial  
deciduous forb, semirosette hemicryptophyte; nanophyll,  
orthophyll. Uncommon in grassland and open woods, open forests  
of pine, pinyon, and juniper. *Bouteloua rothrockii*, *Isocoma*  
*tenuisecta*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Paradise; mouth of  
Pinery Canyon. Also Huachuca Mts., Animas Mts., Canelo Hills.  
Navajo, Coconino, Mohave, Yavapai, Greenlee, Cochise, and  
Santa Cruz counties. New Mexico, Arizona, and northern Mexico.  
Madrean.

Exsicc.: CHIR [Reeves 1674, 2759, 2906]. SWRS [Walker  
s.n.]; Pough 1961-134].

### **Stevia micrantha** Lag.

[5,000] - 6,000 [6,500] ft. [Aug] Sep - Oct. Summer annual  
forb. Shade, rich, moist soil in canyons.  
Chiricahua Mts.: Rucker Canyon; Cave Creek Canyon. Also  
Huachuca Mts., Mule Mts., Animas Mts., Canelo Hills.  
Southwestern New Mexico, southern Arizona, and Mexico.  
Madrean.

Exsicc.: SWRS [Walker s.n.].

### **Stevia plummerae** Gray

[6,000] 6,950 - 9,190 ft. Jul - Oct. Perennial deciduous forb,  
scapose or leafy-stemmed hemicryptophyte; microphyll,  
orthophyll. Common on rich soil in canyons.

Chiricahua Mts.: Onion Saddle; Wilderness Area; upper Pine  
Canyon; below Ruster Park; Pinery Canyon; Barfoot Park;  
north-facing slope Flys Peak; Rucker Canyon. Also Huachuca  
Mts. Apache, Cochise, Santa Cruz, and Pima counties. New  
Mexico, Arizona, and northern Mexico. Madrean.

This plant, described as new to science was collected by J.C.  
Lemmon and wife near Rucker Canyon circa 1881. The species  
epithet honors Mrs. Lemmon's maiden name, Plummer.

Exsicc.: SWRS [s.c. s.n.]. CHWA [Leithliter 480, 826, 836,  
850].

### **Stevia serrata** Cav.

*Stevia serrata* var. *ivifolia* (Willd.) Rob., *S. serrata*  
var. *haplopappa* Rob.

[4,500] 6,000 - 9,790 ft. Jul - Oct. Perennial deciduous forb,  
scapose or leafy-stemmed hemicryptophyte. Microphyll,  
orthophyll. Uncommon in rich soil of rocky canyon sides and dry  
meadows.

Chiricahua Mts.: Chiricahua Nat. Mon. in East Whitetail  
Canyon and Heart of Rocks Trail; Barfoot Park; Wilderness Area,  
along Crest Trail; below Rustler Park; Onion Saddle. Also  
Huachuca Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts.,  
Canelo Hills, Sierra de los Ajos. Southern Apache, Graham,  
Cochise, Santa Cruz, and Pima counties. Western Texas to  
southern Arizona, southward into Mexico. Madrean.

Exsicc.: CHIR [Clark 8722, Dodd s.n.]. SWRS [Ordway  
s.n.]. CHWA [Leithliter 302, 579, 679, 680, 794, 795, 822].

### **Tagetes micrantha** Cav.

*Tagetes fragrantissima* Sessé & Moc.

Marigold, anisillo

5,400 - 6,000 [8,500] ft. Aug - Nov. Perennial deciduous  
forb, scapose or leafy-stemmed proto-chamaephyte. Common on  
mesic slopes, gravelly well-drained soil, part sun. *Quercus*  
*toumeyi*, *Q. emoryi*, *Arctostaphylos pungens*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Stay Point, Picket  
Park, Garfield Peak; West Turkey Creek at El Coronado Ranch;  
Rucker Canyon; Shelter Cove. Also Rincon Mts., Mule Mts.,  
Santa Catalina Mts., Canelo Hills. Southern parts of Apache,  
Navajo, and Coconino counties. Western Texas to Arizona and  
central Mexico. Apachian.

Exsicc.: CHIR [Clark 8667, Moir 561, Reeves 1488, 1878,  
4535]. SWRS [Luettke s.n.].

### **Taraxacum laevigatum** (Willd.) DC.

*Leontodon erythrospermum* (Andrz. ex Bess.) Britt.,  
*Taraxacum disseminatum* Hagn., *T. erythrospermum*  
Andrz. ex Bess., *T. lacistophyllum* (Dahlst.) Raunk.,  
*T. scanicum* Dahlst.

### **Red-seeded dandlion**

2,835 - [11,500] ft. [Mar] - Sep. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll. Uncommon in dry meadows.

Chiricahua Mts.: Wilderness Area, Round Park. Also Pinaleno Mts. Apache, Navajo County, Coconino, Cochise County. Nova Scotia to British Columbia, south to Virginia, New Mexico, northern Arizona, and California; naturalized from Europe. Temperate, Introduced.

Exsicc.: CHWA [Leithlitter 774].

### **Taraxacum officinale** Weber ex Wiggers

#### Dandelion

[2,500] 5,300 - 9,300 ft. Mar - Sep. Perennial deciduous forb, rosette hemicyclophtye; microphyll, orthophyll. Uncommon in fields, roadsides and lawns, swales and lower slopes. *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Meadow and Lower Bonita Canyon; Cave Creek; Centella Point. Also Pinaleno Mts., Sierra Ancha. Apache, Navajo, and Coconino counties to Cochise, Santa Cruz, and Pima counties. Northern Canada to Mexico. Naturalized from the Old World. Temperate, Introduced.

Kartesz (1994) lists 56 synonyms distributed among 3 subspecies.

Exsicc.: CHIR [Clark 9025, Reeves 1540, 2432]. SWRS [SWRS 1959-3].

### **Thelesperma longipes** Gray

#### Navajo tea, cota

[4,500] 5,100 - 5,400 [6,000] ft. [Jun] - Oct. Narrowleaf dicot shrub, chamaephyte suffrutescent low shrub. Openings on slopes of all aspects, shallow canyons, and hillsides; often on limestone.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill north of Overlook; Paradise; Portal to Paradise road. Also Huachuca Mts., Santa Catalina Mts., Mule Mts. Cochise, Santa Cruz, and Pima counties. Western Texas to southeastern Arizona and northern Mexico. Chihuahuan.

Used as a substitute for tea in New Mexico under the name "cota". Exsicc.: FOBO [MHoy 37]. SWRS [Walker s.n.]

### **Thelesperma megapotamicum** (Spreng.)

#### Kuntze.

*Bidens megapotamica* Spreng., *Thelesperma gracile* (Torr.) Gray

[4,000] 5,000 - 5,250 [7,500] ft. May - Aug [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicyclophtye; leptophyll, orthophyll. Uncommon on grassland, plains, mesas and open woodland. *Juniperus deppeana*, *Bouteloua rothrockii*, *B. curtipendula*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site along trail; Chiricahua Nat. Mon.; lower Pinery Canyon. Also Mule Mts., Pinaleno Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Apache, Navajo, Yavapai, Pinal, Cochise, Santa Cruz, and Pima counties. Nebraska and Wyoming to Utah, south to Texas, Arizona, and Mexico; southern South America. Latin American.

The Hopi make a tea from the flowers and young leaves, which are dried and then boiled. A reddish-brown dye for baskets and textiles is also obtained by them from this plant.

Exsicc.: CHIR [Clark 8544, 9200, Reeves 2757, 2918, 4010]. FOBO [MHoy 197].

### **Thymophylla acerosa** (DC.) Strother

### **Dyssodia acerosa** DC.

#### Dogweed

[3,500] - 5,200 [6,000] ft. [Mar] May - Oct. Narrowleaf dicot shrub, chamaephyte suffrutescent low shrub. Rare on hot dry rocky slopes and flats, often on limestone soils.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill east of trailer; Silver Creek below East Turkey Creek. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts. Coconino County and Mohave County, south to Cochise and Pima counties. Texas to southern Nevada, Arizona, and south to central Mexico. Chihuahuan.

Exsicc.: CHIR [Reeves 1111]. FOBO [MHoy 153]. SWRS [SWRS 1958-227].

### **Thymophylla pentachaeta** (DC.) Small var. **pentachaeta**

*Dyssodia pentachaeta* (DC.) Rob., *Hymenantherum pentachaetum* DC.

[2,500] 5,100 - [4,800] 5,600 ft. [Mar] Apr - Aug [Oct]. Narrowleaf dicot shrub, suffrutescent chamaephyte. Uncommon on hot dry limestone slopes; sandy soil; disturbed areas.

Chiricahua Mts.: Fort Bowie Nat. Historic Site north of Overlook; Galeyville townsite; Portal, along Silver Creek, Limestone Mtn. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts. Coconino County, Tuzigoot National Monument (Yavapai County), and Cochise, Santa Cruz, and Pima counties. Texas to Arizona and northern Mexico. Chihuahuan.

Exsicc.: FOBO [MHoy 385]. SWRS [Barr 1959-65].

### **Townsendia exscapa** (Richards.) Porter

*Aster exscapus* Richards, *Townsendia intermedia* Rydb., *T. sericea* Hook.

[4,500] 5,400 - [7,000] ft. [Apr] May - [Aug]. Perennial deciduous forb, rhizome geophyte; nanophyll, orthophyll. Common on dry uplands, open slopes and mesas.

Chiricahua Mts.: Paradise. Also Sierra Ancha, Huachuca Mts., Canelo Hills. Coconino, southern Navajo, Yavapai, Gila, Pinal, and Santa Cruz counties. Alberta and Saskatchewan to Texas, Arizona, and Chihuahua. Western.

Exsicc.: SWRS.

### **Tragopogon dubius** Scop.

*Tragopogon dubius* ssp. *major* (Jacq.) Voll., *T. major* Jacq.

Goats beard

[3,500] - [9,000] ft. [Jul] - [Sep]. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon on hillslope.

Chiricahua Mts.: Centella Point. Also Pinaleno Mts., Canelo Hills. Navajo County, Coconino County, Yavapai County. Colorado to Idaho, New Mexico, and Arizona; adventive from Europe. Western, Introduced.

Exsicc.: SWRS [Luetcke s.n.]. ARIZ [Fishbein 447].

### **Trixis californica** Kellogg

[4,600] 5,100 - 5,600 ft. [Jan] Jun - Aug [Dec].

Suffrutescent shrub, suffrutescent chamaephyte; microphyll, orthophyll. Uncommon on sunny rocky slopes and flats.

*Juniperus deppeana*, *Bouteloua rothrockii*, *B. curtipendula*.

Chiricahua Mts.: Chiricahua Nat. Mon. on Pinery Canyon sideslopes; Fort Bowie Nat. Historic Site at Overlook. Also Rincon Mts., Peloncillo Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts. Coconino, Greenlee and southern Yavapai counties to Cochise, Pima, and Yuma counties. Western Texas to southern California and northern Mexico. Southwestern.

Exsicc.: CHIR [Reeves 3379, 3426, 4072]. FOBO [MHoy 434].

### **Verbesina encelioides** (Cav.) Benth. var.

**exauriculata** (Rob. & Greenm.) J.R. Coleman

*Verbesina encelioides* var. *exauriculata* Rob. & Greenm., *V. exauriculata* (Rob. & Greenm.)

Cockrell, *Ximenesia encelioides* var. *exauriculata* (Rob. & Greenm.) F.C. Gates

*X. exauriculata* (Rob. & Greenm.) Rydb.

Golden crown-beard

5,000 - 9,300 ft. [Apr] May - Oct [Nov]. Summer-annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Common in open, grassy places in woodlands, grassland scrub, along washes; on disturbed soils, roadsides, and waste ground. *Quercus emoryi*, *Dasylyron wheeleri*, *Bouteloua rothrockii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in grassland west of monument, Jesse James Canyon, Bonita Canyon, Whitetail Canyon; Centella Point; Fort Bowie Nat. Historic Site along Apache Pass Road; Southwestern Research Station; San Simon Cienega, Portal to Paradise road. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Apache County to Mohave County, south to Cochise, Pima, and Yuma counties. Kansas to Montana, south to Texas, California, and northern Mexico. Plains.

This plant is said to have been used by Indians and white pioneers for boils and skin disease. The Hopis are reported to bathe in water in which this plant has been soaked to relieve the pain of spider bite.

Exsicc.: CHIR [Borell 6, Clark 8266, Reeves 1560, 1769, 3415]. SWRS [Ordway s.n.; Roth s.n.]. FOBO [MHoy 186].

### **Verbesina longifolia** Gray

*Actinomeris longifolia* Gray

Crown-beard

[5,000] 6,000 - 9,680 ft. Jul - Oct. Perennial deciduous forb, Common in seasonally wet canyons, rock outcrops, shade. *Pseudotsuga menziesii*, *Pinus arizonica*; *Pinus strobus*, *Quercus gambelii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Morse Canyon Trail near West Turkey Creek. Also Huachuca Mts., Mule Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Cochise, Santa Cruz, and Pima counties. Southwestern New Mexico, southeastern Arizona, and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8705, Reeves 1366, 4401]. SWRS [Wittmann 73]. CHWA [Leithliter 192, 307, 503, 663, 773].

### **Verbesina rothrockii** Rob. & Greenm.

[3,500] - 5,100 [5,500] ft. [May] Aug - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicyclopedia. Rare on open rocky slopes and broad canyon bottoms; tolerates limestone soils.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at Overlook; summit of Silver Creek Road; Portal. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Cochise, Santa Cruz, and Pima counties. Southern New Mexico, southern Arizona, and Coahuila. Chihuahuan.

Exsicc.: SWRS [Barr 61-316]. FOBO [MHoy 300].

### **Viguiera cordifolia** Gray

Heart-leaved goldeneye

[3,500] 5,400 - 8,000 [9,000] ft. [Jun] Sep - Sep [Oct].

Perennial deciduous forb, scapose or leafy-stemmed hemicyclopedia; microphyll, orthophyll. Uncommon in woods at edge of meadows, xeric canyon slopes, along roadsides and on disturbed ground, sandy flats. *Bouteloua curtipendula*, *B. rothrockii*, *Isocoma tenuisecta*, *Quercus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. at junction State Route 181 and boundary; Barfoot turnoff. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Mule Mts., Animas Mts. Fort Apache (southern Navajo County), Graham, Cochise, Santa Cruz, and Pima counties. Western Texas to eastern and southern Arizona and northern Mexico. Chihuahuan.

Blake (1918).

Exsicc.: CHIR [Reeves 1704, 1798, 4542]. SWRS [Walker s.n.].

### **Viguiera dentata** (Cav.) Spreng.

[3,000] 4,900 - 5,400 [7,000] ft. [Jun] Aug - Sep [Oct].

Perennial deciduous forb, scapose or leafy-stemmed hemicyclopedia; mesophyll, orthophyll. Uncommon on rocky wooded slopes, meso-riparian canyon woodlands, fields and ditch banks. *Pinus discolor*, *Juniperus deppeana*, *Garrya wrightii*; *Bouteloua rothrockii*, *Bouteloua curtipendula*.

Chiricahua Mts.: Chiricahua Nat. Mon. north of Meadow, Rhyolite Canyon, junction State Route 181 and boundary; Portal to Paradise road; 1 mi. east of Paradise; Fort Bowie Nat. Historic Site in Siphon Canyon. Also Huachuca Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Southern Apache County, Yavapai County, and Greenlee, Gila, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Mexico. Chihuahuan.

Blake (1918).

Exsicc.: CHIR [Reeves 1506, 1669]. SWRS [Cummins s.n.]. FOBO [MHoy 476].

### **Viguiera parishii** Green

*Viguiera deltoidea* Gray var. *parishii* (Greene) Vasey & Rose

[3,500] ft. [Jan] - [Oct]. Suffrutescent shrub, suffrutescent chamaephyte. Xeric slopes, rocky flats, and meso-riparian canyons.

Chiricahua Mts.: Fort Bowie Nat. Historic Site.

Also Santa Catalina Mts. Oatman (Mohave County) and from southern Yavapai and western Gila counties to Pima and Yuma counties. Southern Nevada to southern Arizona, southern California, and northwestern Mexico. Sonoran.

Blake (1918).

Observed by: Paul Fugate.

### **Viguiera trilobata** (Gray) Olsen

*Zaluzania grayana* Rob. & Greenm., *Gymnolomia triloba* Gray

6,720 - 8,530 ft. Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte; microphyll, orthophyll. Shade, along streams, gullies and rocky, north-facing slopes, canyons.

Chiricahua Mts.: north side of Silver Peak; East Turkey Creek; Wilderness Area. Also Huachuca Mts., Animas Mts. Cochise County. Southwestern New Mexico, southern Arizona, and Chihuahua. Madrean.

This plant, described as new to science was collected by J.G. Lemmon and wife in the Chiricahua Mts. circa 1881.

Exsicc.: SWRS [Walker s.n.]. CHWA [Leithliter 586, 607, 662].

### **Xanthium strumarium** L. var. **canadense** (P.

Mill.) Torr. & Gray

*Xanthium acerosum* Greene, *X. californicum* Greene, *X. californicum* var. *rotundifolium* Widder, *X. campestre* Greene, *X. canadense* P. Mill, *X. cavanillesii* Schouw, *X. cenchroides* Millsp. & Sherff, *X. commune* Britt., *X. echinatum* Murr., *X. glanduliferum* Greene, *X. italicum* Moretti, *X. macounii* Britt., *X. oligacanthum* Pipper, *X. oviforme* Wallr., *X. pensylvanicum* Wallr., *X. saccharatum* Wallr., *X. speciosum* Kearn., *X. strumarium* ssp. *italicum* (Moretti) D. Löve, *X. strumarium* var. *oviforme* (Wallr.) M.E. Peck, *X. strumarium* var. *pensylvanicum* (Wallr.) M.E. Peck, *X. varians* Greene

Cocklebur

[100] 4,800 - 5,400 [6,000] ft. [Jun] Sep - Oct.

Summer-annual forb, scapose or leafy-stemmed therophyte; mesophyll, orthophyll. Uncommon in sandy places and drainage bottoms, moist, alluvial soil. *Platanus wrightii*, *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Bonita Canyon; Portal. Also Santa Catalina Mts., Animas Mts. Throughout Arizona. Throughout most of the United States and in the Hawaiian Islands. Temperate.

Exsicc.: CHIR [Clark 8259, Reeves 1657]. SWRS [Roth s.n.].

### **Zinnia acerosa** (DC.) Gray

*Zinnia pumila* Gray

[2,500] 4,500 - 4,900 [5,000] ft. [Apr] - Sep [Oct].

Suffrutescent shrub, suffrutescent low chamaephyte. Common on dry slopes and mesas, commonly on "caliche" soil.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in South Canyon; Paradise - Portal road; San Simon Cienega. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Central Yavapai County to Cochise and Pima counties. Texas to

southern Arizona and northern Mexico. Chihuahuan.

Exsicc.: SWRC [Cummins s.n.]. FOBO [MHoy 320].

### **Zinnia grandiflora** Nutt.

*Crassina grandiflora* (Nutt.) Kuntze

[4,000] 4,900 - 5,500 [6,500] ft. [May] Jul - Aug [Oct].

Narrowleaf dicot shrub. Common in grassland, grassland/scrub and openings in oak woods, dry slopes and mesas. *Quercus emoryi*, *Q. arizonica*, *Arctotaphylos pungens*.

Chiricahua Mts.: Portal to Paradise road; upper Tex Canyon; Chiricahua Nat. Mon. on side slopes of Bonita Canyon; Fort Bowie Nat. Historic Site in South Canyon, Canelo Hills. Also Huachuca Mts., Mule Mts., Pinaleno Mts. Navajo County to eastern Mohave County, south to Greenlee, Cochise, and Santa Cruz counties. Kansas to Nevada, south to Texas, Arizona, and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 8552, Reeves 1439, 2752, 3997, 4192]. FOBO [MHoy 296].

## **BERBERIDACEAE—Barberry Family.**

A family of perennial herbs or shrubs; rootstocks sometimes of creeping rhizomes or tubers. A family of ten to twelve genera and about 200 species in the north temperate regions (some *Berberis* extend into southern South America). The economic importance of the family is largely confined to their use as ornamentals.

### **Berberis wilcoxii** Kearn.

*Odostemon wilcoxii* (Kearn.) Heller

Barberry, holly-grape

[5,500] 5,800 - 6,800 [8,000] ft. Apr. Broadleaf evergreen shrub, nanophanerophyte; microphyll, sclerophyll. Uncommon in wooded canyons, cool slopes, and shallow draws.

Chiricahua Mts.: Chiricahua Nat. Mon. in Sarah Deming Canyon and near China Boy Bonita Canyon; Sunny Flats Campground in Cave Creek. Also Rincon Mts., Santa Catalina Mts., Huachuca Mts., Baboquivari Mts., Pinaleno Mts. Yavapai, Graham, Gila, Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and Sonora. Madrean.

Exsicc.: CHIR [Clark 8151, Reeves 1358, 2830]. SWRS [Ordway 57].

## **BIGNONIACEAE—Bignonia Family.**

A family of trees or shrubs, often climbing or twining vines, rarely herbs. Primarily a tropical family of many genera (about 110) but relatively few species (750), particularly abundant in northern South America.

### **Chilopsis linearis** (Cav.) Sweet ssp. *linearis*

*Bignonia linearis* Cav.; *Chilopsis glutinosa* Engelm.

in Wisliz.; *C. linearis* var. *glutinosa* (Engelm.)

Fosberg; *C. linearis* var. *originaria* Fosberg

Desert-willow

[500] 5,400 - 5,850 [6,000] ft. [Apr] Jun - Aug. Narrowleaf dicot shrub, microphanerophyte; microphyll, orthophyll. Common in oak woodland and commonly along washes, moist sinks and water holes in dry, well-drained sandy and gravelly soils. Scattered, usually not forming pure stands. Intolerant of shade.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Pickett Canyon; Fort Bowie Nat. Historic Site in South Canyon; Whitewater Draw; San Simon Valley along Cave Creek; Paradise to Portal road. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts.,

Sierra de los Ajos. Coconino and Mohave counties to Greenlee, Cochise, Santa Cruz, Pima, and Yuma counties. Western Texas to southern Nevada, Arizona, southern California, and northern Mexico. Sonoran, Chihuahuan.

Used as an ornamental in the Southwest. Also prized for fence posts because of durability in contact with the ground. Maturity likely reached in less than 50 years. Old trunks are subject to heart rot. Fosberg (1936); Sudworth (1908).

Exsicc: CHIR [Clark 8291, Reeves 2940, 3068, 4293]. SWRS [SWRS 1959-219].

**Tecoma stans** (L.) Juss. ex Kunth var. **angustata** Rehd.

*Bignonia stans* L., *Stenolobium incisum* Rose & Standl.; *Tecoma stans* var. *angustatum* Rehd., *T. tronodora* (Loes.) J.R. Johnst.

[3,000] - 5,500 ft. [May] Jul - Aug [Oct]. Broadleaf deciduous shrub, nanophanerophyte; leptophyll, orthophyll. Uncommon on rocky or gravelly slopes, rock ledges, sometimes on limestone.

Chiricahua Mts. (Swisshelm Mts.), Santa Catalina Mts., Rincon Mts., Mule Mts., Baboquivari Mts., Santa Rita Mts., Whetstone Mts., Patagonia Mts., Tucson Mts., Pinal Mts., Perilla Mts. Pinal, Cochise, Santa Cruz, and Pima counties. Southern New Mexico and Arizona, southward into tropical America.

Cultivated as an ornamental in the United States. The roots are used in Mexico medicinally and for making a sort of beer.

Exsicc: SWRS [Leutcke s.n.]. ARIZ [Goodding 141-47, M.E. Jones 7733].

**BORAGINACEAE—Borage Family.**

A family of wide distribution containing 100 genera and 2,000 species. Their chief economic value is as ornamentals.

**Amsinckia intermedia** Fisch. & Mey.

*Amsinckia arizonica* Suksd., *A. demissa* Suksd., *Amsinckia echinata* Gray, *A. intacilis* Macbr., *A. intermedia* var. *echinita* (Gray) Wiggins, *A. microphylla* Suksd., *A. nana* Suksd., *A. rigida* Suksd. Coast fiddleneck

[4,500] - [5,500] ft. [Mar] - [May]. Winter-annual forb, scapose or leafy-stemmed therophyte. Common in well-drained soil, sunny dry uplands in encinal and grassland. *Larrea tridentata*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts. Coconino County and Mohave County, southward and eastward to Cochise, Pima, and Yuma counties. Western New Mexico to California. Mohavian, Sonoran.

**Cryptantha angustifolia** (Torr.) Greene

*Eremocarya angustifolia* Torr.

5,200 ft. [Feb] May - [Jun]. Winter-annual forb, scapose or leafy-stemmed therophyte. Uncommon on sunny south-facing hillsides and gravelly flats in grassland and desert scrub; sometimes on disturbed ground.

Chiricahua Mts.: Cave Creek Ranger Station. Also Rincon Mts., Santa Catalina Mts. Western and southern Arizona. Western Texas to southern Nevada, southeastern California, and northwestern Mexico. Chihuahuan, Sonoran, Mohavian.

Exsicc: SWRS [Moat s.n.].

**Cryptantha crassisepala** (Torr. & Gray)

**Greene**

[4,000] 4,800 - 6,900 ft. Mar - Jun. Winter-annual forb, scapose or leafy-stemmed therophyte. Uncommon in encinal, grasslands, xeric slopes, and along roadsides.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site near parking lot; Portal. Also Mule Mts., Animas Mts. Apache County to eastern Coconino County, Mohave, Yavapai, Greenlee, Graham, Cochise, and eastern Pima counties. Southern Colorado and western Texas to southern Utah, Arizona, and northern Mexico. Madrean, Chihuahuan, Sonoran.

Exsicc: CHIR [Reeves 2887, 3521]. FOBO [MHoy 96]. SWRS [Roth s.n.].

**Cryptantha cinera** (Greene) Cronq. var. **cinera**

*Cryptantha jamesii* (Torr.) Pays. var. *multicaulis* (Torr.) Pays., *C. jamesii* var. *setosa* (M.E. Jones) I.M. Johnston, *Oreocarya suffruticosa* (Torr.) Greene

[5,000] 5,150 - 5,400 [7,000] ft. [Apr] Jul - Aug [Sep]. Summer-annual forb, scapose or leafy-stemmed therophyte. Common in grassland and openings in woods. Juniper, oak, pine.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts., Animas Mts. Widely distributed in Arizona but most common in the northeastern part. Nebraska and Wyoming to Texas, Arizona, and California. Western.

Exsicc: CHIR [Clark 8526, Reeves 3745, 3999, 4218].

**Cryptantha micrantha** (Torr.) I.M. Johnst.

[4,300] - 4,500 ft. Winter-annual forb, scapose or leafy-stemmed therophyte. Uncommon in gravelly semidesert grassland soils and on desert scrub slopes, also along washes. *Larrea tridentata*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts. Western and southern Arizona. Western Texas to Oregon and California. Southwestern.

Exsicc: SWRS [Moat s.n.].

**Cryptantha pusilla** (Torr. & Gray) Greene

*Eritrichium pusillum* Torr. & Gray

[4,000] 4,800 - [5,500] ft. [Apr] May - [Jun]. Winter-annual forb, scapose or leafy-stemmed annual herb; leptophyll, orthophyll. Sunny rocky slopes.

Chiricahua Mts.: Horseshoe Canyon, 6 mi. south of Portal on limestone slope. Also Huachuca Mts., Animas Mts. Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and northern Sonora. Chihuahuan.

Exsicc: SWRS [Mouat s.n.].

**Hackelia pinetorum** (Greene ex Gray) I.M. Johnst.

6,000 - 7,000 [9,000] ft. Jul - [Aug]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Scattered on roadsides, moist, shaded places in the pinyon and pine belts. *Ptelea angustifolia*.

Chiricahua Mts.: near Winn Falls; East Turkey Creek. Coconino, Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and Chihuahua. Chihuahuan.

Exsicc: SWRS [Wittmann 106, SWRS 1960-409].

**Hackelia ursina** (Greene ex Gray) I.M. Johnst.

[5,000] - 6,000 [8,000] ft. [May] - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Shade on north-facing slope, moist. Oak and pine

woodland.

Chiricahua Mts.: north side Silver Peak. Also Animas Mts. Southern Gila County and Greenlee County to Cochise and Pima counties. New Mexico, Arizona, and Chihuahua. Madrean.

Exsicc: SWRS [Walker s.n.].

### **Heliotropium fruticosum L.**

*Heliotropium phyllostachyum* Torr.

Heliotrope

[4,000] 5,150 - 5,250 ft. Aug - Sep. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon in grassland and desert scrub along washes on sunny bajadas and flats.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Sierra Ancha, Santa Catalina Mts. Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Southern Arizona, Sonora, and Baja California. Latin American.

Exsicc: CHIR [Reeves 1692, 4001].

### **Lappula redowskii (Hornem.) Greene var. redowskii**

*Lappula echinata* Gilib. var. *occidentalis* (S. Wats.) Boivin, *L. occidentalis* (S. Wats.) Greene, *L. redowskii* var. *desertorum* (Greene) I.M. Johnst., *L. redowskii* var. *occidentalis* (S. Wats.) Rydb.

Stick-seed

[1,000] 4,200 - 8,560 ft. Feb - Sep. Winter-annual forb, semirosette therophyte; nanophyll, orthophyll. Uncommon on sunny grassland flats and rocky hillsides; at trailsides, along roads, and near other disturbed places. *Larrea tridentata*, *Juniperus deppeana*, *Pinus discolor*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Chiricahua Nat. Mon. in upper Rhyolite Canyon; Round Valley 5 mi. north of Portal; Cave Creek Canyon; Wilderness Area; Saulsbury Trail. Also Rincon Mts., Pinaleño Mts., Santa Catalina Mts., Animas Mts., Peloncillo Mts., Rincon Mts., Tumacacori Mts., Dragoon Mts. Widely distributed in Arizona. Western United States; Argentina; Asia. Latin American.

Exsicc: CHIR [Borell 16, Fish 55, Reeves 2890, 3522]. SWRS [Leutcke s.n.]. FOBO [MHoy 125]. CHWA [Leithliter 512]. ARIZ [Benson 10319, Clark 8421, Toolin 247, McCormick & Assoc. 656.]. ASU [Daniel & Butterwick 2778; Keil 10718].

### **Lappula occidentalis (S. Wats.) Greene var. cupulata (Gray) Higgins**

*Lappula redowskii* var. *cupulata* (Gray) M.E. Jones, *L. redowskii* (Hornem.) Greene var. *texana* (Scheele) Brand, *L. texana* (Scheele) Britt., *L. texana* var. *coronata* (Greene) Nels. and Macbr., *L. texana* var. *heterospermum* (Greene) Nels. & Macbr., *L. texana* var. *homosperma* (A. Nels.) Nels. & Macbr.

[5,000] 5,400 - [6,500] ft. Apr - [Jun]. Perennial deciduous forb, semirosette hemicryptophyte; nanophyll, orthophyll. Dry slopes, well-drained soil. *Juniperus erythrocarpa*, *Bouteloua rothrockii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Newton Canyon; Pinery Canyon. Also Animas Mts. Graham, Gila, Cochise, and Pima counties. Kansas to Idaho, south to Texas, New Mexico, and Arizona. Southwestern.

Exsicc: ASU [Reeves 2594, 2637].

### **Lappula occidentalis (S. Wats.) Greene var. occidentalis**

*Lappula echinata* Gilib. var. *occidentalis* (S. Wats.) Boivin, *L. redowskii* auct. non (Hornem.) Greene, *L. occidentalis* (S. Wats.) Greene, *L. redowskii* var. *desertorum* (Greene) I.M. Johnst., *L. redowskii* var. *occidentalis* (S. Wats.) Rydb.

Stick-seed

[1,000] 4,200 - 8,560 ft. Feb - Sep. Winter-annual forb, semirosette therophyte; nanophyll, orthophyll. Uncommon on sunny grassland flats and rocky hillsides; at trailsides, along roads, and near other disturbed places. *Larrea tridentata*, *Juniperus deppeana*, *Pinus discolor*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Chiricahua Nat. Mon. in upper Rhyolite Canyon; Round Valley 5 mi. north of Portal; Cave Creek Canyon; Wilderness Area; Saulsbury Trail. Also Rincon Mts., Pinaleño Mts., Santa Catalina Mts., Animas Mts., Peloncillo Mts., Rincon Mts., Tumacacori Mts., Dragoon Mts. Widely distributed in Arizona. Western United States; Argentina; Asia. Latin America.

Exsicc: CHIR [Borell 16, Fish 55, Reeves 2890, 3522]. SWRS [Leutcke s.n.]. FOBO [MHoy 125]. CHWA [Leithliter 512]. ARIZ [Benson 10319, Clark 8421, Toolin 247, McCormick & Assoc. 656.]. ASU [Daniel & Butterwick 2778; Keil 10718].

### **Lithospermum cobrense Greene**

Gromwell, puccoon

[5,000] 6,000 - 7,600 [9,000] ft. Jul - Aug. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte. Uncommon on shaded slopes and forest openings, at lower elevations found along rills and washes. *Pinus arizonica*, *P. engelmannii*, *Pseudotsuga menziesii*, *Quercus gambelii*, *P. discolor*, *Q. emoryi*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Park and far Upper Totem Canyon; Fort Bowie Nat. Historic Site; Onion Saddle. Also Huachuca Mts., Rincon Mts., Pinaleño Mts., Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Southern Apache, Navajo, and Coconino counties, south to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Mexico. Great Plains, Chihuahuan.

Exsicc: CHIR [Reeves 3396, 3657, 4252]. SWRS [Amadon s.n.].

### **Lithospermum incisum Lehm.**

*Lithospermum angustifolium* Michx., *L. linearifolia* Goldie, *L. mandanense* Spreng., *Batschia linearifolia* (Goldie) Small

Gromwell, puccoon

[3,800] - 5,500 [7,000] ft. Mar - Jun. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte. Uncommon on xeric rocky south- and west-facing grassland slopes and in washes; sometimes on limestone.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hills east of trailer; above Paradise. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Canada to Illinois, Texas, and Arizona. Great Plains.

This plant has been used medicinally by the Hopi.

Exsicc: CHIR [Reeves 2606]. FOBO [MHoy 438]. SWRS [Walker s.n.].

### **Lithospermum multiflorum** Torr. ex Gray

*Lithospermum arizonicum* Gandy

Gromwell, puccoon

5,700 - 9,510 ft. Jun - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common in mesic canyons, north-facing dry upland slopes. Juniper and pine.

Chiricahua Mts.: Chiricahua Nat. Mon.; Greenhouse Trail; Pinery Canyon at USFS administration site. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Apache County to Coconino County, south to Cochise and Pima counties. Wyoming to New Mexico and Arizona. Rocky Mountain.

Exsicc: CHIR [Clark 8144, Reeves 1755, 2791, 3394, 3648]. SWRS [Walker s.n., SWRS 1959-659]. CHWA [Leithliter 112, 150, 344].

### **Macromeria viridiflora** DC.

*Macromeria thurberi* (Gray) Mackenz.

[6,000] - 7,500 [9,000] ft. Jul - [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon on well-drained slopes, often on old burns.

Chiricahua Mts.: Chaparon Canyon. Also Rincon Mts., Santa Catalina Mts., Animas Mts., Huachuca Mts., Santa Rita Mts., Sierra Ancha, Sierra de los Ajos. Apache, Navajo, Coconino, Greenlee, Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and northern Mexico. Southwestern.

It is said that the dried leaves and flowers mixed with tobacco are smoked by the Hopi Indians in their rain-bringing ceremony.

Exsicc: ARIZ [Blumer 1817].

### **Mertensia franciscana** Heller

Bluebells

[7,000] 8,040 - 9,510 ft. Jun - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon on moist soil and cracks in rocks near seeps, streams, meadows and in damp shaded woods. *Iris missouriensis*, *Pinus arizonica*, *Abies concolor*, *Pseudotsuga menziesii*, *Anaphalis margaritacea*.

Chiricahua Mts.: Long Park; Wilderness Area along Crest Trail, Tub Spring. Also Pinaleño Mts., Santa Catalina Mts. Apache, Navajo, and Coconino counties to Cochise County. Western Colorado and southeastern Utah to New Mexico and Arizona. Rocky Mountain.

Exsicc: SWRS [SWRS 1959-493, Wittmann 36]. CHWA [Leithliter 98, 358].

### **Pectocarya platycarpa** (Munz & I.M. Johnst.) Munz & I.M. Johnst.

*Pectocarya gracilis* I.M. Johnst. var. *platycarpa*

Munz & I.M. Johnst., *P. linearis* (Ruiz & Pavon) DC var. *platycarpa* (Munz & I.M. Johnst.) Cronq.

[4,600] - 5,000 ft. [Feb] Mar - [Apr]. Winter-annual forb, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Common on well-drained xeric slopes and flats of all aspects; often on beaten ground, disturbed sites.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts. Coconino County, and Mohave County to Graham, Cochise, and Yuma counties. Southern Utah, Arizona, southeastern California, and northern Sonora. Sonoran.

Exsicc: SWRS [MHoy s.n.].

### **Pectocarya recurvata** I.M. Johnst.

[4,700] - 5,000 ft. [Feb] - [Apr]. Winter-annual forb, scapose or leafy-stemmed therophyte; leptophyll, orthophyll.

Common on sunny well-drained desert scrub slopes of all aspects and flats; often on disturbed ground.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Rincon Mts., Santa Catalina Mts. Mohave County southeast to Graham, Cochise, and Pima counties. Southwestern Utah, Arizona, southeastern California, and northern Sonora. Sonoran.

Exsicc: FOBO [MHoy s.n.].

### **Plagiobothrys arizonicus** (Gray) Greene ex Gray

Blood-weed

[1,000] 5,150 - 5,200 ft. Mar - Apr [May]. Winter-annual forb, semirosette therophyte. Common in encinal, semidesert grassland, and desert scrub; gravelly or sandy soil among rocks or scrub; sometimes in washes. *Larrea tridentata*, *Quercus emoryi*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Coconino County to Mohave and Yavapai counties, south to Graham, Cochise, Santa Cruz, and Pima counties. Western New Mexico to southern Nevada, California, and northern Sonora. Sonoran.

Exsicc: CHIR [Reeves 2572, 2596].

### **Tiquilia canescens** (A. DC.) A. Richards.

*Coldenia canescens* A. DC.

[2,800] - 5,000 ft. Apr [Mar] - [Sep]. Suffrutescent shrub, suffrutescent chamaephyte. Uncommon on flats with gravelly soil; sunny mesas and upper bajada slopes, especially among boulders, on calcareous soil.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill south of fort ruins. Also Rincon Mts., Santa Catalina Mts., Mule Mts. Coconino County and Mohave County to Pima and Yuma counties. Texas to southeastern California and Mexico. Southwestern.

Exsicc: FOBO [MHoy 144].

## **BRASSICACEA (CRUCIFERAE)—Mustard Family**

A large family of annual, biennial, or perennial herbs, rarely subshrubs. 350 genera and about 2,500 species distributed primarily in the cooler regions of the northern hemisphere. Cabbage, cauliflower, broccoli, rutabaga, kohlrabi, turnips, Brussels sprouts, radish, and watercress are family members.

### **Arabis perennans** S. Wats.

*Arabis angulata* Greene, *A. arcuata* (Nutt.) Gray var. *perennans* (S. Wats.) M.E. Jones, *A. eremophila* Greene, *A. gracilenta* (S. Wats.) W.A. Weber, *A. recondita* Greene, *Boechera perennans* (S. Wats.) W.A. Weber Rock-cress

[2,000] 5,100 - 6,200 [8,000] ft. Feb - May [Oct]. Perennial deciduous forb, semirosette proto-chamaephyte; microphyll, orthophyll. Common on dry sunny ledges, slopes, and xero-riparian washes.

Chiricahua Mts.: Chiricahua Nat. Mon. in East Whitetail Canyon; Fort Bowie Nat. Historic Site on hill northeast of overlook. Also Rincon Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts. Apache County to Mohave County, south to Graham and Pima counties. Western Colorado to Arizona, southern California, northern Mexico, and Baja California. Southwestern.

Exsicc.: CHIR [Reeves 3230]. FOBO [MHOY 68, 136].

### **Arabis tricornuta** Roll.

6,000 - 8,800 [9,000] ft. Jul - [Sep] Oct. Evergreen perennial forb, rosette hemicryptophyte; microphyll, orthophyll. Rare in mesic wooded canyons and meadow margins. *Pinus arizonica*, *P. engelmannii*, *Quercus hypoleucoides*.

Chiricahua Mts.: Barfoot Park; Barfoot Peak; Pinery Canyon; Rustler Park; near Long Park; below Bootleger Saddle; Onion Saddle; upper Greenhouse trail; Rucker Canyon. Also Huachuca Mts., Santa Rita Mts., Rincon Mts. Apachian.

Exsicc.: ARIZ [Blumer, 126, 1363, 1364, Urry 793, Rollins et al. 74200, 74201, Barr 61-176, Mason et al. 2864, Berger 211, 212, Van Devender et al. 89-320, Gould & Haskell 4607, Darrow et al. 1228].

### **Barbarea orthoceras** Ledeb.

*Barbarea americana* Rydb., *B. orthoceras* Ledeb.  
var. *dolichocarpa* Fern.

American winter cress

7,300 - [9,500] ft. [Apr] Jul - [Aug]. Evergreen perennial forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Common in mesoriparian canyons, seeps, and springs; wet soils.

Chiricahua Mts.: Chaperon Canyon. Also Pinaleno Mts., White Mts. Buck Springs (Coconino County), Camp Grant (Graham County), Apache and Cochise counties. Labrador to Alaska, south to New Hampshire, Colorado, Arizona, California, and Mexico; Eurasia. Temperate, Introduced.

Exsicc.: ARIZ [Blumer 12, 1550].

### **Brassica nigra** (L.) W.D.J. Koch

*Sinapis nigra* L.

Black mustard

8,200 ft. [Apr] Jul - Aug. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Rare on dry uplands, roadsides.

Chiricahua Mts.: Barfoot Park. Also Sierra Ancha, Coconino, Pinal, Maricopa, Cochise, and Pima counties. Widely distributed in the United States; naturalized from Europe. Introduced.

Exsicc.: ARIZ [Blumer NB.20, 1592].

### **Brassica rapa** var. **rapa**

*Brassica campestris* L., *B. campestris* var. *rapa* (L.) Hartm., *B. rapa* ssp. *campestris* (L.) Clapham, *Brassica rapa* L. var. *olifera* DC., *B. rapa* ssp. *sylvestris* Janchen, *B. rapa* var. *campestris* (L.) W.D.J. Koch, *Caulanthus sulfureus* Pays.

Field mustard

5,400 - [9,000] ft. [Jul] Sep - Jul [Aug]. Scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Common along roadsides, persisting around house trailers.

Chiricahua Mts.: Chiricahua Nat. Mon. in Residential Area. Also Pinaleno Mts. Mohave County, Maricopa County, Pinal County, Cochise County. Native of Eurasia. Introduced.

Exsicc.: CHIR [Reeves 3926].

### **Camelina microcarpa** Andrz.

*Camelina sativa* (L.) Krantz ssp. *microcarpa* (DC.) E. Schmid

### **False-flax**

[1,000] - [8,000] 8,200 ft. Jun - Jul. Summer annual herb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Sunny disturbed habitats.

Chiricahua Mts.: Barfoot Park. Coconino, Maricopa, and Cochise counties. Widely distributed in U.S. An oil similar to linseed oil is expressed from the seeds. ARIZ specimens annotated to *Caleolina microcarpa* by Goodding.

Exsicc.: ARIZ [Blumer 1572].

### **Capsella bursa-pastoris** (L.) Medic.

*Bursa bursa-pastoris* (L.) Britt., *B. bursa-pastoris* var. *bifida* Crépin, *B. gracilis* Gren., *B. rubella* Reut.

[4,200] - 5,400 [8,000] ft. Feb. Winter annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Common on disturbed sites, dry uplands, wastelands and lawns.

Chiricahua Mts.: Southwestern Research Station yard. Also Rincon Mts., Sierra Ancha. Coconino, Yavapai, Graham, Gila, Maricopa, Pinal, Cochise, Santa Cruz, and Pima counties. Extensively naturalized in North America; from Europe. Introduced.

Exsicc.: SWRS [Barr 62-41].

### **Caulanthus lasiophyllum** (Hook. & Arn.) Pays. var. **lasiophyllum**

*Caulanthus lasiophyllum* var. *inalienus* (Rob.) Pays., *C. lasiophyllum* var. *utahensis* (Rydb.) Pays., *C. stenocarpus* Pays., *Thelypodium lasiophyllum* (Hook & Arn.) Greene, *T. lasiophyllum* var. *inalienum* Rob., *T. lasiophyllum* var. *utahense* (Rydb.) Jepson, *T. utahense* Rydb.

[3,500] - 5,200 ft. [Feb] Apr - [Apr]. Winter-annual forb, semirosette therophyte. Common in grasslands and desert scrub, often beneath other plants; on gravelly soils of all exposures.

Chiricahua Mts.: South Fork Cave Creek bridge. Also Rincon Mts., Santa Catalina Mts. Coconino, Mohave, Graham, Maricopa, Pinal, Cochise, Pima, and Yuma counties. Washington to Arizona, California, and Baja California. Western.

Exsicc.: SWRS [SWRS 1959-20].

### **Descurainia incana** (Benth. ex Fisch. & C.A. Mey.) Dorn ssp. **viscosa** (Rydb.) Kartesz & Gandhi

*Descurainia incana* var. *viscosa* (Rydb.) Dorn., *D. richardsonii* (Sweet) O.E. Schultz ssp. *viscosa* (Rydb.) Detling, *Descurainia richardsonii* var. *viscosa* (Rydb.) M.E. Peck, *Sisymbrium viscosum* (Rydb.) Blank, *Sophia viscosa* Rydb.

[6,500] - 9,200 [9,500]. [Mar] - Aug [Sep]. Summer annual forb, scapose or leafy-stemmed therophyte; nonophyll, orthophyll.

Chiricahua Mts.: Centella Point. The Chiricahua citation is based on Fishbein (1992), no southeastern Arizona collections are held at ARIZ.

**Descurainia obtusa** (Greene) O.E. Schultz ssp. **brevisiliqua** Detl.

Tansy-mustard

5,800 - 6,100 ft. Jul - Aug. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon on dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. in East Whitetail Canyon. Also Sierra Ancha, Animas Mts. Coconino, Yavapai, Mohave, and Cochise counties. New Mexico to southern California; Mexico. Southwestern.

Exsicc.: CHIR [Clark 9247, Reeves 3826, 4392].

**Descurainia pinnata** (Walt.) Britt. ssp. **glabra** (Woot. & Standl.) Detling

*Descurainia pinnata* var. *glabra* (Woot. & Standl.) Shinners, *Sophia glabra* Woot. & Standl.

Tansy-mustard

[4,700] 5,000 - 5,400 [7,000] ft. Mar - Apr. Winter-annual forb, semirosette therophyte. Common in encinal and grassland on well-drained gravelly soils of all exposures.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita-Faraway Hills; Fort Bowie Nat. Historic Site around fort ruins; Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Throughout Arizona. Southeastern United States to Mackenzie, south to Arizona, California, and northern Mexico. Temperate.

Exsicc.: CHIR [Reeves 2298, 2624]. FOBO [MHoy 85]. SWRS [Roth s.n.; MHoy s.n.].

**Descurainia sophia** (L.) Webb.

*Sisymbrium sophia* (L.), *Sophia sophia* (L.) Britt.

Tansy-mustard

4,900 - 5,400 ft. Mar - Apr. Winter-annual forb, semirosette therophyte. Uncommon in grassland and desert scrub on all but the most xeric slopes and flats, beside roads and low spots where additional moisture collects; an indicator of disturbance and overgrazing.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Rhyolite Canyon; Fort Bowie Nat. Historic Site around fort ruins; alongside Cave Creek Road near Morrow's orchard; Southwestern Research Station. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts. Coconino, Mohave, Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Extensively naturalized in the United States; from Eurasia. Temperate, Introduced.

Exsicc.: CHIR [Fish 47]. FOBO [MHoy 363]. SWRS [SWRS 1959-7, Roth s.n.].

**Dimorphocarpa wislizenii** (Engelm.) Roll.

*Dithryea wislizenii* Engelm., *D. griffithsii* Woot. & Standl., *D. wislizenii* var. *griffithii* (Woot. & Standl.) Pays.

[1,000] - [6,000] ft. [Feb] Apr - [Oct]. Winter-annual forb, semirosette therophyte. Along sandy desert washes.

Chiricahua Mts.: Keating Canyon 13 mi. north of Portal. Also Santa Catalina Mts. Apache County to Mohave County, south to Cochise, Pinal, Maricopa, and Yuma counties. Colorado and Utah to Arizona and northern Mexico. Southwestern.

Exsicc.: SWRS [Ordway 76].

**Draba aurea** Vahl ex Hornem.

*Draba aurea* Vahl. var. *leiocarpa* (Pays. & St. John)

C.L. Hitchc., *D. aurea* var. *neomexicana* (Greene) Tidestrom, *D. minganensis* (Victorin) Fern., *D. neomexicana* Greene

[5,000] 7,130 - 9,680 [12,000] ft. Jul - Aug. Perennial deciduous forb, semirosette hemicryptophyte; nanophyll, orthophyll. Uncommon along stream channels, rocky outcrops, dry meadows.

Chiricahua Mts.: Wilderness Area; Rustler Park. Also White Mts., San Francisco Peaks. Coconino, Apache, and Cochise counties. Widely distributed in the cooler parts of the Northern Hemisphere. Holarctic.

Exsicc.: CHIR [Lehto 1001, 109]. SWRS [Roth s.n.].

**Draba cuneifolia** Nutt. ex Torr. & Gray var. **cuneifolia**

*Draba cuneifolia* var. *foliosa* Mohlenbrock & Voight, *D. cuneifolia* var. *helleri* (Small) O.E. Schultz, *D. cuneifolia* var. *leiocarpa* O.E. Schulz, *D. cuneifolia* var. *typica* C.L. Hitchc.

Whitlow grass

[1,000] 5,200 - 5,400 [7,000] ft. [Feb] Mar - Apr [May]. Winter-annual forb, rosette therophyte. Uncommon in open woodland along sandy washes, canyon slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; Fort Bowie Nat. Historic Site on hill east of trailer; Paradise; Southwestern Research Station on Rattlesnake Hill. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Throughout Arizona. Illinois to Washington, south to Florida, Texas, California, and northern Mexico. Plains, Western.

Exsicc.: CHIR [Fish 42, Reeves 2299, 2587, 2630]. FOBO [MHoy 339]. SWRS [Mouat s.n.].

**Draba helleriana** Greene var. **bifurcata** C.L. Hitchc.

[6,000] - [11,500] ft. [Jul] - [Sep]. Perennial deciduous forb, semirosette hemicryptophyte; microphyll, orthophyll. Uncommon in needle litter, among rocky openings in coniferous forests.

Chiricahua Mts.: Barfoot Park. Also Rincon Mts., Santa Catalina Mts. Variety known only from southeastern Arizona westward to the Santa Catalina Mts. Apache and Greenlee counties, Coconino County, and mountains of Graham, Cochise, and Pima counties. Colorado (?), New Mexico, Arizona, and northern Mexico. Rocky Mountain.

Type collected in the Chiricahua Mts. by J.C. Blumer.

Exsicc.: ARIZ [Blumer U.R.6, 1608, Barr 60-186].

**Draba helleriana** Greene var. **blumeri** C.L. Hitchc.

[6,000] 8,360 - 9,020 [11,500] ft. [Jul] - Sep. Perennial deciduous forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon among rocks in coniferous forests.

Chiricahua Mts.: Wilderness Area. Pinaleño, Huachuca, and Santa Rita Mts. Apache, Greenlee, Coconino, Graham, Cochise, and Pima counties. Colorado (?), New Mexico, Arizona, and northern Mexico. Madrean.

Type collected in the Chiricahua Mts. by J.C. Blumer.

Exsicc.: CHWA [Leithliter 803, 834]. ARIZ [Blumer 1465].

### **Draba petrophila** Greene var. **petrophila**

[4,000] 7,130 - 8,530 [9,600] ft. Jun - Aug. Winter-annual forb, semirosette therophyte. Uncommon on southerly exposures in crevices of outcrops becoming confined to rocks and cliffs in meso-riparian canyons at lower elevations.

Chiricahua Mts.: Wilderness Area, north slope Greenhouse Canyon. Also Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Santa Rita Mts., Animas Mts. Mountains of Graham, Cochise, Santa Cruz, and Pima counties. Southern Arizona and northern Sonora. Apachian.

Exsicc.: SWRS [SWRS 1960-432]. CHWA [Leithliter 141].

[4,000] 4,700 - 7,600 ft. [Jan] Mar - Aug. Winter-annual forb, semirosette therophyte. Uncommon on woodland and grassland slopes of all exposures on well-drained sandy soil. *Chilopsis, Ephedra.*

Chiricahua Mts.: Chiricahua Nat. Mon. 1 mi. west of mouth of little Pickett Canyon; FOBO in wash west of trailer, Overlook ridge; Onion Saddle; Portal. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts. Almost throughout Arizona. Southwestern Colorado to Arizona and California, southward into Mexico. Southwestern.

Exsicc.: CHIR [Reeves 2545, 3549]. FOBO [MHoy 79]. SWRS [Amadon s.n., Roth s.n., MHoy s.n.].

### **Draba standleyi** Macbr. & Pays.

[5,000] 6,400 - 9,300 ft. Jun - Sep. Perennial deciduous forb, semirosette hemicryptophyte. Uncommon on cliffs, ledges, rocky creek beds; sandy soil. *Primula rusbyi, Echinocereus triglochidiatus melanocanthus, Cupressus arizonica, Pseudotsuga menziesii.*

Chiricahua Mts.: Wilderness Area; Greenhouse Canyon; Rustler Park; on Suicide Rock, just west of Bootlegger Trail 0.5 mi. south of Barfoot Peak Lookout, Rucker Canyon; Fort Bowie Nat. Historic Site in Apache Pass; Centella Point. Western Texas to southeastern Arizona. Madrean.

Exsicc.: CHWA [Leithliter 377, 760]. ARIZ [O.M. Clark 8491, A. Laurenzi s.n., J. McCormick 432, J. Kaiser 49-432, J.C. Blumer 1538].

### **Lepidium thurberi** Woot.

#### Pepper-grass

[5,000] 5,100 - 7,000 ft. [Feb] Apr - Aug [Nov]. Winter-annual forb, semirosette therophyte. Common along washes, floodplains, disturbed soil, and roadsides.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; Fort Bowie Nat. Historic Site at summit of Apache Pass. Also Huachuca Mts., Rincon Mts., Dos Cabezas Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Greenlee County to Yavapai County, south to Cochise, Santa Cruz, and Pima counties. New Mexico and Arizona; Sonora, Mexico. Southwestern, Madrean, Chihuahuan.

Exsicc.: CHIR [Clark 9120, Reeves 2891, 3741, 4193]. FOBO [MHoy 257]. SWRS [SWRS 1958-72].

### **Dryopetalon runcinatum** Gray

[2,000] 5,600 - 7,100 ft. [Feb] Apr - Jun. Winter-annual forb, semirosette therophyte. Common in wooded canyons and shaded slopes; moist rock crevices of cliffs. *Cupressus arizonica.*

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon below Shake Springs; Tex Canyon grasslands. Also Santa Catalina Mts., Animas Mts. Greenlee, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. New Mexico, southern Arizona, and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 8920, Reeves 2517, 3603]. SWRS.

### **Lepidium virginicum** L. var. **medium** (Greene) Hitchc.

#### *Lepidium medium* Greene, *L. idahoense* Heller

[4,600] - [7,500] ft. [Feb] - [Aug]. Winter-annual forb, semirosette therophyte. Common in openings on gravelly slopes, along drainages, waste ground.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts. Apache County to Coconino County, south to Cochise and Pima counties. Montana to British Columbia, south to Texas, Arizona, and California. Western.

Exsicc.: FOBO [MHoy s.n.].

### **Erysimum capitatum** (Dougl. ex Hook.)

Greene

*Erysimum elatum* Nutt., *Erysimum wheeleri* Rothr., *Erysimum asperum* (Nutt.) DC. var. *purshii* Durand Western-wallflower

[2,500] 5,300 - 9,790 ft. [Mar] May - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon on dry, sunny forest and woodland slopes. *Pinus arizonica, Abies concolor, Pseudotsuga menziesii.*

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Pickett Canyon; upper East Whitetail Canyon; above Rustler Park; along road between Rustler Park and Long Park; Wilderness Area. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Throughout Arizona except the extreme western portion. Saskatchewan to Washington, south to New Mexico, Arizona, and California; Sonora, Mexico. Western.

Exsicc.: CHIR [Clark 8313, Reeves 3788, 4438]. SWRS [SWRS 1959-418, Wittmann 28]. CHWA [Leithliter 147, 173, 508, 516].

### **Lesquerella fendleri** (Gray) S. Wats.

*Lesquerella foliacea* Greene, *L. praecox* Woot. & Standl.

#### Bladder pod

[3,800] - 5,000 [7,000] ft. Apr - May [Jun]. Perennial deciduous forb, semirosette hemicryptophyte. Rare on rocky slopes, gravelly plains; sometimes on limestone soils.

Chiricahua Mts.: Fort Bowie Nat. Historic Site northwest of Siphon Canyon; near Portal. Also Rincon Mts., Peloncillo Mts., Pinaleno Mts., Santa Catalina Mts. Mule Mts. Apache and Navajo counties to Cochise, Santa Cruz, and Pima counties. Kansas to Utah, south to northern Mexico. Plains.

Exsicc.: FOBO [MHoy 362]. SWRS [Walker s.n.].

### **Lesquerella gordoni** (Gray) S. Wats.

#### Bladder pod

[3,800] 4,800 - 5,200 ft. [Feb] Mar - [May]. Winter-annual forb, semirosette therophyte. Common on well-drained soil on xeric slopes, bajadas, and flats.

Chiricahua Mts.: Chiricahua Nat. Mon. 1 mi. west of mouth of Little Jesse James Canyon; Fort Bowie Nat. Historic Site on north side of Overlook; Portal. Also Huachuca Mts., Rincon Mts.,

### **Lepidium lasiocarpum** Nutt. var. **lasiocarpum**

*Lepidium lasiocarpum* Nutt. var. *georginum* (Rydb.)

C.L. Hitchc.

Pepper-grass

Sierra Ancha, Santa Catalina Mts., Animas Mts. Greenlee County to Mohave and Yavapai counties, south to Cochise, Pima, and Yuma counties. Oklahoma to Utah, Arizona, and California, south to northern Mexico. Southwestern.

Exsicc.: CHIR [Reeves 2286]. FOBO [MHoy 66]. SWRS [Roth s.n.]

### ***Lesquerella purpurea* (Gray) Wats.**

*Lesquerella purpurea* ssp. *foliosa* (Roll.) Roll. & Shaw

[1,500] 5,000 - [5,000] 5,300 ft. [Jan] Apr - Jun. Perennial deciduous forb, semirosette hemicryptophyte. Rare on rocky limestone slopes, in partial shade of bushes. Oak savannas.

Chiricahua Mts.: Paradise. Also Rincon Mts., Peloncillo Mts., Santa Catalina Mts., Mule Mts., Sierra Mts., Whetstone Mts., Galiuro Mts., Dragoon Mts. Coconino County to Cochise and Pima counties. Texas to Arizona and northern Mexico. Chihuahuan.

Exsicc.: SWRS [Roth s.n.]. ARIZ [Gould & Pultz 3161; Crooks, Darrow, Arnold 2983; W.H. Moir 661].

### ***Pennellia longifolia* (Benth.) Roll.**

*Streptanthus longifolius* Benth., *Thelypodium longifolium* (Benth.) S. Wats.

5,000 ft. - 8,708 [9,500] ft. Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon in grassland, wooded canyons and chaparral; often on disturbed sites and old burns, cool moist slopes, dry pine forests. *Pinus arizonica*, *Pseudotsuga menziesii*, *Abies concolor*.

Chiricahua Mts.: Chiricahua Nat. Mon. in northwest corner of monument; along road from Rustler Park to Barfoot Park; Apache Pass Road; Centella Point. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleño Mts., Animas Mts. Apache County to Coconino County, south to Cochise and Pima counties. New Mexico, Arizona, and Mexico. Madrean.

Exsicc.: CHIR [Reeves 3965, 4134, 4206, 4399, 4510]. SWRS [Wittmann 181]. FOBO [Mhoy 485].

### ***Pennellia micrantha* (Gray) Nieuwl.**

*Streptanthus longifolius* Gray, *Thelypodium micranthum* (Gray) S. Wats., *T. longifolium* (Benth.) S. Wats. var. *catalinense* M.E. Jones

[3,000] 5,250 - 9,790 ft. Jun - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common in mesic pine forest openings on south-facing slopes and cooler slopes or drainages at lower elevations. *Pinus arizonica*, *Pseudotsuga menziesii*, *Abies concolor*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Sara Deming Canyon, Rock Canyon, Barfoot Park; along road between Barfoot Park and Rustler Park; Wilderness Area; Crest Trail south of Rustler Park. Also Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Yavapai, Greenlee, Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Colorado and Utah to Mexico. Rocky Mountain.

Exsicc.: CHIR [Clark 8150, 9223, Reeves 3998, 4268, 4428]. SWRS [Pough 1962-7, Wittmann 181]. CHWA [164, 481, 575]. Repos. Unk. [Blumer 1364].

### ***Rorippa nasturtium-aquaticum* (L.) Hayek**

*Nasturtium officinale* Ait. f., *N. officinale* var. *siifolium* (Reichenb.) W.D.J. Koch, *Sisymbrium nasturtium-aquaticum* L.

### **Water-cress**

[1,500] 5,000 - 6,800 [7,000] ft. Mar - Jul [Aug], fruits Oct. Perennial deciduous forb, spreading hemicryptophyte; microphyll, orthophyll. Common. Aquatic, riparian.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon, Bonita Canyon Wash, outlet of Silver Spur Spring; Cave Creek; 4 mi. south of Paradise; upper Pine Canyon; Swisshelm Mts. in Leslie Canyon. Also Sierra Ancha, Canello Hills, Santa Catalina Mts., Huachuca Mts., Galiuro Mts., Pinaleño Mts., Sierra de los Ajos. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Sonora, Mexico. Alien species naturalized from Europe. Temperate, Introduced.

Cultivated for salad greens.

Exsicc.: CHIR [Clark 9026, Reeves 2864]. SWRS [Walker s.n.]. ARIZ [Blumer 1492, Shreve 6358, Toolin 88].

### ***Schoenocrambe linearifolia* (Gray) Roll.**

*Sisymbrium linearifolium* (Gray) Pays..

*Hesperidanthus linearifolius* (Gray) Rydb..

*Thelyposiopsis linearifolia* (Gray) Al-Shehbaz

[2,500] 5,000 - 8,860 [9,500] ft. [May] Jul - Aug [Sep].

Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon in sunny openings in pine forests; beneath chaparral; partly sunny drainages at lower elevations. *Pinus discolor*, *Quercus emoryi*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in upper South Canyon; Chiricahua Nat. Mon. on north side Garfield Peak; Portal to Paradise road; Tex Canyon; Wilderness Area. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleño Mts., Mule Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Apache, Navajo and Coconino counties, south to Cochise, Santa Cruz, and Pima counties. Colorado to Arizona and northern Mexico. Rocky Mountain.

Exsicc.: FOBO [MHoy 255]. CHIR [Clark 8264, Reed s.n., Reeves 1236, 1259, 1576, 2799, 3694]. SWRS [SWRS 1959-818]. CHWA [Leithliter 162, 381, 441].

### ***Sisymbrium irio* L.**

*Norta irio* (L.) Britt.

London rocket

[4,500] 4,700 - 5,400 ft. Apr [Dec] - [Apr] Nov.

Winter-annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon in hydroriparian and mesoriparian canyons, along grassland and desert washes; seasonally moist disturbed soil.

Chiricahua Mts.: Chiricahua Nat. Mon. in campground and headquarters areas; Fort Bowie Nat. Historic Site in wash east of trailer; Keating Canyon. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts. Western Coconino and Mohave counties to Cochise, Santa Cruz, Pima, and Yuma counties. Alien species. Introduced from Europe. Introduced.

Exsicc.: CHIR [Reeves 1930]. SWRS [Ordway s.n.]. FOBO [MHoy 78].

### ***Streptanthella longirostris* (S. Wats.) Rydb.**

*Streptanthella longirostris* var. *derelicta* J.T. Howell  
Long-beaked twist flower

[7,000] ft. [Jan] - [Jun]. Winter annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Sandy soil.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Apache County to Mohave County, south to western Pima and Yuma counties. Wyoming to Oregon, New Mexico, Arizona, and California. Western.

Exsicc.: FOBO [MHoy s.n.]

**Streptanthus carinatus** C. Wright ex Gray ssp.  
**arizonicus** (S. Wats.) Kruckeberg, Rodman & Worthington

*Streptanthus arizonicus* S. Wats., *S. arizonicus* var. *luteus* Kearney & Peebles

[1,500] - 4,800 ft. [Jan] Mar - Aug. Summer annual forb, semirosette therophyte. Common in well-drained grassland and desert slopes and flats.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in wash east of trailer; Portal. Also Rincon Mts., Santa Catalina Mts. Greenlee County to Yavapai County, south to Cochise and Pima counties. Arizona and Chihuahua. Apachian.

Exsicc.: SWRS [Kraft s.n.]. FOBO [MHoy 90].

**Thelypodium wrightii** Gray var. **wrightii**

*Stanleyella wrightii* (Gray) Rydb.

[2,500] 4,900 - 8,700 ft. [Mar] Jul - Aug [Nov]. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Common in wooded canyons, roadside. Dry uplands, rich soil among pines and chaparral.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; northside Sugarloaf Mtn; Fort Bowie Nat. Historic Site in South Canyon; Wilderness Area, Greenhouse Trail. Also Sierra Ancha, Navajo, Coconino, and Mohave counties to Greenlee, Cochise, Gila, Pinal, and Pima counties. Colorado, Utah, New Mexico, and Arizona. Southwestern.

Exsicc.: CHIR [Clark 8281, 8698, Reeves 3568, 3718, 3746, 3856, 3960]. SWRS [Walker s.n.]. FOBO [MHoy 447]. CHWA [Leithliter 167, 415, 606].

**Thlaspi montanum** L. var. **fendleri** (Gray) P. Holmgren

*Thlaspi fendleri* Gray, *T. prolixum* A. Nels., *T. purpurascens* Rydb., *T. stipitatum* A. Nels.

Wild-candytuft, pennycress, wild sweet-alyssum

[4,000] 5,200 - 6,100 [12,000] ft. [Feb] Mar - Apr [Aug]. Perennial deciduous forb, semirosette hemicryptophyte. Common on cool wooded slopes and canyons, mostly in coniferous forests.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Park; north-facing slopes east of Newton Canyon; South Fork Cave Creek trail. Also Rincon Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Huachuca Mts., Santa Rita Mts., Sierra de los Ajos. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Colorado, Utah, New Mexico, and Arizona. Rocky Mountain.

Exsicc.: CHIR [Fish 34, Reeves 2359, 2429, 2629]. SWRS [SWRS 959-789].

**Thysanocarpus curvipes** Hook.

*Thysanocarpus amplexans* Greene, *T. curvipes* Hook. var. *elegans* (Fisch. & Mey.) Rob., *T. curvipes* var. *eradiatus* Jepson, *T. curvipes* var. *longistylus* Jepson, *T. elegans* Fisch. & Mey. Laceyopod, fringeopod

[3,000] - 5,100 [5,500] ft. [Jan] Mar - [Jul]. Winter-annual forb, scapose or leafy-stemmed therophyte. Common on sunny, xeric rocky slopes, and sandy benches beside canyon streams.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts., Rincon Mts., Pinaleño Mts., Peloncillo Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Apache and Coconino counties, south to Cochise, Santa Cruz, Pima, and Yuma counties. Southwestern New Mexico and Arizona. Chihuahuan.

Exsicc.: CHIR [Reeves 2410]. SWRS [Walker s.n.].

**CACTACEAE—Cactus Family.**

A family of fleshy, herbaceous, or woody plants, stems simple or cespitose, many forms branched and treelike, stems with leaflike leaves in two tropical genera. Many species are armed with spines or glochids. There are 100 to 150 genera with 1,200 to 1,800 species. About 37 genera are found in all states of the United States except Maine, New Hampshire, and Vermont. The family is largely confined to the New World.

**Echinocereus coccineus** Engelm. var.

**arizonicus** (Rose ex Orcutt) Ferguson

*Echinocereus polyacanthus* Engelm. var.

*neomexicanus* auct. non (Standl.) L. Benson *E. triglochidiatus* Engelm. var. *arizonicus* (Rose ex Orcutt) L. Benson, *E. triglochidiatus* var.

*neomexicanus* auct. non (Standl.) W.T. Marsh Hedgehog

[3,000] 5,700 - 6,600 [8,000] ft. [Apr] - [Jun].

Stem-succulent shrub, chamaephyte low stem-succulent. Uncommon on rocky slopes, dry uplands, upper and middle bajadas. *Quercus emoryi*, *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Portal to Paradise road; 5 mi. southwest of Portal on hillside north of Southwestern Research Station. Also Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Arizona from Graham, Pinal, Cochise, and Pima counties. New Mexico from McKinley County to Bernalillo, Hidalgo, Chaves, and Eddy counties; Texas west of the Pecos River. Mexico from Chihuahua to Durango. Sonoran, Chihuahuan, Madrean.

Exsicc.: CHIR [Clark 8169].

**Echinocereus coccineus** Engelm. var.

**coccineus**

*Coryphantha vivipara* (Nutt.) Britt. & Rose var.

*aggregata* (Engelm.) W.T. Marsh., *Echinocereus*

*coccineus* var. *conoides* (Engelm.) Weniger, *E.*

*coccineus* var. *inermis* (K. Schum.) J.A. Purpus, *E. polyacanthus* Engelm. var. *rosei* (Woot. & Standl.)

Weniger, *E. triglochidiatus* var. *inermis* (K. Schum.) Arp, *E. triglochidiatus* Engelm. var. *melanacanthus* (Engelm.) L. Benson

*Mammillaria aggregata* Engelm.

Hedgehog

[4,000] 5,800 - 9,510 ft. May - Jul. Stem-succulent shrub,

low stem-succulent chamaephyte. Uncommon in xeric forest openings at high elevations; rocky slopes in encinal and desert grassland; rocky canyons at lower elevations.

Chiricahua Mts.: Chiricahua Nat. Mon.; below Hands Pass; Barfoot Lookout; Wilderness Area. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Confined to non-Sonoran Desert portions of Arizona. Eastern California, Colorado, Utah, and New Mexico. Sonoran, Madrean, Chihuahuan.

Exsicc.: CHIR [Clark 8234, Reeves 2819]. SWRS [Elliott s.n.]. CHWA [Leithliter 44].

**Echinocereus fendleri** (Engelm.) F. Seitz

var.**ledingii** (Peeb.) N.P. Taylor

*Echinocereus ledingii* Peeb.

Hedgehog

[4,000] 5,600 - 6,000 ft. [May] - Jun. Stem-succulent shrub, low stem-succulent chamaephyte. Uncommon on rocky, gravelly, sandy soil; openings in grassland, woodland, or chaparral.

Chiricahua Mts.: Chiricahua Nat. Mon. in West Whitetail Canyon and Woods Canyon; Fort Bowie Nat. Historic Site. Also Pinaleño Mts., Santa Catalina Mts., Mule Mts., Santa Rita Mts., Quinalan Mts., Huachuca Mts. Cochise, Pima, and Graham counties. Known only from Arizona. Apachian.

Exsicc: CHIR [Reeves 2988].

**Echinocereus fendleri** (Engelm.) F. Seitz var. **rectispinus** (Peeb.) L. Benson

*Echinocereus rectispinus* Peeb.

Hedgehog

[4,000] 5,000 - 5,200 [6,500] ft. Jun. Stem-succulent, low stem-succulent chamaephyte. Uncommon on rocky and gravelly slopes in sun or partial shade of low scrub.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site northeast of Overlook; Portal to Paradise road; Apache Pass Road. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Widely distributed in Arizona in one variety or another. Utah, New Mexico, and Arizona. Southwestern.

Exsicc: CHIR [Reeves 2772]. FOBO [MHoy 410, 420]. SWRS [Elliott s.n.].

**Echinocereus pectinatus** (Scheidw.) Engelm. var. **rigidissimus** (Engelm.) Haage f.

*Cereus pectinatus* (Scheidw.) Engelm. var. *rigidissimus* (Engelm.) Rumpl.

Rainbow cactus

[4,000] - 5,100 [6,000] ft. Mar - Aug. Stem-succulent shrub, low stem-succulent chamaephyte. Common on rocky soil or outcrops in sun or partial shade of scrub or trees.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill northeast of Overlook. Also Huachuca Mts., Santa Catalina Mts., Rincon Mts., Perilla Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Cochise, Pima, and Santa Cruz counties. New Mexico in Grant and Hidalgo counties. Northern Sonora and Chihuahua. Madrean.

Type from Sierra del Pajarito, Sonora.

Exsicc: CHIR [Clark 8168, Reeves 2376, 2942]. FOBO [MHoy 400].

**Escobaria orcuttii** Boedecker

*Coryphantha strobiformis* (Poselg.) Moran var.

*duriispina* (Quehl) L. Benson, *C. strobiformis*

(Poselger) Orcutt var. *orcuttii* (Boedecker) L. Benson,

*E. orcuttii* var. *koenigii* Castetter, Pierce & Schwerin,

*E. orcuttii* var. *macraxima* Castetter, Pierce &

Schwerin

5,000 ft. Sep. Stem-succulent shrub, low stem-succulent chamaephyte. Leafless. Rare on south-facing slopes on limestone. *Juniperus erythrocarpa*, *Dasyllirion wheeleri*, *Fouquieria splendens*, *Acacia greggii*, *Quercus arizonica*, *Rhus aromatica*.

Chiricahua Mts.: Silver Creek.

Exsicc: ASU [McGill 5643].

**Escobaria tuberculosa** (Engelm.) Britt. & Rose

*Coryphantha dasyacantha* (Engelm.) Orcutt var.

*varicolor* (Tiegel) L. Benson, *C. strobiformis* auct.

*non* (Poselg.) Orcutt, *Escobaria dasyacantha*

(Engelm.) Britt. & Rose var. *varicolor* (Tiegel) D.R.

Hunt, *E. strobiformis* auct. *non* (Poselg.) Scheer ex

Boedecker Britt. & Rose, *E. tuberculosa* var.

*varicolor* (Tiegel) Brack & Heil, *Mammillaria*

*tuberculosa* Engelm., *M. varicolor* (Tiegel) Weniger

[2,000] 4,000 - 5,100 ft. Stem-succulent shrub, low stem-succulent chamaephyte. Limestone soils of hills, canyons, and bajadas.

Chiricahua Mts.: Keating Canyon below entrance to Bucklew Cave. Also Peloncillo Mts. Cochise County. Southern and Central New Mexico; Texas west of the Pecos. Chihuahua, Mexico. Chihuahuayan.

**Escobaria vivipara** (Nutt.) Buxbaum var.

**arizonic** (Engelm.) D.R. Hunt

*Coryphantha arizonica* (Engelm.) Britt. & Rose, *C.*

*vivipara* (Nutt.) Britt. & Rose var. *arizonica*

(Engelm.) W.T. Marsh., *Mammillaria arizonica*

Engelm., *M. vivipara* (Nutt.) Haw. var. *arizonica*

(Engelm.) L. Benson

4,700 - 7,200 ft. May - Jun. Stem-succulent shrub, low stem-succulent chamaephyte. Sandy or rocky soils in xeric open pine-oak woodland, encinal, and desert grassland.

Chiricahua Mts. Apache County to Mohave, Gila, Yavapai, Graham, and Cochise counties. Southwestern Utah, Arizona, southern Nevada, western and north-central New Mexico and adjacent Sonora. Mohavian, Sonoran, Chihuahuayan.

**Escobaria vivipara** (Nutt.) Buxbaum var.

**bisbeeana** (Orcutt) D.R. Hunt

*Coryphantha bisbeeana* Orcutt., *Coryphantha*

*vivipara* (Nutt.) Britt. & Rose var. *bisbeeana* (Orcutt)

L. Benson

Pincushion cactus

[3,000] 5,000 - [7,000] 8,120 ft. Mar - Jun. Stem-succulent shrub, low stem-succulent chamaephyte. Common on xeric rocky grassy hillsides and well-drained flats. *Bouteloua gracilis*, *B. curtipendula*, *Agave parryi*, *Calliandra eriophylla*, *Quercus emoryi*, *Arctostaphylos pungens*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site along Butterfield Stage Road; West Turkey Creek; Southwestern Research Station on hillside north of station; Wilderness Area. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Animas Mts. Southeastern quarter of Arizona. New Mexico and Arizona. Apachian.

Exsicc: CHIR [Clark 8170, Reeves 2375]. FOBO [MHoy 422]. SWRS [Elliott s.n.]. CHWA [Leithliter 633].

**Ferocactus wislizeni** (Engelm.) Britt. & Rose

*Echinocactus wislizeni* Engelm.

Fishhook barrel cactus

[1,000] - [5,000] 5,200 ft. Jul - Sep. Stem-succulent shrub, stem-succulent phanerophyte. Common desert grassland and upper bajadas, sometimes on limestone.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in South Canyon; 2 mi. northwest of Portal, east of Silver Creek road to

Paradise. Also Pinaleno Mts., Santa Catalina Mts., Mule Mts. Greenlee and Cochise to Maricopa and Pima counties. Western Texas, southern New Mexico, Arizona, and northern Mexico. Chihuahuan, Sonoran.

Fruits eaten by deer and rodents.

Exsicc: FOBO [MHoy 327]. SWRS [Elliott s.n.]

### **Mammillaria grahamii** Engelm var. **grahamii**

*Mammillaria microcarpa* Engelm., *M. microcarpa* var. *auricarpa* W.T. Marsh., *M. milleri* (Britt. & Rose) Bodecker

Fishhook cactus

[1,000] - 5,100 ft. Jun - [Jul]. Stem-succulent shrub, low stem-succulent chamaephyte. Uncommon on gravelly well-drained soil, often protected by rocks, shrubs, other cacti, or trees.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill northeast of Overlook. Also Mule Mts., Rincon Mts., Animas Mts., Sierra Ancha, Santa Catalina Mts. Yavapai County to southern and eastern Pima and Cochise counties. Southwestern New Mexico; Texas in El Paso County and Presidio County. Northern Mexico. Sonoran, Chihuahuan.

Exsicc: FOBO [MHoy 423]

### **Mammillaria grahamii** var. **olivae** (Orcutt) L. Benson

*Mammillaria olivae* Orcutt

[4,400] - 5,000. Stem-succulent shrub, low stem-succulent chamaephyte. Rare on well-drained slopes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Rincon Mts. Eastern Pima County, Santa Cruz, and Cochise counties. Madrean, Apachian.

### **Mammillaria heyderi** Muehlenpfordt var.

**macdougalii** L. Benson

*Mammillaria gummifera* Engelm., *Mammillaria macdougalii* Rose, *Mammillaria heyderi*

Muehlenpfordt, *Neomammillaria heyderi* Britt. & Rose

[3,000] - 5,100 [5,500] ft. [Mar] May - Jun. Stem-succulent, stem-succulent chamaephyte. Uncommon on well-drained flats, rocky slopes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill east of trailer; Portal to Paradise road. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Peloncillo Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Cochise, Santa Cruz, Pima counties. Texas, New Mexico, Arizona, and northern Mexico. Madrean, Apachian.

Benson (1944).

Exsicc: FOBO [MHoy 418].

### **Mammillaria wrightii** Engelm. var. **wilcoxii**

(Toumey ex K. Schum.) W.T. Marsh.

*Mammillaria wilcoxii* Toumey, *Neomammillaria Wilcoxii* Britt. & Rose, *N. viridiflora* Britt. & Rose

[2,500] - 5,400 ft. [May] - [Jun]. Stem-succulent, stem-succulent chamaephyte. Encinal, semidesert grassland, or desert scrub; gravelly soil on xeric south-facing slopes, sometimes in small rills. *Pinus discolor*, *Juniperus deppeana*, *Quercus emoryi*, *Cercocarpus montan*.

Chiricahua Mts.: Southwestern Research Station at base of Rattlesnake Hill. Also Huachuca Mts., Santa Catalina Mts., Animas Mts. Mohave, Pinal, Graham, Cochise, and Santa Cruz counties. Southern New Mexico and western Texas. Chihuahuan, Apachian.

Zimmerman & Dale (1977). Collection note comes from Bruce Elliot's notebook at Southwestern Research Station.

### **Opuntia chlorotica** Engelm. & Bigelow

*Opuntia Tidballii* Bigel., *O. curvospina* Griffiths  
Pancake-pear, silver-dollar cactus

[2,000] 5,100 - 7,250 ft. Apr - Jul. Stem-succulent shrub, stem-succulent phanerophyte. Common on rocky soils of slopes, ledges, canyons or flats. *Quercus arizonica*, *Q. emoryi*, *Pinus discolor*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at Overlook; Onion Saddle Road 5 mi. above Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Mule Mts., Animas Mts. Arizona from Mohave County to the lower parts of northern Coconino County and southeastward below the Mogollon Escarpment to Graham, Pima, and Cochise counties. California in the southern and eastern Mojave Desert and the western edge of the Sonora Desert. Southern Nevada in the Charleston Mountains of Clark County. Southwestern New Mexico. Baja California and Sonora. Mohavian, Sonoran, Chihuahuan.

Benson (1969) states that "Plants intermediate between this variety [sensu lato] and *Opuntia violacea* and possibly var. *santa-rita* occur in Perilla, Swisshelm, and Huachuca mountains and east of the Mule Mountains in southeastern Arizona," p. 106.

Exsicc: CHIR [Clark 8164, Reeves 2947, 3208]. SWRS [Mitenceil s.n.]. FOBO [MHoy 419].

### **Opuntia engelmannii** Salm-Dyck var.

**engelmannii**

*Opuntia dillei* Griffiths, *O. discata* Griffiths, *O. megacarpa* Griffiths, *O. occidentalis* Engelm. & Bigelow var. *megacarpa* var. *megacarpa* (Griffiths) Munz, *O. phaeantha* Engl. var. *discata* (Griffiths) L. Benson & Walkington, *O. procumbens* Engelm. & Bigel.

Engelmann prickly-pear

[1,000] 4,900 - 7,250 [7,500] ft. [Apr] May - Jul. Stem-succulent shrub, stem-succulent phanerophyte. Common on gravelly or sandy hills, washes, flats, or canyons.

Chiricahua Mts.: Chiricahua Nat. Mon.; Portal to Paradise road; 2 mi. northwest of Portal on limestone hill east of Silver Peak; Fort Bowie Nat. Historic Site in wash east of trailer; Wilderness Area. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Mule Mts., Animas Mts. From Mohave County eastward through northern Arizona and more commonly below the Mogollon Rim to Greenlee County and southward to the Baboquivari Mountains in Pima County and to Cochise County. California east of the San Bernardino, San Jacinto, and Laguna mountains and in the eastern Mojave Desert. Reported from Nevada in Clark County, Utah in Washington County, New Mexico from Grand and Hidalgo counties to Lincoln and Otero counties and in Bernalillo County, Texas west of the Pecos River and eastward hills east of the Edwards Plateau. Mexico in Sonora, Chihuahua and Coahuila. Sonoran, Mojavian, Chihuahuan.

The variety intergrades with *O. p. major*.

Exsicc: CHIR [Clark 8163, Reeves 2774]. SWRS [Elliott s.n.]. FOBO [MHoy 208]. CHWA [Leithliter 401]. US [Palmer 477].

### **Opuntia leptocaulis** DC.

*Cylindropuntia leptocaulis* Knuth

Desert Christmas cactus

[1,000] 4,689 - 4,900 [5,000] ft. Mar - Jul. Stem-succulent shrub, stem-succulent phanerophyte. Uncommon on well-drained

slopes and flats; disclimax grassland; desert scrub; on disturbed soils, sometimes on limestone.

Chiricahua Mts.: near Paradise cut-off road along Portal to San Simon road; Fort Bowie Nat. Historic Site in wash east of trailer. Also Santa Catalina Mts., Mule Mts. Texas, New Mexico, Arizona, and Mexico. Chihuahuan.

Exsicc: SWRS [SWRS 1959-524]. FOBO [MHoy 414].

### **Opuntia macrorhiza** Engelm. var. **macrorhiza**

*Opuntia compressa* (Salisb.) Macbr. var. *macrorhiza*  
L. Benson, *O. mackensenii* Rose, *O. plumbea* Rose,  
*O. tortispina* Engelm. & Bigel.

Prickly-pear

[2,000] 6,000 - 6,200 [7,000] ft. [May] Jun - Jun.

Stem-succulent shrub, stem-succulent phanaerophyte. Locally common on sandy, gravelly, or rocky flats.

Chiricahua Mts.: Chiricahua Nat. Mon. at Bonita Park. Also Huachuca Mts., Sierra Ancha, Mule Mts., Animas Mts. Arizona from Apache to Mohave County, southward to Yavapai, Gila, eastern Pima, Santa Cruz, and Cochise counties. California on Clark Mountain (San Bernardino County). Utah (rare) eastward to the Great Plains, from Wyoming and southwestern South Dakota to Nebraska, western Missouri, western Arkansas, middle and southern Texas, Minnesota, Wisconsin, Michigan, Iowa, Illinois, Ohio, Louisiana. Rare in the Midwest. Western.

Benson (1969) reports that in Arizona, New Mexico, and Texas this species intergrades into *Opuntia phaeacantha*. Eastward it intergrades with *Opuntia compressa*.

Exsicc: CHIR [Clark 8166, Reeves 3013, 3014].

### **Opuntia phaeacantha** Engelm. var. **major**

Engelm.

*Opuntia arizonica* Griffiths, *O. canada* Griffiths, *O. engelmannii* Salm-Dyck var. *cycloides* Engelm. & Bigelow, *O. gilvescens* Griffiths, *O. mojavensis* Engelm., *O. phaeacantha* var. *mojavensis* (Engelm.) Fosberg, *O. woodsii* Backeberg

Prickly-pear

[1,000] 5,150 - 5,600 [7,000] ft. [Apr] May - Jun.

Stem-succulent shrub, stem-succulent phanaerophyte. Uncommon on rocky, gravelly, or sandy hills and flats.

Chiricahua Mts.: Chiricahua Nat. Mon.; Portal to Paradise road; Fort Bowie Nat. Historic Site in South Canyon. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Arizona above (uncommon) and below (common) the Mogollon Rim from Mohave County to the Baboquivari Mountains and eastward and also on the Colorado River near Yuma. California, southern Nevada, southern Utah, southern Colorado, New Mexico, chiefly in the southern half of the state; South Dakota; western Kansas; western Oklahoma; Texas Panhandle. Mexico in Sonora and Chihuahua. Western.

The variety intergrades with *O. p. discata*.

Exsicc: CHIR [Clark 8165, Reeves 2937, 3012]. FOBO [MHoy 207].

### **Opuntia santa-rita** (Griffiths & Hare) Rose

*Opuntia chlorotica* Engelm. var. *santa-rita* Griffiths & Hare, *Opuntia violacea* Engelm var. *santa-rita* (Griffiths & Hare) L. Benson

[3,000] 5,000 - 5,200 ft. May. Stem-succulent shrub, stem-succulent phanaerophyte. Sandy or gravelly soils of plains and sometimes of canyons.

Chiricahua Mts.: 2 mi. northwest of Portal and east of Silver

Creek; Fort Bowie Nat. Historic Site east of trailer. Arizona in Gila County and from Pima County to Santa Cruz and Cochise counties. New Mexico from Hidalgo and Sierra counties to Otero County. Texas in Jeff Davis, Presidio, and Brewster counties. Mexico in northern Sonora. Chihuahuan.

Exsicc: SWRS [Elliott s.n.]. FOBO [MHoy 398].

### **Opuntia spinosior** (Engelm.) Toumey

*Opuntia whipplei* var. *spinosior* Engelm. & Bigel., *cylindropuntia spinosior* Knuth

Cane cholla

[1,000] 5,000 - 7,050 ft. [May] Jun - Jul. Stem-succulent, stem-succulent phanaerophyte. Common in wooded canyons, slopes, and flats, sometimes on limestone and talus slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; Portal to Paradise road, 2 mi. northwest of Portal east of Silver Creek; Fort Bowie Nat. Historic Site, trailer area; Wilderness Area. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Yavapai County to Greenlee, Cochise, and Pima counties. Western New Mexico, Arizona, and northern Mexico. Sonoran.

This species resprouts vigorously following hot fast-moving fire.

Exsicc: CHIR [Clark 8140, Reeves 3020, 3207]. FOBO [MHoy 288]. CHWA [Leithliter 400].

### **Opuntia tetracantha** Toumey

*Opuntia californica* Engelm., *O. kleiniae* DC. var. *tetracantha* (Toumey) W.T. Marsh.

[3,500] - 4,900 ft. Mar. Stem-succulent shrub, stem-succulent phanaerophyte. Uncommon on well-drained slopes and flats, often on limestone.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in Siphon Canyon. Also Rincon Mts., Santa Catalina Mts., Mule Mts. Mohave County, Cochise, Pinal, and Pima counties. Known only from Arizona. Sonoran.

Exsicc: FOBO [MHoy 413].

### **Opuntia macrocentra** Engelm. var. **macrocentra** Engelm.

*Opuntia violacea* Engelm., *O. violacea* var. *castetteri* L. Benson, *O. violacea* var. *macrocentra* (Engelm.) L. Benson

[2,000] - [5,000] ft. Apr - May. Stem-succulent shrub, stem-succulent phanaerophyte. Uncommon on sandy, gravelly, or rocky hillsides, flats, canyons, and washes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site, Portal to Paradise road. Also Huachuca Mts., Sierra Ancha. Greenlee County to Gila, Cochise, and Pima counties. Western Texas, southwestern New Mexico in Grant and Hidalgo counties, Arizona, and northern Mexico. Apachean, Sonoran, and Chihuahuan.

Distribution of this variety according to Benson (1969) map, p. 91.

**Peniocereus greggii** (Engelm.) Britt. & Rose  
var. **greggii**

*Cereus greggii* (Engelm.) Britt. & Rose

Desert night-blooming cereus, reina de la noche

[3,300] - 4,900 ft. [Jun] - [Aug]. Stem-succulent.

Stem-succulent phanerophyte. Uncommon, easily overlooked on gravelly flats amongst shrubs; often in the vicinity of washes.  
*Larrea tridentata*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in wash east of trailer; 2 mi. east of Portal. Also Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Southern Mohave County to Graham, Cochise, Pima, and Yuma counties. Western Texas, southern New Mexico, Arizona, and northern Mexico. Chihuahuan, Sonoran.

Indians formerly used the 5 - 80 pound root for food; javelina dig out the roots for food also.

Exsicc: FOBO [MHoy 330]. ASU [Cazier 142].

**CAMPANULACEAE**—Harebell Family.

A family of annual or perennial herbs or subshrubs, rarely arborescent. About 60 genera and 1,500 species, widely distributed, mostly in the temperate and subtropical regions (most of the tropical representatives are at high elevations). The family has economic importance only because of the large number of ornamentals.

**Lobelia cardinalis** L. ssp. **graminea** (Lam.)

McVaugh

*Lobelia splendens* Willd., *L. fulgens* Willd.

Cardinal-flower

[3,000] 5,400 - 6,100 [7,000] ft. [Jun] Aug - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicyrptophyte. Uncommon near pools, springs, seeps, and wooded canyon drainages.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; below Herb Martyr Dam; Wilderness Area; South Fork Cave Creek. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Huachuca Mts. Throughout most of Arizona except the low western portion. Widely distributed in the United States, Mexico, and Central America. Temperate, Latin American.

Exsicc: CHIR [Clark 8730, Reeves 1451, 4541]. SWRS [Barr 54-575, SWRS 1959-805]. CHWA [Leithliter 630].

**Lobelia fenestralis** Cav.

5,000 - 6,000 ft. Aug. - Nov. Summer annual. Meadows.

Chiricahua Mts., Huachuca Mts., Animas Mts. Western Texas to Arizona, southward to Oaxaca. Latin American.

**Triodanis holzingeri** McVaugh

*Specularia holzingeri* (McVaugh) Fern.

[3,000] - 7,300 ft. May - Jun. Winter-annual forb, spreading annual herb; microphyll, orthophyll. Uncommon near pools, springs, seeps, and damp streambeds.

Chiricahua Mts.: Onion Creek; Horseshoe Canyon. Also Rincon Mts. Graham, Cochise, and Pima counties. Western Missouri to southeastern Wyoming, south to southern Texas; Tennessee; southeastern Arizona. Plains.

Exsicc: SWRS [SWRS 1960-193, Mouat s.n.].

**Triodanis perfoliata** (L.) Nieuwl. var. **biflora**  
(Ruiz & Pavon) Bradley  
*Triodanis biflora* (Ruiz & Pavon) Greene, *Specularia*

*biflora* (Ruiz & Pavon) Fisch. & Mey.

Venus looking glass

[4,600] - [5,500] 7,300 ft. [Apr] - Jun. Summer annual, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Common in wet places and damp soil of streambeds. *Polygonum monspeliacum*, *Rumex mexicanus*, *Cynodon dactylon*, *Quercus arizonica*, *Q. emoryi*, *Garrya flavescens*.

Chiricahua Mts.: Onion Creek. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Animas Mts., Galiuro Mts., Santa Catalina Mts., Sierra Ancha, Baboquivari Mts., Santa Rita Mts., Patagonia Mts., Dragoon Mts. Gila County and south. Southern Virginia to Arkansas, southern Arizona, coastal California, and northern Mexico; South America. Southeastern and Latin American.

Exsicc: ARIZ [McCormick 193].

**Triodanis perfoliata** (L.) Nieuwl. var. **perfoliata**

*Legousia perfoliata* (L.) A. DC., *Specularia*

*perfoliata* (L.) A. DC.

Venus looking glass

[4,600] 5,400 - [7,500] ft. [May] - [Aug]. Winter-annual forb, scapose or leafy-stemmed annual herb; microphyll, orthophyll. Common near pools, springs, seeps and in damp streambeds.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; near Portal Ranger Station. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Animas Mts. Greenlee County to Coconino County and south. Southern Ontario to southern British Columbia, south to Florida, Texas, and southwest of the Rockies to northern California, Arizona, and northern Mexico; southern Mexico; West Indies; locally in northern South America. Latin American.

Exsicc: SWRS [Mouat s.n.].

**CANNABACEAE**

A family of shrubs or twining herbs, closely related to the Moraceae, but lacking milky latex. Two genera and 3 species, mostly of tropical distribution. The family is of considerable economic importance: *Cannabis* for its fibers of hemp used for cordage and for marijuana is obtained from the staminate flowers; and *Humulus* grown for the fruits used in flavoring beer.

**Humulus lupulus** L. var. **lupuloides** E. Small  
*Humulus americanus* Nutt.

Wild hop

[6,500] - 7,200 ft. May - Aug. Perennial deciduous forb, twining hemicyrptophyte; mesophyll, orthophyll.

Chiricahua Mts.: north of Winn Falls. Also Pinaleno Mts. Apache, Navajo, and Coconino counties, south to Graham and Pima counties. Rocky Mountain region, south to New Mexico and Arizona. Introduced from Europe. Rocky Mountain.

Rare cases of dermatitis from contact with the plant have been reported.

Exsicc: SWRS [Roth s.n.].

**CAPPARACEAE**—Caper Family.

A family of herbs, shrubs, or trees, sometimes lianas. Composed of 46 genera and about 700 species distributed in the tropics of both hemispheres.

**Polanisia dodecandra** (L.) DC. ssp.

**trachysperma** (Torr. & Gray) Iltis

*Polanisia trachysperma* Torr. & Gray, *P.*

*dodecandra* var. *trachysperma* Torr. & Gray

Clammy-weed

[1,000] 4,300 - 5,400 [6,500] ft. [May] Jul - [Oct].

Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon on gravelly flats and along sandy desert washes, on disturbed ground and roadsides.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; East Turkey Creek; along Portal - Rodeo road in San Simon Valley 5 mi. north of Portal. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Navajo and Coconino counties to Graham, Cochise, Santa Cruz, and Pima counties. Saskatchewan to British Columbia, south to Texas, New Mexico, Arizona and Sonora, Mexico. Plains.

Exsicc: CHIR [Reeves 3922]. SWRS [Walker s.n., SWRS 1958-239].

**Wislizenia refracta** Engelm.

Jackass-clover

[1,000] - 5,400 [6,500] ft. [Mar] Jul - [Oct]. Suffrutescent shrub, suffrutescent chamaephyte; microphyll, orthophyll. Uncommon in disturbed soil and residential area, usually in sandy soil, roadsides and stream beds.

Chiricahua Mts.: Chiricahua Nat. Mon. Navajo, Coconino, and Mohave counties, south to Graham, Cochise, and Pima counties, reported from Greenlee County. Western Texas to southern California and Sonora, Mexico. Southwestern, Californian.

Exsicc: CHIR [Reeves 3924].

**CAPRIFOLIACEAE—Honeysuckle Family.**

A family of shrubs, sometimes lianas, rarely herbaceous, or suffrutescent. About 18 genera and 275 species, primarily of the northern hemisphere, especially eastern Asia and eastern North America. Primarily of economic importance as ornamentals; elderberry is fermented as wine.

**Lonicera dumosa** Gray

*Lonicera albiflora* Torr. & Gray var. *dumosa* (Gray) Rehd.

Honeysuckle

[3,500] 5,000 - 8,900 ft. Apr - Sep. Woody vine, woody-stemmed vine; nanophanerophyte, orthophyll. Common in wooded canyons, along streams. *Pinus arizonica*, *P. strobus*, *P. engelmannii*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Pickett Park; Galeyville spring; Jhus Canyon bottom; Wilderness Area; Saulsbury Trail. Also Huachuca Mts., Mule Mts., Animas Mts. Southern Apache County and Gila County to Cochise and Santa Cruz counties. Arkansas to southern Arizona and northern Mexico. Southwestern.

Exsicc: CHIR [Clark 8097, LaMay 1, Reeves 2789, 3395, 3946]. SWRS [Walker s.n., SWRS 1959-111]. CHWA [Leithliter 788].

**Lonicera arizonica** Rehd.

Arizona honeysuckle

[6,000] - 9,180 ft. Jun - Jul. Woody vine, woody-stemmed vine; nanophanerophyte, orthophyll. Uncommon on shaded slopes and forest openings, becomes mesoriparian at lower elevations.

Chiricahua Mts.: Rustler Park - Long Park Road; Wilderness Area; Centella Point; Creast Trail north of Monte Vista Peak. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Apache County, Coconino County (both sides of the Grand Canyon), and Cochise and Pima counties. Utah, New Mexico, and Arizona. Sonora, Mexico. Southwestern.

Exsicc: CHWA [Leithliter 89].

**Lonicera involucrata** (Richards.) Banks ex Spreng.

*Distegia involucrata* (Banks ex Spreng.) Cockerell, *Lonicera involucrata* var. *flavescens* (Dippel) Rehd., *Xylosteum involucratum* (Banks ex Spreng.) Richards Bearberry honeysuckle, ink-berry, pigeon-bush, twin-berry

[7,500] - [10,500] ft. [Jun] - [Jul]. Broadleaf evergreen shrub, nanophanerophyte; leptophyll, orthophyll. Uncommon in open coniferous forests, often along streams.

Chiricahua Mts. Also Pinaleno Mts., White Mts. Apache, Coconino, Greenlee, Graham, and Cochise counties. Canada and Alaska to Michigan, Arizona, California, and northern Mexico. Northern.

The flowers attract hummingbirds.

**Lonicera japonica** Thunb.

Japanese honeysuckle

May - [Sep]. Broadleaf deciduous shrub, climbing phanerophyte; microphyll, orthophyll. Ruderal.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts. Cochise County. Alien from Japan. Widely cultivated in gardens and occasionally becoming established in the west in mesic temperate habitats. Common in east. Extensively naturalized in the southeastern United States. Introduced.

Exsicc: CHIR [Reeves 3473].

**Lonicera utahensis** S. Wats.

9,500 - [11,000] ft. May - [Jul]. Broadleaf deciduous shrub, nanophanerophyte; microphyll, orthophyll. Shade, open coniferous forests. *Pseudotsuga menziesii*, *Populus tremuloides*.

Chiricahua Mts.: along Crest Trail east of Monte Vista Lookout. Apache and Greenlee counties. Montana to British Columbia, south to New Mexico, Arizona, and northern California. Western.

Exsicc: SWRS [Walker s.n.].

**Sambucus coerulea** Raf. var. **neomexicana** (Woot.) Rehd.

*Sambucus neomexicana* Woot., *S. neomexicana* Woot. var. *vestita* (Woot. & Standl.) Kearney & Peebles

[5,000] - 9,600 ft. Jun - [Aug]. Broadleaf deciduous shrub, microphanerophyte; mesophyll, orthophyll. Rare on poorly-drained soil, dry uplands, along streams.

Chiricahua Mts.: Centella Point; above Cima Cabin. Also Rincon Mts., Sierra Ancha, Pinal Mts., Santa Catalina Mts., Santa Rita Mts., Pinaleno Mts. Coconino County to Graham, Cochise, and Pima counties. New Mexico and Arizona. Southwestern.

Exsicc: SWRS [Ordway 98, SWRS 1958-472].

**Syphoricarpos oreophilus** Gray var. **oreophilus**

*Symporicarpos rotundifolius* Gray var. *oreophilus*

(Gray) M.E. Jones

Snowberry

[5,900] - 7,400 [9,800] ft. May - Aug. Broadleaf deciduous shrub, nanophanerophyte; nanophyll, orthophyll. Common on cool, moist slopes, often in the open at higher elevations; mesic forested slopes at middle elevations; usually along streams at lower elevations.

Chiricahua Mts.: Chiricahua Nat. Mon. in Totem Canyon; Greenhouse Trail; just below Onion Saddle; Centella Point. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts. Apache, Navajo, Coconino counties, south to the mountains of Cochise and Pima counties. Colorado and western Texas to eastern Nevada, Arizona, and northern Sonora. Rocky Mountain, Mogollon.

Exsicc: CHIR [Reeves 1916]. SWRS [SWRS 1959-480, 1959-673A].

*Symporicarpos palmeri* G.N. Jones

Snowberry

6,000 - [8,000] ft. [May] Jun - [Jul]. Broadleaf deciduous shrub, nanophanerophyte; microphyll, orthophyll. Uncommon in wooded canyons, moist slopes and swales.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Park. Also White Mts., Animas Mts. Navajo County and Apache and Cochise counties. Southern Colorado and western Texas to eastern Arizona. Southwestern.

Exsicc: CHIR [Clark 8923, Reeves 2981, 3767].

**CARYOPHYLLACEAE—Pink Family.**

A family of annual or perennial herbs, infrequently suffrutescent shrubs; stems characteristically with swollen nodes. About 80 genera and 2,100 species, primarily of the north temperate regions but with a few genera of the south temperate regions and higher altitudes of mountains in the tropics. The Mediterranean area is the principal center of distribution for the family. In the United States, about 13 genera are represented by indigenous species, and 9 others by species that are widely naturalized or adventive (often as noxious weeds).

*Arenaria fendleri* Gray

[4,000] 8,109 - 8,823 [12,000] ft. [Apr] Jul - [Sep].

Perennial deciduous forb, semirosette perennial herb; nanophyll, orthophyll. Common in pine forests.

Chiricahua Mts.: Barfoot Lookout; top of Cochise Head. Also Huachuca Mts. Apache County to Mohave County, Cochise County, Wyoming and Utah to western Texas and Arizona. Rocky Mountain.

Exsicc: SWRS [Pough 1961-32, Roth s.n.].

*Arenaria lanuginosa* (Michx.) Rohrb. ssp.

*lanuginosa* var. *longipedunculata* Duncan

*Arenaria confusa* Rydb.

[5,300] - 9,370 [9,500] ft. Jul - [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon on mesic shaded pine-forested slopes, becoming confined to draws and canyons at lower elevations.

Chiricahua Mts.: Wilderness Area, near Monte Vista Peak; Centella Point. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Navajo, Coconino, and Yavapai counties to Greenlee, Cochise, Santa Cruz, and Pima counties. Colorado, Utah, Texas, New Mexico, Arizona, and California. Southwestern.

Exsicc: CHWA [Leithliter 128].

*Arenaria lanuginosa* (Michx.) Rohrb. ssp.

*saxosa* (Gray) Maguire

*Arenaria confusa* Rydb., *A. lanuginosa* var. *cinerascens* (Rob.) Shinners, *Arenaria saxosa* Gray, *A. saxosa* var. *cinerascens* Rob., *A. saxosa* var. *mearnsii* (Woot. & Standl.) Kearney & Peebles, *Sergulastrum lanuginosum* Muchx. ssp. *saxosum* (Gray) Weber, Sandwort

5,400 - 9,800 [12,000] ft. May - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Common in wooded canyons and rocky slopes, swales and lower slopes, sometimes on disturbed soil, coniferous forest, mesic open slopes. *Quercus arizonica*, *Q. hypoleucoides*, *Platanus wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Barfoot Park; ridge west of Silver Peak Lookout; Southwestern Research Station; Wilderness Area; Centella Point. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., White Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Coconino County, Apache, Greenlee, Graham, Cochise, and Pima counties. Southern Colorado and Utah, New Mexico, Arizona, and northern Mexico. Southwestern.

Exsicc: CHIR [Clark 8186, 8965, 9197, Reed 213, Reeves 986, 1320, 1364, 1461, 1515, 3792, 4287]. SWRS [Roth s.n.]. CHWA [Leithliter 30, 92, 189, 476, 483, 544, 731].

***Cerastium brachypodium* (Engelm. ex Gray) Rob.**

*Cerastium brachypodium* var. *compactum* Rob., *C. nutans* Raf. var. *brachypodium* Engelm. ex Gray Mouse-ear chickweed

[7,000] 8,530 - [9,500] 9,790 ft. May - Oct. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Common in poorly-drained soil in rock pockets, crevices, along streams.

Chiricahua Mts.: Wilderness Area; along Crest Trail; west of Tub Spring; Centella Point. Also Rincon Mts., Pinaleno Mts., Animas Mts. Apache and Gila counties to Cochise, Santa Cruz, and Pima counties. Nova Scotia to British Columbia, south to North Carolina, Arizona, and nearly throughout Mexico. Temperate, Latin American.

Exsicc: SWRS [Luetcke s.n.]. CHWA [Leithliter 56, 152, 193, 780; SWRS 1959-422]. CHWA [Leithliter 296].

***Cerastium nutans* Raf. var. *obtectum* Kearney & Peebles**

*Cerastium sericeum* S. Wats.

Mouse-ear chickweed

[7,000] - 9,550 ft. [Mar] Aug - [Oct]. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon in dry meadows.

Chiricahua Mts.: Wilderness Area, Anita Park. Also Pinaleno Mts., Animas Mts. Apache and Gila counties to Cochise, Santa Cruz, and Pima Counties. Nova Scotia to British Columbia, south to North Carolina, Arizona and nearly throughout Mexico. Temperate, Latin American.

Exsicc: CHWA [Leithliter 56, 152, 193, 780].

***Cerastium sordidum* Rob.**

### Mouse-ear chickweed

[7,500] 8,300 - 8,420 [9,400] ft. [May] Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon.

Chiricahua Mts.: Rustler Park; Wilderness Area, Saulsbury Trail; Centella Point. Also Pinaleno Mts., Santa Rita Mts. Santa Cruz County, Cochise County. Southeastern Arizona and Chihuahua. Chihuahuan. Exsicc: SWRS [Roth s.n.]. CHWA [806].

### **Cerastium texanum** Britt.

#### Mouse-ear chickweed

[1,500] 5,300 - 9,300 ft. Mar - Sep. Winter-annual forb, semirosette annual herb; nanophyll, orthophyll. Common on wooded slopes, rocky canyons, sandy washes, swales, lower slopes, dry meadows. Chiricahua Mts.: Chiricahua Nat. Mon.; South Fork Trail above Creek; Wilderness Area. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha. Apache County, southern Coconino and Greenlee counties to Cochise, Santa Cruz, and Pima counties. Texas and Arizona. Southwestern.

Exsicc: CHIR [Fish 41, Reeves 2417, 2508, 2618, 2634]. SWRS [Mouat s.n.]. CHWA [Leithliter 8, 541].

### **Drymaria effusa** Gray var. **depressa** (Greene)

J. Duke

#### *Drymaria depressa* Greene

[7,500] - 9,310 [9,500] ft. Aug - [Sep]. Summer-annual forb, scapose or leafy-stemmed annual herb; leptophyll, orthophyll. Uncommon on rocky outcrops.

Chiricahua Mts.: Wilderness Area, along Crest Trail; Centella Point. Also Pinaleno Mts. Apache and Greenlee counties, to Graham County and Cochise County. New Mexico and eastern Arizona. Madrean, Apachian.

Exsicc: CHWA [Leithliter 305].

### **Drymaria glandulosa** Presl.

#### *Drymaria fendleri* S. Wats.

#### Sand spurry

5,200 - 6,800 ft. Aug - Oct [Nov]. Winter-annual forb, scapose or leafy-stemmed annual herb; nanophyll, orthophyll. Uncommon in openings in chaparral and woodland.

Chiricahua Mts.: Chiricahua Nat. Mon.; Silver Peak; Paradise Ranch. Also Pinaleno Mts., Animas Mts. Coconino, Yavapai, Greenlee, Cochise, and Santa Cruz counties. New Mexico, Arizona, and Mexico. Southwestern.

Exsicc: CHIR [Moir 444, 456, Reeves 1831]. SWRS [Walker s.n.].

### **Drymaria leptophylla** [Cham. & Schlecht.]

Frenzl ex Rohrb.

#### *Drymeria tenella* Gray

#### Sand-spurry

5,400 - 7,000 [8,000] ft. Aug - Sep. Summer annual, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Common on rocky canyon slopes and gravelly openings in woods, sometimes on disturbed ground.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Rincon Mts., Animas Mts., Huachuca Mts. Coconino County to Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and northern Mexico. Madrean.

Exsicc: CHIR [Clark 8600, Reeves 1475, 1873A, 4534].

### **Drymaria molluginea** (Lag.) Didr.

*Drymaria sperguloides* Gray, *Mollugophytum sperguloides* M.E. Jones.

#### Sand spurry

[4,000] 5,400 - 7,000 [8,200] ft. Aug - Sep. Summer-annual forb, scapose or leafy-stemmed annual herb; leptophyll, orthophyll. Common on rocky canyon slopes, openings in woodland and chaparral.

Chiricahua Mts.: Chiricahua Nat. Mon. in Pickett Park; Southwestern Research Station; Onion Saddle. Also Huachuca Mts., Rincon Mts. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Madrean.

Exsicc: CHIR [Clark 8601, Keil & McGill 8531, Moir 492, 508, 563, Reeves 1228, 1275, 1477, 1595, 1627]. SWRS [Ordway 119].

### **Paronychia jamesii** Torr. & Gray

#### Nailwort

5,500 - [7,500] ft. May - Sep. Perennial deciduous forb, rosette hemicryptophyte. On limestone.

Chiricahua Mts. Also Animas Mts. Coconino County and Cochise County. Nebraska and Wyoming to Oklahoma, Texas, New Mexico, Arizona, and northern Mexico. Southwestern.

### **Silene antirrhina** L.

*Silene antirrhina* var. *confinis* Fern., *S. antirrhina* var. *deaneana* Fern., *S. antirrhina* var. *depauperata* Rydb., *S. antirrhina* var. *divaricata* Rob., *S. antirrhina* var. *laevigata* Engelm. & Gray, *S. antirrhina* var. *subglaber* Engelm. & Gray, *S. antirrhina* var. *vaccarifolia* Rydb.

#### Sleepy catchfly

4,700 - [7,400] ft. [Mar] Apr - [May]. Winter-annual forb, semirosette therophyte. Gravelly slopes of all exposures at higher elevations, becoming confined to north-facing slopes and mesic drainages at lower elevations.

Chiricahua Mts.: 1 mi. southeast of Portal on Rodeo Road. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Coconino and Mohave counties, south of Cochise, Santa Cruz, Pima, and Yuma counties. Throughout temperate North America.

Exsicc: SWRS [Walker s.n.].

### **Silene laciniata** Cav. ssp. **greggii** (Gray)

Hitchc. & Maguire

#### *Silene laciniata* var. *greggii* (Gray) S. Wats.

#### Mexican campion, Mexican catchfly

[5,500] 5,800 - 9,510 ft. Jul - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common in mesic, shady canyons, cool moist slopes.

Chiricahua Mts.: Greenhouse Trail; Chiricahua Nat. Mon.; 2 mi. east of Onion Saddle; Centella Point. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Apache, Navajo, and Coconino counties south to Cochise, Santa Cruz and Pima counties. Western Texas to California and Mexico. Southwestern.

Exsicc: CHIR [Clark 8523, 8703, Reeves 1445, 1754, 1762]. SWRS [s.c., s.n.]. CHWA [Leithliter 160, 304, 576, 782].

**Silene scouleri** Hook. ssp. **pringlei** (S. Wats.) Hitchc. & Maguire

[5,000] 6,000 - [9,800] ft. [Jul] - Aug [Sep]. Perennial deciduous forb, semirosette hemicryptophyte. Uncommon on shaded mesic slopes, becoming confined to wet canyons at low elevations.

Chiricahua Mts.: South Fork Cave Creek. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts. Apache, Coconino, Yavapai, Graham, Cochise, and Pima counties. Montana to British Columbia, south to northern Mexico. Western.

Exsicc: SWRS [Walker s.n.]

**Silene thurberi** Wats

5,000 - 6,000 ft. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll.

Chiricahua Mts. Also Swisshelm Mts., Animas Mts. Southeastern Arizona, southwestern New Mexico and northern Mexico. Madrean.

**Stellaria longipes** Goldie

Starwort

8,530 - 9,790 ft. May - Jul. Perennial deciduous forb, rosette proto-chamaephyte; nanophyll, orthophyll. Uncommon on rocky outcrops, dry meadows, forest.

Chiricahua Mts.: Fly Peak; west of Tub Spring. Also Apache County and Cochise County. Greenland to Alaska, south to New Mexico, Arizona, and California; northern Asia. Holarctic.

Exsicc: SWRS [SWRS 1959-461, 1959-421]. CHWA [48, 342].

**CELASTRACEAE—Bittersweet Family.**

A family of trees, shrubs, or vines. About 45 genera and about 500 species, widely distributed except in the arctic, and represented in this country by 10 genera and about 20 species.

**Mortonia sempervirens** Gray

*Mortonia scabrella* Gray

[3,000] - 4,500 [5,500] ft. [Mar] - [Sep]. Broadleaf evergreen shrub; nanophanerophyte, nanophyll, sclerophyll. Uncommon on gravelly desert scrub flats and near the bottom of rocky slopes.

Chiricahua Mts. Also Pedregosa Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Southern Gila, Cochise, and Pima counties. Western Texas to southern Arizona and northern Mexico. Chihuahuan.

Exsicc: SWRS [SWRS 1959-265, 1960-294].

**Pachystima myrsinoides** (Pursh) Raf.

*Myginda myrtifolia* Nutt., *Paxistima myrsinoides* Raf.,

*Oreophila myrtifolia* Nutt. ex Torr. & Gray,

*Paxistima myrtifolia* Wheeler.

Myrtle box-leaf, mountain-lover, Oregon-boxwood

5,700 - 6,900 [10,000] ft. [May] Jun - [Jul]. Broadleaf evergreen shrub, woody chamaephyte; nanophyll, sclerophyll. Common in mesic, wooded canyons, cool moist slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Pinaleno Mts., Sierra Ancha. Apache County to Coconino County, south to Cochise and Gila counties. Canada to New Mexico, Arizona, and California. Western.

Ornamental since 1879. Eaten by deer, mountain sheep, and grouse. Occasionally browsed by livestock.

Exsicc: CHIR [Clark 8193, Reeves 1841, 2803, 3628].

**CHENOPodiaceae—Goosefoot Family.**

A family of predominantly halophytic annual or perennial herbs, shrubs, or rarely small trees. About 102 genera and 1,400 species, of world-wide distribution but with centers of distribution in xerophytic and halophytic areas especially in the prairies and plains of North America, the pampas of South America, the shores of the Red, Caspian and Mediterranean seas, the central Asiatic basin, the South African karoo, and the plains of Australia. About 18 genera are represented in the western United States.

**Atriplex canescens** (Pursh) Nutt.

Wingscale, cenizo, chamiso

3,880 [4,000] - 5,000 [6,500] ft. Jun - [Aug]. Narrowleaf dicot shrub, nanophanerophyte; nanophyll, sclerophyll. Common on rocky slopes, flats, washes, and sandy saline soil of lower bajadas.

Chiricahua Mts.: Portal to Paradise road; Fort Bowie Nat. Historic Site at Overlook; Troller Ranch in San Simon Valley; San Simon Cienega. Also Pinaleno Mts., Rincon Mts., Santa Catalina Mts., Mule Mts. Throughout Arizona, South Dakota to Oregon, south to northern Mexico. Western.

Cattle forage and browse. Useful for erosion control.

Exsicc: FOBO [MHoy 325]. SWRS [SWRS 1958-842, Cummins s.n.].

**Atriplex elegans** (Moq.) D. Dietr. var. **elegans**

Wheelscale salt-bush, orache

4,800 - 5,200 ft. Jul - Aug. Summer-annual forb, scapose or leafy-stemmed therophyll. Uncommon on gravelly flats and along washes, often on disturbed sites. *Quercus emoryi*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site along trail, Apache Spring; Jack Wood Canyon. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts. Greenlee, Maricopa, Pinal, Cochise, Santa Cruz, Pima and Yuma counties. Western Texas to southern California and northern Mexico. Chihuahuan, Sonoran.

Exsicc: CHIR [Reeves 3152, 3378]. FOBO [MHoy 279]. SWRS [SWRS 1960-325].

**Chenopodium album** L.

Lambs-quarters

4,890 - 5,400 ft. Aug. Summer-annual forb, scapose or leafy-stemmed therophyll; nanophyll, orthophyll. Uncommon on open southerly-facing slopes, disturbed soil, cultivated or waste land.

Chiricahua Mts.: Chiricahua Nat. Mon. in residential area; West Turkey Creek at junction of road with Highway 181. Also Santa Catalina Mts., Animas Mts. Pinal, Yavapai, Coconino, Apache, Cochise counties. Naturalized throughout North America. Introduced.

Exsicc: CHIR [Reeves 4045]. SWRS [Pough 1961-138].

### **Chenopodium fremontii** S. Wats. **fremontii**

Nettle-leaf goosefoot

[2,500] 5,050 - 7,800 [9,000] ft. Jun - Aug [Sep].

Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon on gravelly slopes of all exposures, becoming confined to canyons, washes and rills at lower elevations; often on disturbed soil. *Quercus emoryi*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Sara Deming Canyon; Fort Bowie Nat. Historic Site in wash, eastern trail; Centella Point. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. North Dakota to British Columbia, south to New Mexico, Arizona, and Mexico. Western.

Exsicc: CHIR [Clark 8366, Reeves 1768, 4096]. FOBO [MHoy 223].

### **Chenopodium graveolens** Willd.

*Chenopodium graveolens* var. *neomexicanum*

(Aellen) Aellen, *C. incisum* Poir., *C. incisum* var. *neomexicanum* Aellen, *Teloxys graveolens* (Willd.) W.A. Weber

Goose-foot

5,250 - 9,200 ft. [Jul] Aug - Oct. Summer-annual forb, scapose or leafy-stemmed annual herb; microphyll, orthophyll. Uncommon in rocky places and open slopes in disturbed areas, dry uplands. *Pinus discolor*, *Juniperus deppeana*, *Garrya wrightii*, *Quercus emoryi*, *Opuntia spinosior*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Rustler Park; Paradise Ranch; Wilderness Area, Saulsberry Canyon Trail; Centella Point; West Turkey Creek; Barfoot Park. Also Huachuca Mts., Rincon Mts., Animas Mts., Santa Rita Mts., Canelo Hills, Whetstone Mts., Baboquivari Mts., Santa Catalina Mts., Pinaleno Mts., Sierra Ancha, Patagonia Mts., Sierra de los Ajos. Apache, Navajo, and Coconino counties, south to Cochise, Santa Cruz, and Pima counties. Western Texas and Colorado to Arizona, southward to Central America; South America. Southwestern, Latin American.

Exsicc: CHIR [Clark 8603, Reeves 1372, 1624, 1660]. SWRS [Ordway 107, Walker s.n.]. CHWA [791]. ARIZ [Blumer s.n., 1381, 144, Spaulding 75-10-25, Barr 66-179].

### **Chenopodium leptophyllum** (Moq.) Nutt. ex S. Wats.

*Chenopodium album* L. var. *leptophyllum* Moq., *C. pratericola* Rydb., *Chenopodium inamoenum* Standl. Slimleaf goosefoot

[1,500] - 5,400 [8,000] ft. [May] Jun - [Sep] Oct. Summer-annual forb, scapose or leafy-stemmed annual herb; nanophyll, orthophyll. Uncommon on disturbed soil and residential area.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at dump. Apache, Navajo, and Coconino counties south to Cochise and Pima counties. New Jersey and Virginia to Washington, Oregon, California and Mexico; Argentina. Temperate, Latin American.

Crawford (1977).

Exsicc: CHIR [Reeves 4046]. FOBO [MHoy 40]. SWRS [Roth s.n.].

### **Chenopodium murale** L.

Nettleleaf goosefoot

[150] - [8,000] 8,200 ft. [Jan] Jul - [Dec]. Summer-annual

forb, scapose or leafy-stemmed annual herb; microphyll, orthophyll. Uncommon on rocky slopes, often in disturbed areas.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Portal; Barfoot Park. Also Rincon Mts. Coconino County to Cochise, Pima and Yuma counties. Widely distributed in North America; naturalized from Europe.

Exsicc: SWRS [Roth s.n.]. ARIZ [Blumer 10, 221, 1567].

### **Chenopodium neomexicanum** Standl. var.

**palmeri** (Standl.) T.W. Walters

*Chenopodium palmeri* Standl.

[4,000] - 8,250 ft. [Sep]. Common on disturbed ground, full sun. Chiricahua Mts.: Barfoot Park; Rucker Canyon. Also Huachuca Mts., Santa Rita Mts., Pajarito Mts., Canelo Hills, Santa Catalina Mts., Rincon Mts., Baboquivari Mts., Pinaleno Mts. Crawford (1973).

Exsicc: ARIZ [Blumer 1409; Gould & Haskell 4606 Adams].

### **Chenopodium pratericola** Rydb.

*Chenopodium desiccatum* A. Nels. var.

*leptophyloides* (J. Murr.) H.A. Wahl, *C.*

*pratericola* spp. *euratericola*, *C. pratericola* var.

*leptophyloides* (J. Murr.) Aellen

Chuaris

[1,500] - 8,250 ft. [May] Jul - [Sep]. Summer-annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Probably uncommon on disturbed open ground.

Chiricahua Mts.: Barfoot Park. Also Rincon Mts., Animas Mts. Apache, Navajo, and Coconino counties, south to Cochise and Pima counties. New Jersey and Virginia to Washington, Oregon, California, and Mexico; Argentina. Temperate, Latin American.

ExSICC: ARIZ [Blumer s.n. (2 ea.)].

### **Chenopodium watsoni** A. Nels.

*Chenopodium glabrescens* (Aellen) H.A. Wahl, *C. olidum* S. Wats., non W. Curtis

[1,000] - 4,900 [7,000] ft. [Mar] Jul - [Sep]. Summer-annual forb, scapose or leafy-stemmed therophyll. Xeric slopes amongst scrub.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at road gate. Also Santa Catalina Mts., Animas Mts. Navajo County to eastern Mohave County, south to Greenlee and Santa Cruz counties. South Dakota and Montana to New Mexico and Arizona. Western. Exsicc: FOBO [MHoy 456].

### **Krascheninnikovia lanata** (Pursh)

Guldenstaedt

*Ceratoides lanata* (Pursh) J.T. Howell, *C. lanata* var. *ruinina* Welsh, *C. lanata* var. *subspinosa* (Rydb.)

J.T. Howell, *Eurotia lanata* (Pursh) Moq., *E. lanata* var. *subspinosa* (Rydb.) Kearney & Peebles

Winter fat

[2,000] 4,800 - 5,500 [8,000] ft. [Apr] Sep - Nov. Narrowleaf dicot shrub, nanophanerophyte; nanophyll, orthophyll. Dry plains and mesas.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on north side of Overlook; Portal; Paradise, in Cedar Gulch; Maxon's Peak; near Portal; Swisselm Mts. in Leslie Canyon. Also Santa Rita Mts. Apache County to Mohave County, south to Cochise and Pima counties. Saskatchewan to Washington, south to Texas, Arizona, California, and Mexico. Latin American.

Food for ungulates. Indians used powdered plants for burns and a decoction of the leaves for treating fever. Drought resistant. Has been under cultivation since 1895.

Exsicc: FOBO [MHoy 39]. ARIZ [Blumer 1727, 1751, Barr 68-559, 66-220, Toolin et al. 94].

### **Monolepis nuttalliana** (Roem. & J.A. Schultes)

Greene

Patata, patota

5,200 ft. [Jan] - Apr. Winter-annual forb, scapose or leafy-stemmed annual herb; nanophyll, orthophyll. Uncommon in grassland.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Animas Mts. Apache County to Mohave County, south to Cochise, Pima, and Yuma counties. Manitoba and Alberta, south to Texas, Sonora, and California. Western.

Spring pasturage for cattle. Indians use it for greens and the seeds for pinole.

Exsicc: CHIR [Reeves 2608].

### **Salsola Kali** Sennen & Pau

*Salsola iberica* Sennen and Pau, *Salsola kali* L. var. *tenuifolia* Tausch, *S. kali* L. ssp. *ruthenica* (Iljin) Soo  
Russian-thistle

[200] 4,500 - 6,700 [8,500] ft. May - Oct. Summer-annual forb, scapose or leafy-stemmed therophyll; leptophyll, orthophyll. Common on xeric uplands and flats on disturbed soil.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on Parade Ground, Apache Pass Road; Birt Roberds Ranch in San Simon Valley. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Alien from Europe and Asia. An indicator of disturbance.

Barilla, an impure soda, can be obtained from burning these plants. Introduced in flax seed at Bon Homme County, South Dakota in 1886. Can be crowded out by native vegetation.

Exsicc: CHIR [Clark 8292, Reeves 1744, 1772]. SWRS [SWRS 1958-828]. FOBO [MHoy 190].

### **CLUSIACEAE—Garcinia Family.**

A family of trees, shrubs, or herbs (rarely woody lianes) with resinous sap. About 8 genera and 350 species; closely related to the Guttiferae.

### **Hypericum scouleri** Hook.

*Hypericum formosum* Kunth

St. John's wort

[5,000] 6,260 - 7,220 [9,500] ft. [Jun] Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon on wet soil of springs and streambeds; more open draws on lower mountain slopes.

Chiricahua Mts.: Pine Canyon near Methodist Camp; Wilderness Area. Also Rincon Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Huachuca Mts. Apache County to Coconino County, south to Cochise and Pima counties. Wyoming to Arizona, southern California, and Mexico. Rocky Mountain.

Exsicc: SWRS [SWRS 1959-694]. CHWA [Leithlitter 439, 458].

### **COMMELINACEAE—Spiderwort Family.**

A family of succulent perennial or annual herbs, acaulescent or with nodose stems, fibrous or sometimes much thickened and tuberlike roots. Family is tropical and subtropical represented by

37 genera and about 600 species distributed over the warmer parts of the earth. Members of the subfamily *Commelinaceae* (irregular flowers) are most common in tropical Africa while the *Tradescantiae* (flowers regular) are most abundant in the New World.

### **Commelina dianthifolia** Delile

Dayflower

[3,500] 5,000 - [9,500] 9,680 ft. Aug - Sep. Perennial deciduous forb, bulb geophyte; nanophyll, orthophyll. Common on mesic wooded slopes, in canyons, and stream benches; partial sun. *Pinus arizonica*, *P. engelmannii*, *Abies concolor*, *Pseudotsuga menziesii*, *Quercus rugosa*, *Q. arizonica*, *Q. hypoleucoides*.

Chiricahua Mts.: Chiricahua Nat. Mon. north of Silver Spur Meadow, Totem Canyon, Pickett Park; Fort Bowie Nat. Historic Site in Apache Pass, Massacre Site; Southwestern Research Station; between Long Park and Rustler Park; Greenhouse Trail; Portal to Paradise road; West Turkey Creek; Wilderness Area; Barfoot Park; Centella Point. Also Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Huachuca Mts., Sierra de los Ajos. Apache and Coconino Counties, southward to Cochise, Santa Cruz and Pima counties. New Mexico, Arizona and nearly throughout Mexico.

Exsicc.: CHIR [Borell 8, Clark 8686, Reeves 1503, 4237]. SWRS [Mouat s.n., Wittmann 183, Ordway s.n.]. CHWA [Leithlitter 206, 291, 524, 534, 612, 675, 676]. NMC [Blumer 1354. Carter s.n.].

### **Commelina erecta** L. var. **angustifolia**

(Michx.) Fern.

*Commelina angustifolia* Michx., *C. crispa* Woot., *C. erecta* var. *crispa* (Woot.) Palmer & Steyermark.

[3,300] - 4,450 [5,600] ft. [May] - Aug [Sep]. Common often among rocks. Perennial deciduous forb, bulb geophyte; microphyll, orthophyll.

Chiricahua Mts.: Kollmar Ranch. Also Rincon Mts., Santa Catalina Mts., Animas Mts., Patagonia Mts., Baboquivari Mts., Peloncillo Mts., Atascosa Mts., Santa Rita Mts., Mule Mts. Cochise, Santa Cruz, and Pima counties. New York to Colorado, south to Florida, Texas, and Arizona. Temperate.

Exsicc.: SWRS [SWRS 1958 600]. ASU [Pinkava, et al. 766; Lehto 4091].

### **Tradescantia pinetorum** Greene

*Aneilema pinetorum* (Greene) Matuda

Spiderwort

[4,500] 5,400 - 9,020 [9,500] ft. Jul - Sep. Perennial deciduous forb, bulb geophyte; nanophyll, orthophyll. Uncommon on rock ledges, soil pockets on outcrops, woodlands, cool moist slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; West Turkey Creek; Wilderness Area. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Apache, Navajo, and Coconino counties to Cochise, Santa Cruz, and Pima counties. New Mexico and Arizona to southern Sonora, Mexico. Madrean.

Exsicc.: CHIR [Borell 7, Reeves 988, 1504, 4238]. SWRS [SWRS 1959-730]. CHWA [Leithlitter 191, 510].

## **CONVOLVULACEAE—Morning Glory Family.**

A family of small trees, shrubs and erect or twining herbs. About 50 genera and 1,200 species primarily of the tropics and subtropics, particularly abundant in the Americas and tropical Asia. The sweet potato is a member of this family.

### **Convolvulus arvensis L.**

*Convolvulus ambigens* House, *C. incanus* auct. non Vahl, *Strophocaulos arvensis* (L.) Small  
Field bindweed

[3,000] 5,000 - 5,400 [6,000] ft. May - Sep [Oct]. Perennial deciduous forb, spreading hemicryptophyte; microphyll, orthophyll. Uncommon on rocky slopes, gravelly flats, roadsides and fields; full sun.

Chiricahua Mts.: Portal Ranger Station; Chiricahua Nat. Mon. in lower Pinery Canyon; Fort Bowie Nat. Historic Site along road east of trailer; Willow Tank. Also Huachuca Mts., Rincon Mts., Mule Mts., Sierra Ancha, Animas Mts., Canelo Hills. Apache County to eastern Mohave County, south to Cochise, Santa Cruz, and Pima counties. Extensively naturalized in North America; from Europe. Temperate, Introduced.

An antihemorrhagic substance has been discovered in this plant. Exsicc.: SWRS [Roth s.n.]

### **Convolvulus equitans Benth.**

*Convolvulus hermannioides* Gray, *C. simulans* Perry

[4,100] - [5,200] ft. [May] - [Sep]. Perennial deciduous forb, twining hemicryptophyte; nanophyll, orthophyll. Uncommon on sunny flats.

Chiricahua Mts.: Huachuca Mts., Santa Rita Mts. Southeastern Arizona to Trans-Pecos Texas; northern Mexico. Madrean, Chihuahuan.

Exsicc.: ARIZ [Crooks et al., s.n.]

### **Dichondra brachypoda Woot. & Standl.**

[4,000] - 5,400 [6,000] ft. Aug. Perennial deciduous forb, spreading hemicryptophyte; microphyll, orthophyll. Uncommon in deep moist woods.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Bonita Canyon; Rucker Canyon near San Bernadino. Also Animas Mts. Cochise County. Western Texas to southeastern Arizona and northern Mexico. Chihuahuan.

Exsicc.: CHIR [Clark 8533].

### **Evolvulus arizonicus Gray**

*Evolvulus arizonicus* var. *laetus* (Gray) van Ooster, *E. laetus* Gray

[3,500] - 5,400 ft. [Apr] Jul - [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon on rocky or gravelly slopes, along drainages.

Chiricahua Mts.: Chiricahua Nat. Mon.; near Horseshoe Canyon. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Mule Mts., Canelo Hills, Sierra de los Ajos. Graham County to Yavapai County, south to Cochise, Santa Cruz, and Pima counties. Southwestern New Mexico, Arizona, and northern Mexico; Argentina. Southwestern, Latin American.

Exsicc.: SWRS [SWRS 1960-356].

### **Evolvulus nuttallianus J.A. Schultes**

*Evolvulus pilosus* Nutt.

[3,000] - 4,600 [5,500] ft. [Mar] Apr - [Jul]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Rare on rocky limestone flats and disturbed ground.

Chiricahua Mts.: 2 mi. southeast of Portal. Also Huachuca Mts., Rincon Mts., Dragoon Mts., Tucson Mts., Santa Catalina Mts., Mule Mts., Santa Rita Mts. Apache County to Coconino County, south to Cochise, Santa Cruz, and Pima counties. North Dakota and Montana to Texas and Arizona. Plains.

Exsicc.: ARIZ [Garton 16754; A. Hesselberg s.n.].

### **Evolvulus sericeus Sw. var. *sericeus***

*Evolvulus sericeus* var. *discolor* (Benth.) Gray

[3,500] 5,000 - 5,400 [5,500] ft. [May] Jun - Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon in grassland, wash, dry uplands, full sun.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at Cemetery; Paradise, cemetery. Also Huachuca Mts., Sierra Ancha, Animas Mts., Canelo Hills. Navajo and Yavapai counties to Greenlee, Cochise, Santa Cruz, and Pinal counties. Texas to southeastern California, south to Argentina; West Indies. Latin American.

Exsicc.: CHIR [Reeves 2760, 4213]. FOBO [MHoy 442].

### **Ipomoea barbatipetala Gray**

Morning glory

[3,000] - [5,300] ft. [Aug] - [Sep]. Summer-annual forb, twining therophyte. Common along sandy washes, climbing on other plants.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Sierra Ancha. Greenlee, Cochise, Santa Cruz, and Pima counties. Western Texas, southern Arizona, and Mexico. Chihuahuan.

### **Ipomoea capillacea (Kunth) G. Don**

*Convolvulus capillacea* (Kunth) G. Don, *Ipomoea muricata* Cav.

Morning-glory

5,000 - 6,000 ft. [Jul] Aug - [Sep]. Perennial deciduous forb, bulb geophyte; nanophyll, orthophyll. Uncommon on mountain sides. Chiricahua Mts.: Chiricahua Nat. Mon. in Upper Pickett Canyon. Also Huachuca Mts., Mule Mts. Cochise and Santa Cruz counties. New Mexico and southern Arizona to northern South America. Latin American.

Exsicc.: CHIR [Clark 8679]. ARIZ [Blumer 1643].

### **Ipomoea costellata Torr.**

Morning-glory

[3,500] 3,900 - 5,650 [6,000] ft. [Jul] Aug - Sep [Oct]. Summer annual forb, twining hemicryptophyte. Common on well-drained soils on slopes and flats, dry uplands, and canyon benches. *Juniperus deppeana*, *Larrea tridentata*, *Yucca elata*, *Pinus discolor*, *Garrya wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon.: entrance road near boundary; Southwestern Research Station; 2 mi. northeast of Portal. San Simon Valley, 3 mi. north of Rodeo. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Mule Mts., Pinaleno Mts., Animas Mts. Navajo, Yavapai, and Greenlee counties to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Mexico. Madrean.

Exsicc.: CHIR [Fish 21, Moir 501, Reeves 1484, 1572A,

1679]. SWRS [Ordway s.n., Walker s.n., Wittmann 155].

### **Ipomoea cristulata** Hallier f.

#### Star-glory

5,400 - 5,650 ft. Aug - Sep. Summer annual forb, twining hemicryptophyte; microphyll, orthophyll. Uncommon in wooded canyons and open oak woods.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; 6 mi. east of Portal; Paradise.

Exsicc.: CHIR [Fish 2, 27, Reeves 1567, 1603, 1612]. SWRS [Ordway s.n.]. ARIZ [Blumer V124, 1808].

### **Ipomoea hederifolia** L.

*Ipomoea coccinea* L., *I. coccinea* L. var. *hederifolia* (L.) Gray

#### Star-glory

[2,500] 4,900 - 9,100 ft. [May] Aug - Sep [Oct].

Summer-annual forb, spreading therophyte. Uncommon in wooded canyons, dry uplands; found on all aspects. *Rhus odorata*, *Cupressus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon.: Bonita Canyon, Organ Pipe Formation; Rhyolite Canyon; Fort Bowie Nat. Historic Site in South Canyon; Portal to Paradise road; Wilderness Area. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Pinaleno Mts., Canelo Hills. Navajo and Coconino counties to Greenlee, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and south into tropical America. Southwestern, Latin American.

Exsicc.: CHIR [Reeves 1346, 4364]. FOBO [MHoy 306]. CHWA [Leithliter 683].

### **Ipomoea plummerae** Gray

*Ipomoea cuneifolia* Gray non Meisn., *I. egregia* House, *I. plummerae* var. *egregia* (House) Soreng & Spellenberg

#### Morning-glory

[5,000] 7,000 - 9,100 ft. Jul - Sep. Perennial deciduous forb, bulb geophyte; microphyll, orthophyll. Uncommon in gravelly openings in chaparral and oaks, north-facing slopes, dry uplands, mostly in coniferous forests.

Chiricahua Mts.: Chiricahua Nat. Mon. on Sugarloaf Mountain Trail, east of Balanced Rock; Barfoot Park; Wilderness Area. Also Sierra Ancha, Pinaleno Mts., Santa Catalina Mts. Apache County to Coconino County, south to Graham, Cochise, and Pima counties. Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8450, Reeves 991]. SWRS [Welch s.n.].

### **Ipomoea purpurea** (L.) Roth

*Convolvulus purpureus* L., *Ipomoea hirsutula* Jacq. f., *I. purpurea* var. *diversifolia* (Lindl.) O'Donnell, *Pharbitis purpurea* (L.) Voigt

#### Tall morning-glory

[1,000] 4,900 - 6,600 ft. [Jul] Aug - Oct [Sep].

Summer-annual forb, spreading therophyte. Common in openings in woodland and chaparral, rocky south-facing slopes, and along desert washes; sometimes in disturbed habitats, fallow fields.

*Pinus discolor*, *Juniperus deppeana*, *Quercus emoryi*, *Garrya wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon. north of Silver Spur Meadow, Bonita-Picket Saddle; Fort Bowie Nat. Historic Site in South Canyon; east slope Tex Canyon. Also Huachuca Mts.,

Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Canelo Hills. Southern Navajo, Yavapai, and Greenlee counties to Cochise, Santa Cruz, and Pima counties. Western Texas to central and southern Arizona, south to Central America. Southwestern, Latin American.

Exsicc.: CHIR [Clark 8678, Moir 434, Reeves 1521, 1666, 4359]. FOBO [MHoy 321]. SWRS [1959-819, Leutcke s. n.].

### **Ipomoea tenuiloba** Torr.

*Ipomoea lemmonii* Gray, *I. tenuiloba* var. *lemmonii* (Gray) Yatskievych & Mason

#### Morning-glory

[4,500] - 6,000 ft. Aug - [Sep]. Perennial deciduous forb, bulb geophyte; microphyll, orthophyll. Uncommon on mountain sides, rocky outcrops, twining on other plants.

Chiricahua Mts.: Chiricahua Nat. Mon. in Pickett Canyon; in Bonita Canyon. Also Huachuca Mts., Mule Mts. Cochise County. Western Texas to southeastern Arizona and northern Mexico. Chihuahuian.

Exsicc.: CHIR [Clark 8680]. ARIZ [Clark 8680, Blumer 2138].

### **Ipomoea triloba** L.

#### Star-glory

7,000 ft. Sep. Summer annual forb, twining therophyte; microphyll, orthophyll. Common.

Chiricahua Mts.: Snowshed Trail. Valley of the Santa Cruz River near Tucson, Pima County. Southern Florida, southern Arizona, Mexico, and southward. Latin American.

Exsicc.: CHWA [Leithliter 851].

## CORNACEAE—Dogwood Family.

A family of trees, shrubs, or suffrutescent subshrubs, rarely liaceous. Widely distributed with about 10 genera and 90 species confined to tropical and temperate climates of North America and Asia but also in South American and New Zealand. Chiefly useful as ornamentals.

### **Cornus sericea** L. ssp. *sericea*

*Cornus alba* L. *pro parte*, *C. alba* var. *baileyi* (Coulter & Evans) Boivin, *C. alba* var. *californica* (C.A.

Mey.) Boivin, *C. alba* var. *interior* (Rydb.) Boivin,

*C. baileyi* Coulter & Evans, *C. instolonea* A. Nels., *C. interior* (Rydb.) N. Petersen, *C. sericea* L. ssp.

*stolonifera* (Michx.) Fosberg, *C. stolonifera* var.

*baileyi* (Coulter & Evans) Drescher, *Swida instolonea* (A. Nels.) Rydb., *Swida stolonifera* (Michx.) Rydb.

Red osier dogwood

[5,000] 7,000 - 7,500 [9,000] ft. May - Aug [Sep].

Broadleaf deciduous shrub; nanophanerophyte. Uncommon along streams and shallower draws; near cliffs and lower mountain slopes. *Salix* spp.

Chiricahua Mts.: Wilderness Area, Winn Falls, Cima Canyon, along Greenhouse Trail including Round Park. Pinaleno Mts., Sierra Ancha, Santa Catalina Mts. Apache County to Coconino County, south to Cochise and Pima counties. Canada and Alaska, south to the District of Columbia, New Mexico, Arizona, and California. Temperate.

Exsicc.: SWRS [1960-438, Wittmann 96]. CHWA [Leithliter 600].

## **CRASSULACEAE—Stonecrop Family.**

A family of succulent annual or perennial herbs, shrubs, rarely climbing plants. Widely distributed although almost entirely absent from Australia and Oceania with only 3 - 4 genera in South America. About 33 genera with 500 - 1,300 species.

### **Graptopetalum bartramii** Rose

*Echeveria bartramii* (Rose) Kearn & Peeb.

[4,000] - 6,000 ft. [Sep] - [Feb]. Perennial evergreen forb. Uncommon on rock outcrops and rocky soil.

Chiricahua Mts.: Indian Creek Canyon. Also Rincon Mts., Patagonia Mts., Tumacacori Mts., Baboquivari Mts., Mule Mts. Santa Cruz and Pima counties. Known only from southern Arizona and northern Mexico. Apachian.

Exsicc.: SWRS [Walker s.n.]

### **Graptopetalum rusbyi** (Greene) Rose

*Cotyledon rusbyi* Greene, *Dudleya rusbyi* (Greene) Britt. & Rose, *Echeveria rusbyi* (Greene) Nels. & Macbr., *Graptopetalum orpetii* E. Walth.

Stone-crop

[2,500] - 6,700 ft. May. Evergreen perennial forb, rosette hemicyclopedia; microphyll, orthophyll. Rare in crevices of rock near stream and rocky slopes. Dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.: Echo Dam. Also Rincon Mts., Sierra Ancha. Greenlee, Graham, Gila, Maricopa, Pinal, and Pima counties. Known only from Arizona. Apachian.

Exsicc.: CHIR [Reeves 3598]. Rincon [Jenkins 1763].

### **Sedum cockerellii** Britt.

*Cockerellia cockerellii* (Britt.) A. & D. Löve, ?*Sedum griffithsii* Rose, *Sedum wootoni* Britt.

Stone-crop

[3,500] 5,500 - 9,670 ft. Apr - Sep. Evergreen perennial forb, semirosette hemicyclopedia. Uncommon on rock ledges on cool moist canyon slopes and shaded cliffs.

Chiricahua Mts.: Chiricahua Nat. Mon. in East Whitetail Canyon, Picket Canyon; Fort Bowie Nat. Historic Site on Bowie Mountain; Wilderness Area, Crest Trail near Painted Rock; Centella Point, Monte Vista Peak. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts. Southern Apache, Graham, Cochise, Santa Cruz, and Pima counties. Southwestern New Mexico, eastern and southern Arizona, and northern Mexico. Apachian.

Exsicc.: CHIR [Clark 9287, Reeves 3813]. FOBO [MHoy 237]. SWRS [Roth s.n.]. CHWA [Leithliter 103, 205, 776].

### **Sedum stelliforme** S. Wats.

[5,200] - [9,500] ft. [Jul] Aug - Sep. Evergreen perennial forb rosette hemicyclopedia; nanophyll, orthophyll. Uncommon on rocky ledges and outcrops.

Chiricahua Mts.: South Fork Cave Creek near ford; Wilderness Area, Saulsbury Trail. Also Animas Mts., Sierra de los Ajos. Apache, Graham, and Cochise counties. New Mexico, Arizona, and Chihuahua. Madrean. Type collected in the Chiricahua Mts. by J.C. Blumer.

Exsicc.: SWRS [Cummins s.n.]. CHWA [Leithliter 518]. ARIZ [Blumer 2150].

## **CROSSOSOMATACEAE—Crossosoma**

**Family.**

A family of shrubs or small trees with rough bark. The family has

no economic value.

## **Apacheria chiricahuensis** C.T. Mason

5,200 - 7,000 ft. Apr - Jul. Narrow leaf dicot shrub, woody low shrub, leptophyll, orthophyll. Common in crevices, ledges, outcrops of rhyolite cliffs.

Chiricahua Mts.: Chiricahua Nat. Mon.: Picket Canyon, Hunt Canyon, Heart of Rocks Trail; Cave Creek. Apachian.

Apparently flowering throughout the year, but most profusely following the onset of the summer rains. This species, described in July, 1975, is apparently endemic to the northern Chiricahua Mountains.

Exsicc.: CHIR [Clark 8950, s.n., Reeves 902, 2454, 2626, 3048, 4069]. SWRS [SWRS s.c. s.n., Reeves R902, n.c. 4069].

## **Glossopetalon spinescens** Gray var. **spinescens**

*Forsselia spinescens* (Gray) Greene

Spiney-stemmed tongue flower

4,500 - 5,500 ft. Narrowleaf dicot shrub, nanophanerophyte. Limestone cliffs.

Chiricahua Mts. Also Dos Cabezas Mts., Mustang Mts. Cochise County and probably Santa Cruz County. Western Texas to southeastern Arizona and northern Mexico. Southwestern.

## **CUCURBITACEAE—Gourd Family.**

A family of climbing or prostrate annuals or infrequently perennial mostly monoecious herbs, rarely a small suffrutescent tree. There are about 100 genera and 850 species of pantropical or subtropical distribution about equally divided between the Old World and New World with extensions into the temperate zones of both hemispheres. The family is economically important as a food source (mellons, cucumbers, and chayote).

### **Apodanthera undulata** Gray

Melon-loco

[1,500] 4,200 - 5,400 [5,500] ft. [Jun] Jul - Sep. Perennial deciduous forb. Uncommon on gravelly bottoms, washes, talus slopes, dry plains and mesas, and sometimes limestone slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in lower Pinery Canyon; Fort Bowie Nat. Historic Site along Apache Pass Road; SWRS; San Simon Cienega. Also Rincon Mts., Sierra Ancha, Mule Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Southern Yavapai, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and Mexico. Chihuahuan.

Exsicc.: CHIR [Clark 8534, Reeves 3455, 3514, 4102]. FOBO [MHoy 262]. SWRS [sd. sn.]

### **Cucurbita digitata** Gray

Gourd, coyote mellon

5,000 - 5,400 ft. [Jun] Jul - Aug [Oct]. Perennial deciduous forb, spreading hemicyclopedia. Uncommon on gravelly flats in broad canyons, dry upland slopes, along washes, and in low spots where runoff collects.

Chiricahua Mts.: Chiricahua Nat. Mon. in Picket Park; lower Pinery Canyon; Fort Bowie Nat. Historic Site in South Canyon; 4 mi. north of Portal. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Graham County to southern Yavapai County, south to Cochise, Santa Cruz, Pima, and eastern Yuma counties. Southwestern New Mexico to southeastern California and northern Mexico. Sonoran.

Exsicc.: CHIR [Reeves 4125, Clark 8376]. FOBO [MHoy 289, 290]. SWRS.

## **Cucurbita foetidissima** Kunth

*Pepo foetidissima* (Kunth) Britt.

Buffalo-gourd, calabazilla

[1,000] 5,000 - 5,300 [7,000] ft. [May] Jun - [Aug] Sep. Perennial deciduous forb, spreading hemicryptophyte; mesophyll, orthophyll. Common on valley floors, plains and along roads in grassland. Mostly on alluvial soil.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Bonita Canyon, Visitor Center parking lot; grasslands west and south of monument; Fort Bowie Nat. Historic Site along road east of trailer; Portal to Paradise road. Along highway 666 south of Wilcox. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Animas Mts., Canelo Hills, Sierra de los Ajos. Navajo and Coconino counties to Cochise and Pima counties. Missouri and Nebraska to Texas, Arizona, southern California, and Mexico. Southwestern.

The fruits were eaten by the Indians of Arizona cooked, or dried for winter use, and the weeds were eaten in the form of mush. Useful as a ground cover.

Exsicc.: CHIR [Clark 8299, Reeves 1551, 3060]. FOBO [MHoy 228].

## **Marah gilensis** Greene

Big root, wild cucumber

[3,500] - 5,000 ft. [Feb] - [Apr]. Winter annual forb, bulb geophyte; mesophyll, orthophyll. Uncommon climbing on trees in washes, cool moist slopes, in thickets along streams.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts. Greenlee County to Mohave County, south to Pinal and Pima counties. Southwestern New Mexico and Arizona. Apachian.

Exsicc.: SWRS [MHoy s.n.].

## **Sicyos ampelophyllum** Woot. & Standl.

[4,000] - 5,400 [5,500] ft. [Aug] - Oct. Summer annual forb, twining hemicryptophyte; microphyll, orthophyll. In shade along hydro- and mesoriparian drainages. *Salix gooddingii*, *Quercus arizonica*, *Platanus wrightii*.

Chiricahua Mts.: Southwestern Research Station at house #11; Portal. Also Huachuca Mts. Yavapai, Cochise, and Pima counties. New Mexico and Arizona. Apachian.

Exsicc.: SWRS [Walker s.n., Barr 64-478].

## **CYPERACEAE—Sedge Family.**

A very large family of mostly perennial (infrequently annual) grasslike herbs, often of damp boggy, marshy, or riparian habitats. World-wide distribution but particularly common in subarctic and temperate regions of the northern and southern hemispheres. There are about 3,200 species world-wide divided into 72 - 83 genera.

### **Bulbostylis capillaris** (L.) Clarke ssp. **capillaris**

*Bulbostylis capillaris* var. *crebra* Fern., *B. capillaris* var. *isopoda* Fern., *Fimbristylis capillaris* (L.) Gray, *Stenophyllum capillaris* (L.) Britt.

[4,500] 5,150 - 7,000 ft. Aug - Sep. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Common in grassland, grassland-scrub, open woods and streambeds.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Animas Mts. Yavapai, Greenlee, Gila, Cochise, Santa Cruz, and Pima counties. Widely distributed in North America. Temperate.

Exsicc.: CHIR [Clark 8598, Keil & McGill 8532, Lehto 3332, Reeves 1237].

### **Bulbostylis funckii** (Steud.) Clarke

*Isolepis funckii* Steud.

[5,000] - [7,500] ft. Summer annual graminoid. Swales and lower slopes.

Chiricahua Mts. Also Huachuca Mts., Sierra Ancha, Hualpai Mts., Pinal Mts., Santa Catalina Mts., Baboquivari Mts. Mohave, Gila, Cochise, and Pima counties. New Mexico and Arizona, southward to South America; West Indies. Latin American.

Exsicc.:

### **Carex chihuahuensis** Mackenz.

3,800 [4,500] - 5,000 [9,000] ft. Apr [Jul] - May [Aug].

Perennial graminoid, rosette hemicryptophyte. Common on wet soil in streambeds, shallower draws, mesic north-facing slopes. *Eliotcharis* sp., *Cupressus arizonica*, *Quercus* sp., *Pinus* sp., and *Lysiloma watsoni*.

Chiricahua Mts.: Cave Creek Canyon; San Bernardino Valley. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Santa Rita Mts. Southeastern Arizona and Sierra Madre Occidental. Apachian.

Exsicc.: ARIZ [Loomis & Peebles 5393, 5859; L.J. Toolin 707B; Sanders, Kirtland, Emory 2639].

### **Carex deweyana** Schw. ssp. **leptopoda**

(Mackenz.) Calder & Taylor

9,260 ft. Jun. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll.

Chiricahua Mts.: Round Park. Coconino, Pinal, Cochise, Santa Cruz, and Pima counties. Montana to British Columbia, south to New Mexico, Arizona, and California. Western.

Exsicc.: SWRS [SWRS 1960-163].

### **Carex geophila** Mackenz.

[5,200] - 9,360 ft. May. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Common in leaf and needle litter on rock, dry slopes.

Chiricahua Mts.: Crest Trail near Painted Rock. Rincon Mts., Sierra Ancha, Chuska Mts., White Mts., Pinaleno Mts. Apache and Graham counties. New Mexico and Arizona. Madrean.

Exsicc.: SWRS [Roth s.n.].

### **Carex lanuginosa** Michx.

*Carex lasiocarpa* Ehrh. var. *latifolia* (Boeckl.) Gleason

Wooly sedge

[9,000] ft. Jul - [Aug]. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon.

Chiricahua Mts.: Southwestern Research Station. Also Pinaleno Mts., Canelo Hills. Apache County to Mohave and Yavapai counties. New Brunswick to British Columbia, south to Tennessee, Texas, Arizona, and California. Temperate.

Exsicc.: SWRS [Roth s.n.].

### **Carex leucodonta** Holm

[5,200] - 6,100 [7,000] ft. Jun - Aug. Perennial graminoid. Uncommon in pine woods, streambeds and springs.

Chiricahua Mts.: Chiricahua Nat. Mon. on Greenhouse Canyon slope. Also Rincon Mts., Mule Mts., Huachuca Mts. Cochise, Santa Cruz, and Pima counties. Southern Arizona, and

northern Mexico. Madrean.

Exsicc.: CHIR [Reeves 3704, 4160]. SWRS [SWRS 1958-34].

### **Carex microptera Mackenz.**

*Carex festivella* Mackenz., *C. limnophila* F.J. Herm., *C. macloviana* d'Urv. ssp. *festivella* (Mackenz.) A. & D. Löve, *C. macloviana* var. *microptera* (Mackenz.) Boivin, *C. microptera* var.

*crassinervia* F.J. Herm., *C. microptera* var. *limnophila* (F.J. Herm.) Dorn

[8,000] - [9,500] ft. Jun. Perennial graminoid, rosette hemicryptophyte. Southerly exposures on wet soils.

Chiricahua Mts.: Winn Falls. Santa Catalina Mts., Pinaleno Mts. North Rim of the Grand Canyon. Apache, Coconino, Greenlee, Graham, and Cochise counties. Wyoming and Manitoba to British Columbia, south to Arizona, Nevada, California, and northern Mexico. Western.

Exsicc.: SWRS [Roth s.n.]

### **Carex occidentalis V. Bailey**

*Carex neomexicana* Mackenz.

[6,500] - 9,300 [9,500] ft. May - [Aug]. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon on dry shaded slopes and outcrops, dry meadows. Chiricahua Mts.: Wilderness Area, Round Park. Also Rincon Mts., Pinaleno Mts., Sierra Ancha. Apache County to Coconino County, south to Cochise and Pima counties. Wyoming and Utah to New Mexico and Arizona. Rocky Mountain.

Exsicc.: ASU [Reeves 3910]. CHWA [Leithliter 15].

### **Carex praegracilis Boott.**

*Carex camporum* Mackenz.

[3,000] - 5,400 [9,500] ft. Apr - Jun. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Locally common in wet soil at springs, seeps, and in streambeds, cool moist slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. at South Fork Cave Creek. Also Rincon Mts., Sierra Ancha, Pinaleno Mts., Canelo Hills. Apache County to Mohave County, south to Cochise and Pima counties. Manitoba to Yukon, south to central Mexico and California; Michigan; South America. Northern.

Exsicc.: CHIR [Reeves 2437, 2525, 2857]. SWRS [Ordway 71].

### **Carex senta Boott**

[2,000] 5,400 - 8,860 ft. Apr - Aug. Perennial graminoid, rosette hemicryptophyte. Uncommon near springs, wet streambeds.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station; Wilderness Area, Winn Falls. Also Rincon Mts., Santa Catalina Mts. Apache, Coconino, Maricopa, and Cochise counties. Arizona and California. Southwestern.

Exsicc.: CHIR [Clark 8274, Reeves 1457, 2785, 2865]. SWRS [Roth s.n., Franclemont s.n.]. CHWA [Leithliter 31, 153].

### **Carex ultra V. Bailey**

*Carex spissa* V. Bailey var. *ultra* (V. Bailey)

Kükenth.

5,200 ft. Apr. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll. Damp soil.

Chiricahua Mts.: beside spring at Galeyville. Also Animas

Mts. Apache, Pinal, Cochise, and Santa Cruz counties. New Mexico and southern Arizona. Madrean.

Exsicc.: SWRS [Walker s.n.]

### **Carex vallicola Dewey**

*Carex rusbyi* Mackenz.

[7,000] - [9,500] ft.

Chiricahua Mts.: Centella Point. Also Rincon Mts. Graham County to Coconino County, south to Cochise, Santa Cruz, and Pima counties. New Mexico and Arizona. Madrean.

Citation based on Fishbein (1992).

### **Carex wootoni Mackenz.**

[7,000] 9,020 - 9,680 [11,500] ft. Jul - Aug. Perennial graminoid, rhizome geophyte; microphyll, orthophyll. Common on rocky outcrops and dry meadows, damp soils.

Chiricahua Mts.: Wilderness Area, Round Park; Centella Point. Also Pinaleno Mts. Apache, Coconino, Graham, and Pima counties. New Mexico and Arizona. Madrean.

Citation based on Fishbein (1992).

Exsicc.: CHWA [Leithliter 211, 290, 464, 477, 546]. ARIZ collections are on loan.

### **Cyperus esculentus L.**

Chufa, yellow nut-grass

[3,600] 5,400 - 6,100 ft. Jul - Aug. Perennial graminoid, semirosette hemicryptophyte. Uncommon in alluvium, oak-pine woods, seeps, streambeds, and roadsides, swales and lower slopes, common in wet soil, often a weed in cultivated fields and pastures. *Pinus engelmannii*, *Quercus hypoleucoides*, *Q. arizonica*, *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon. west of Silver Spur Meadow; Fort Bowie Nat. Historic Site 2 mi. toward Onion Saddle from Southwestern Research Station. Also Rincon Mts., Sierra Ancha, Pinaleno Mts., Animas Mts. Apache, Navajo, and Coconino counties to Cochise, Santa Cruz, and Pima counties (probably also Yuma County). Widely distributed in North America; cosmopolitan. Alien from Europe. Temperate, Latin American, Introduced.

Noxious weed.

Exsicc.: CHIR [Clark 9252, Reeves 3837, 4349]. SWRS [Wittmann 300].

### **Cyperus manimae Kunth**

*Cyperus buckleyi* Britt., *C. manimae* var. *asperrimus* (Liebm.) Kükenth, *C. spectabilis* Link

Flat-sedge

[4,500] - 5,650 [6,000] ft. Sep. Perennial graminoid, semirosette hemicryptophyte. Uncommon in grassland with scattered oaks, moist, rocky slopes in oak forest.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts. Cochise and Santa Cruz counties. Southern Arizona to Costa Rica. Latin American.

Exsicc.: CHIR [Reeves 1618].

**Cyperus mutisii** (Kunth) Griseb.

*Cyperus incompletus* (Jacq.) Link, *Mariscus mutisii* Kunth

[3,400] - [7,000] ft. Sep. Perennial graminoid, rosette hemicryptophyte. Uncommon on gravelly slopes and mesoriparian streambeds.

Chiricahua Mts.: Cave Creek. Also Rincon Mts., Pinaleno Mts., Huachuca Mts., Santa Rita Mts., Santa Catalina Mts., Baboquivari Mts. Near Nogales. Graham, Cochise, Pima, and Santa Cruz counties. Southern Arizona to Central America; Jamaica. Madrean.

Exsicc.: ARIZ [Pultz, Darrow, Phillips 1312].

**Cyperus niger** Ruiz & Pavon var. **capitatus**

(Britt.) O'Neill

*Cyperus diandrun* Torr. var. *capitatus* Britt., *C. niger* var. *capitatus* (Britt.) O'Neill, *C. niger* var. *castaneus* (Pursh) Kükenth., *C. melanostachys* Kunth, *Pyreus niger* (Ruiz & Pavón) Cufod.

[3,500] - [7,000] ft. Oct. Perennial graminoid, semirosette hemicryptophyte. Wet soil.

Chiricahua Mts.: Herb Martyr Dam. Also Huachuca Mts., Navajo, Yavapai, Greenlee, Gila, Cochise, Santa Cruz, and Pima counties. Texas to California, southward to South America. Southwestern, Latin American.

Exsicc.: SWRS [Roth s.n.].

**Cyperus retroflexus** Buckl.

*Cyperus uniflorus* Torr. & Hook. non Thunb., *C. uniflorus* var. *pseudothrysiflorus* Kükenth.

Flat-sedge

5,400 ft. Aug - Aug. Perennial graminoid, semirosette hemicryptophyte. Uncommon.

Chiricahua Mts.: Chiricahua Nat. Mon. at base of Organ Pipe formation. Also Sierra Ancha. Beaver Creek, Yavapai County. Arkansas, Oklahoma, Texas, New Mexico, Arizona, and northern Mexico. Southwestern.

Exsicc.: CHIR [Reeves 1339].

**Cyperus seslerioides** Kunth

6,000 ft. Perennial graminoid, semirosette hemicryptophytes.

Chiricahua Mts. Also Huachuca Mts., Mule Mts. Cochise and Santa Cruz counties. Texas, southern Arizona, Mexico. Latin American.

**Cyperus sphaerolepis** Boeckl.

*Cyperus fendlerianus* Boeckl. var. *debilis* (Britt.) Kükenth., *Cyperus rusbyi* Britt.

Flat-sedge

[4,000] 5,150 - 7,600 ft. Jul - Sep. Perennial graminoid, semirosette hemicryptophyte. Common in gravelly soil, often in soil pockets on outcrops, swales and lower slopes. *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Picket Park, Jesse James Canyon Natural Area; Madrone Canyon; Fort Bowie Nat. Historic Site at old fort site; Apache Pass Road; 2 mi. southwest of Portal at Cochise City; South Fork Cave Creek Canyon; Onion Saddle; Barfoot Park. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Pinaleno Mts., Animas Mts., Patagonia Mts., Santa Rita Mts. Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Mexico. Madrean.

Exsicc.: CHIR [Clark 8385, 8575; Moir 425, 477, 515; Reeves 1565, 1617, 1621, 4561, 960, 4451]. SWRS [Ordway s.n., 170b]. ASU [Cazier 333]. Repos. Unk. [Blumer 1343].

**Cyperus squarrosus** L.

*Cyperus aristatus* Rottb., *C. aristatus* var. *runyonii* O'Neill, *Cyperus inflexus* Muhl.

Flat-sedge

[2,500] 4,950 - 8,100 ft. Jul - Oct. Perennial graminoid, semirosette hemicryptophyte. Common in damp soil in grasslands, rocky openings in chaparral, soil pockets on outcrops, swales and lower slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Picket Park; Fort Bowie Nat. Historic Site in Siphon Canyon; top of Cochise Head. Also Rincon Mts., Sierra Ancha, Pinaleno Mts., Animas Mts. Navajo and Coconino counties, south to Cochise, Santa Cruz, and Pima counties. Throughout most of North America; South America; tropics of the Eastern Hemisphere. Holarctic, Latin American.

Exsicc.: CHIR [Clark 8599, Fish 22, Moir 531, 566, Reeves 1690]. SWRS [Roth s.n.].

**Eleocharis bella** (Piper) Svens.

*Eleocharis acicularis* (L.) Roem. and J.A. Schultes var. *bella* Piper, *E. acicularis* var. *minima* Torr.

5,500 ft. Jul. Summer annual forb, scapose or leafy-stemmed therophyte; leptophyll, orthophyll.

Chiricahua Mts.: Rucker Canyon. Also Pinaleno Mts. Coconino County, Apache County, Cochise County. Montana to Washington, southward to new Mexico and Arizona. Western.

**Eleocharis montevidensis** Kunth

*Eleocharis arenicola* Torr.

Spike-rush

5,400 [7,300] ft. Aug - Sep. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon in wet meadows, springs, along creeks.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station. Also Rincon Mts., Huachuca Mts., Sierra de los Ajos. Cochise County, Pima County, probably also at Coconino County. South Carolina to California and Mexico; South America. Temperate, Latin American.

Exsicc.: CHIR [Clark 8263, Reeves 1397A, 2859, 2880]. SWRS [Ordway 157].

**Eleocharis palustris** (L.) Roem. & J.A.

Schultes

*Eleocharis calva* Torr. var. *australis* (Nees) St. John, *Eleocharis macrostachya* Britt., *E. mamillata* auct. non Lindb. f., *E. palustris* (L.) Roem. & J.A. Schultes var. *australis* Nees, *E. palustris* var. *major* Sonder, *E. smallii* Britt. var. *E. smallii* Britt. var. *major* (Sonder) Seymour, *E. xyridiformis* Fern. & Brack.

[150] - [6,500] ft. Jun. Perennial graminoid, rosette hemicryptophyte. Permanently damp soils in hydroriparian canyons. Chiricahua Mts.: Southwestern Research Station. Also Santa Catalina Mts., Animas Mts. Apache County to Coconino County, south to Graham, Pima, and Yuma counties. Missouri to British Columbia, south to Mexico. Western.

Exsicc.: SWRS [Roth s.n.].

### **Eleocharis rostellata** (Torr.) Torr.

*Eleocharis rostellata* var. *congdonii* Jepson, *E. rostellata* var. *occidentalis* S. Wats., *Scirpus rostellatus* Torr.

Spike-rush

5,400 ft. Jul - Aug. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Local. Outlet of spring, near meadow, wet, saline places.

Chiricahua Mts.: Chiricahua Nat. Mon.; Canelo Hills. Grand Canyon, Coconino County, Cochise County. North and South America; West Indies. Temperate, Latin American.

Exsicc.: CHIR [Reeves 1397, 2858, 3477].

### **Lipocarpha drummondii** (Nees) G. Tucker

*Hemicarpha drummondii* Nees, *H. micrantha* (Vahl) Pax var. *drummondii* (Nees) Friedl., *Scirpus micranthus* Vahl. var. *drummondii* (Nees)

Mohlenbrock

[2,500] - 5,700 ft. Oct - Oct. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon in damp soil in streambeds, in wet sand along streams.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Rincon Mts., Huachuca Mts. Camp Lowell. Santa Cruz and Pima counties. Maine to Washington, southward to South America. Temperate, Latin American.

Exsicc.: CHIR [Moir 427, V8599].

### **Scirpus americanus** Pers.

*Schoenoplectus americanus* (Pers.) Volk. ex Schinz & R. Keller, *Scirpus americanus* var. *monophyllus* (Presl.) T. Koyama, *S. chilensis* Nees & Meyen ex Kunth, *S. conglomeratus* Kunth, *S. monophyllus* Presl., *S. olneyi* Gray, *S. pungens* Vahl ssp. *monophyllus* (Presl.) Taylor and MacBryde [1,000] - 5,400 [6,000] ft. Jun. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll.

Chiricahua Mts.: Southwestern Research Station in reservoir swamp; Canelo Hills. Apache County to Mohave County, south to Cochise and Maricopa counties. Widely distributed in North America; South America. Latin American, Temperate.

Exsicc.: SWRS [Roth s.n.].

### **EBENACEAE—Ebony Family.**

A widely distributed family of generally dioecious trees or shrubs with heartwood often black, red, or green. About 5 genera and about 325 species. The family is of economic value as a source for timber (Macassar ebony) and fruit (persimmon).

### **\*Diospyros kaki L.**

Japanese persimmon

5,200 ft. Broadleaf deciduous tree, microphanerophyte; mesophyll, orthophyll. Orchard cultivar.

Chiricahua Mts.: Chiricahua Nat. Mon. at Stafford Cabin. Cultivar.

Exsicc.: CHIR [Reeves 3411].

### **ERICACEAE—Heath Family.**

A family mainly of shrubs, occasionally suffrutescent perennial

herbs, trees, or rarely trailing or scrambling vines. About 70 genera and 1,900 species, very widely distributed on acid soils throughout temperate regions of both hemispheres and to a lesser extent subarctic, from sea level to very high elevations in the tropics. There are 25 genera in the United States.

### **Arbutus arizonica** (Gray) Sarg.

Madrone

[4,000] 5,000 - 8,200 ft. Apr - Oct. Broadleaf evergreen tree, microphanerophyte; microphyll, sclerophyll. Common in wooded canyons and slopes, often but not always, near canyon bottoms on well-drained gravelly soils. *Quercus arizonica*, *Q. hypoleucoides*, *Pinus leiophylla*, *P. engelmannii*, *Platanus wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon.: Rhyolite Canyon; Jesse James Canyon; West Turkey Creek; Mormon Canyon; South Fork Cave Creek; Price Canyon (especially fine stand); John Long Canyon; on road below Rustler Park; Wilderness Area. Also Huachuca Mts., Rincon Mts., Animas Mts., Pinaleño Mts., Santa Catalina Mts., Santa Rita Mts., San Luis Mts., Mule Mts., Sierra de los Ajos. Mountains of Graham, Cochise, and Pima counties. Southern New Mexico, southeastern Arizona, and northern Mexico in Sonora and Chihuahua, southward to San Luis Potosi and Jalisco. Madrean.

Food for Elegant Trogons and Eared Trogons. Not observed to be fire resistant in the Chiricahua Mts. Sites with highest density of this species show little apparent evidence of fire.

Exsicc.: CHIR [Clark 8084, Dole 2, Reeves 2829, 3264, 3847]. SWRS [Van Buskirk 13; SWRS 1960-277]. CHWA [Leithliter 41, 332, 356].

### **Arctostaphylos pringlei** Parry

*Arctostaphylos drupacea* (Parry) P.V. Wells, *A. pringlei* var. *drupacea* Parry

Manzanita

[4,000] - 7,000 [8,400] ft. [Apr] Jun - [Jun]. Broadleaf evergreen shrub, microphanerophyte; nanophyll, sclerophyll. Common on dry well-drained upland slopes, often on old fire sites. Cypress, juniper, and pinyon.

Chiricahua Mts.: Chiricahua Nat. Mon.; ridge north of Sugarloaf parking lot; Fort Bowie Nat. Historic Site. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleño Mts. Southern Coconino County and Mohave County, Graham, Cochise, and Pima counties. Arizona, southern California, and Baja California. Southwestern.

Food for Montezuma and Gambel quail, skunks, foxes, and coyotes.

Exsicc.: CHIR [Clark 8383, Reeves 1896, 3136].

### **Arctostaphylos pungens** Kunth

*Arctostaphylos chaloneorum* J.B. Roof, *A. pseudopungens* J.B. Roof, *A. pungens* ssp. *chaloneorum* J.B. Roof

Point-leaf manzanita, Mexican manzanita

[3,500] 5,000 - 7,308 [8,000] ft. Feb - Oct. Broadleaf evergreen shrub, nanophanerophyte; nanophyll, sclerophyll. Common throughout, a dominant and co-dominant of upland sites, stream benches in mesic canyons, and old fire scars. *Aloysia wrightii*, *Ceanothus greggii*, *Rhus microcarpa*, *Quercus arizonica*, *Q. emoryi*, *Pinus discolor*, *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon.: Bonita Canyon campground; Pickett Park; upper Sara Demming Canyon; Fort Bowie Nat. Historic Site in lower South Canyon, Apache Pass; Whitetail Canyon; Jhus Canyon; Sunny Flats Campground. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Pinaleño Mts.,

Sierra Ancha, Mule Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Apache County to northern Mohave County, south to Cochise, Santa Cruz, and Pima counties. New Mexico, southern Utah, Arizona, southern California, and Mexico. Southwestern.

Fruits sold in Mexican markets and used for jellies.

Mexicans use leaves and fruits as household remedies for dropsy, bronchitis and venereal diseases. Fruits are eaten by grouse, skunks, coyotes, deer, quail, and bears. Seed germination percentage about 35. Decumbent branches take root (layering).

Exsicc.: CHIR [Clark 8096, 8672, Reeves 2826, 3651, 3679, 3747]. FOBO [MHoy 64]. SWRS [Van Buskirk 10, SWRS 1958-114, 1959-118, Morrow s.n., Gersky 46].

### **Vaccinium myrtillus L. var. myrtillus**

*Vaccinium oreophilum* Rydb.

Blueberry, whortleberry, Rocky Mountain whortleberry

[8,000] - 9,000 [11,000] ft. May - [Jul]. Broadleaf deciduous shrub, woody low chamaephyte. Openings on cool forested slopes, often with grasses and aspen groves.

Chiricahua Mts.: Wilderness Area, 3/4 mi. east of Monte Vista Lookout. Also Pinaleno Mts., Santa Catalina Mts., White Mts., Huachuca Mts. Apache, Graham, Cochise, and Pima counties. Canada to New Mexico and Arizona. Rocky Mountain.

Exsicc.: SWRS [Walker s.n.].

### **EUPHORBIACEAE—Spurge Family.**

A family of monoecious, or occasionally dioecious, herbs, shrubs, or trees, often with milky sap, sometimes fleshy and cactuslike. The sap is often poisonous or allergenic. A large family of 283 genera and 7,300 species of cosmopolitan distribution, mainly in the tropics but extending also into the temperate regions of both hemispheres. The major centers of distribution are tropical America and Africa. In the United States there are about 25 genera represented by about 225 species. The family is of considerable economic importance and is the source of tung oil, castor oil, cassava, and tapioca.

#### **Acalypha indica L.**

5,000 ft. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll.

Chiricahua Mts.: Paradise and Cave Creek. Cochise County. Introduced from Old World tropics. Introduced.

#### **Acalypha lindheimeri Muell.-Arg.**

*Acalypha lindheimeri* var. *major* Pax & K. Hoffm.  
Three seeded mercury

[4,000] 5,150 - 5,600 ft. Jun - Nov. Uncommon in wooded canyons and slopes, arroyos in grassland.

Chiricahua Mts.: Chiricahua Nat. Mon.; 2 mi. southwest of Portal; along Silver Creek. Also Animas Mts., Canelo Hills, Sierra de los Ajos. Mountains of Cochise, Santa Cruz, and Pima counties. Texas to southern Arizona; Sonora, Mexico. Southwestern.

Exsicc.: CHIR [Borell 25, Reeves 1544A, 1776, 4143]. SWRS [Ordway 134, Barr 63-622].

#### **Acalypha neomexicana Muell.-Arg.**

New Mexico copperleaf

[2,500] 4,900 - 5,650 [8,000] ft. Apr - Sep [Oct].

Uncommon in grassy openings in woodland, chaparral and wooded canyons.

Chiricahua Mts.: Chiricahua Nat. Mon. in Picket Park; Fort Bowie Nat. Historic Site in Siphon Canyon. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Pinaleno Mts., Animas Mts. Greenlee County to Yavapai County, south to Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8634, Lehto 3309, Moir 482, 568, Reeves 1225, 1589]. FOBO [M. Hoy 394].

#### **Argythamnia neomexicana Muell.-Arg.**

*Ditaxis neomexicana* (Muell.-Arg.) Heller

[1,000] - 5,600 ft. [Feb] - Sep. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte. Uncommon on gravelly flats, rocky slopes, upper bajadas.

Chiricahua Mts.: Cave Creek 1 mi. above Southwestern Research Station. Also Rincon Mts., Santa Catalina Mts. Coconino County and Mohave County to Greenlee, Cochise, Pima, and Yuma counties. Texas to southern Arizona, Sonora, and Baja California. Southwestern.

Some authorities choose to retain this species in *Ditaxis*.

Exsicc.: SWRS [Luetcke s.n.].

#### **Chamaesyce albomarginata (Torr. & Gray)**

Small

*Euphorbia albomarginata* Torr. & Gray,  
*Anisophyllum albomarginatum* Kl. & Gke.  
Spurge, rattlesnake weed

[1,000] 4,000 - 5,400 [6,000] ft. [Feb] Mar - Aug [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicyclophtophyte. Common in openings on xeric slopes and clay and loam flats.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hillside east of Overlook; Portal. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Throughout Arizona except the extreme northern, northeastern, and southwestern portions. Oklahoma to California and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 8212, Moir 481, Reeves 2771, 3456, 3548, 3736, 4175]. FOBO [MHoy 19]. SWRS [Ordway s.n., SWRS 1960-327].

#### **Chamaesyce capitellata (Engelm.) Millsp.**

*Chamaesyce pycnanthema* (Engelm.) Millsp.,  
*Euphorbia capitellata* Engelm., *E. pycnanthema* Engelm.

[1,000] - [5,000] ft. [Mar] Aug - [Oct]. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte. Common on rocky slopes and well-drained flats, along drainages, often at roadsides.

Chiricahua Mts.: 6 mi. east of Portal. Also Rincon Mts., Santa Catalina Mts. Throughout Arizona except the lower western desert and northeastern portion. Texas to Arizona and northern Mexico. Southwestern.

Exsicc.: SWRS [Cazier s.n.].

#### **Chamaesyce dioica (Kunth) Millsp.**

*Chamaesyce indivisa* (Engelm.) Millsp., *Euphorbia indivisa* (Engelm.) Tides.

[2,500] 5,400 - 7,300 ft. [Jun] Aug - Sep [Oct]. Summer annual forb, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Xeric slopes, waste places. *Quercus emoryi*, *Arctostaphylos pungens*, *Pinus discolor*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon,

Sugarloaf Mtn., residential area; Cave Creek, Stewart Campground. Also Huachuca Mts., Pinaleno Mts., Santa Rita Mts. Greenlee County to Yavapai County south to Cochise, Santa Cruz and Pima counties. Western Texas to Arizona and northern Mexico. Chihuahuan.

Exsicc.: ASU [Bingham 1847; Reeves 1001a; Martin 11; Keil, et al. 9846].

### **Chamaesyce hyssopifolia (L.) Small**

*Euphorbia brasiliensis* Lam., *E. jonesii* Millsp., *E.*

*hyssopifolia* L., *Chamaesyce brasiliensis* (Lam.)

Small

Sand-mat

[1,000] 4,300 - 5,500 [6,000] ft. Aug - Sep [Nov].

Summer-annual forb, scapose or leafy-stemmed therophyte.

Common, frequent on sunny slopes and woodland openings.

*Platanus wrightii*, *Quercus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in South Canyon; Southwestern Research Station. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. San Simon Valley: 3 mi. southwest of Apache. Yavapai, Graham, Gila, Pinal, and Maricopa counties, Santa Cruz, Cochise, and eastern Pima counties. Southern Florida; western Texas to Arizona, south to South America. Latin American.

Exsicc.: CHIR [Lehto 2293, 3310, Moir 498, 524, Reeves 1232, 1533, 1707, 4168, 4481]. FOBO [MHoy 284]. SWRS [Pough 1961-102, Ordway 120].

### **Chamaesyce prostrata (Ait.) Small**

*Euphorbia chamaesyce auct. non L.*, *E. prostrata*

Ait.

Spurge

[1,500] - 5,400 ft. [Jun] Aug - Aug [Oct]. Summer annual forb, spreading therophyte; nanophyll, orthophyll. Uncommon around residences.

Chiricahua Mts.: Chiricahua Nat. Mon. in residential area. Also Huachuca Mts. Pinal, Cochise, Santa Cruz, and Pima counties. South Carolina and Florida to southern Arizona, south into tropical America. Latin American.

Exsicc.: CHIR [Reeves 4049].

### **Chamaesyce revoluta (Engelm.) Small**

*Euphorbia revoluta* Engelm.

Spurge

[3,000] 5,250 - 6,200 ft. Aug - Sep [Oct]. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon in openings in woodlands and along washes, on gravelly soil.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts. Coconino and Mohave counties to Graham, Cochise, Santa Cruz, and Pima counties. Colorado to Arizona and Chihuahua. Southwestern.

Exsicc.: CHIR [Clark 9248, Moir 480, Reeves 1274, 1443]. SWRS [Roth s.n.].

### **Chamaesyce serpyllifolia (Pers.) Small**

*Chamaesyce albicaulis* (Rydb.) Rydb., *C.*

*neomexicana* (Greene) Standl., *Euphorbia*

*neomexicana* Greene, *E. serpyllifolia* Pers., *E.*

*serpyllifolia* var. *hirtula* (Engelm.) Wheeler

Spurge

[3,000] 4,700 - 7,150 ft. [May] Aug - Sep [Oct]. Summer annual forb, spreading therophyte; nanophyll, orthophyll. Common in openings throughout.

Chiricahua Mts.: Chiricahua Nat. Mon.; 2 mi. northeast of Portal. Also Huachuca Mts., Sierra Ancha, Pinaleno Mts., Animas Mts. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Widely distributed in western North America from Canada to Mexico. Western.

Exsicc.: CHIR [Clark 9249, Moir 459, Reeves 1001, 1273, 1436, 4174]. SWRS [s.c. s.n.].

### **Chamaesyce serrula (Engelm.) Woot. &**

Standl.

*Euphorbia serrula* Engelm.

Spurge

[2,500] 4,400 - 5,400 ft. Aug - Sep. Summer annual forb, spreading therophyte; nanophyll, orthophyll. Local in meadows.

Chiricahua Mts.: Chiricahua Nat. Mon. San Simon Valley: 14 mi. southwest of Apache. Mohave County, Greenlee County, Pima County, and at several localities in Cochise County. Western Texas to Arizona and northern Mexico. Chihuahuan.

Exsicc.: CHIR [Reeves 1422]. SWRS [Pough 1961-115].

### **Chamaesyce stictospora (Engelm.) Small**

*Euphorbia stictospora* Engelm.

Narrow-seeded spurge

[3,500] 5,300 - [5,500] 7,100 ft. Aug - Sep [Oct]. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Sunny flats, disturbed soil.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Southwestern Research Station. Also Animas Mts., Canelo Hills. Greenlee, Cochise, Santa Cruz, and Pima counties. South Dakota and Wyoming to Arizona, Durango, and Zacatecas. Rocky Mountain.

Exsicc.: CHIR [Moir 545; Reeves 1001a, 1442, 4479]. SWRS [Roth s.n.].

### **Croton pottsii (Klotzsch) Muell.-Arg.**

*Croton corymbulosus* Engelm.

Leather weed

[2,500] 4,500 - 5,000 [6,000] ft. May - Sep [Oct]. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte; nanophyll, orthophyll. Xeric bajadas, along arroyos, roadsides, and on disturbed ground.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on south side of Overlook. Also Huachuca Mts., Animas Mts., Santa Catalina Mts., Mule Mts., San Bernardino Ranch, Dragoon Mts., Santa Rita Mts., Canelo Hills. Greenlee, Cochise, Santa Cruz, and Pima counties. Texas to southern Arizona and northern Mexico. Chihuahuan.

The leaves are reported to be used in domestic medicine in Texas. Exsicc.: FOBO [MHoy 132]. SWRS [Walker s.n.]. ASU [Marrs-Smith 1157; Daniel 3131; Mittleman & Butterwich 365a].

### **Euphorbia alta Norton**

*Tithymalus altus* Woot. & Standl.

[4,200] - 7,400 [8,400] ft. Jun - Aug [Oct]. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon in shade of ravines, on sandy soil.

Chiricahua Mts.: Onion Creek. Also Rincon Mts., White Mts., Huachuca Mts., Santa Rita Mts., Santa Catalina Mts., Sierra de los Ajos. Apache, Cochise, Santa Cruz, and Pima counties.

New Mexico, Arizona, and Mexico. Madrean.  
Exsicc.: SWRS [Pugsley s.n., SWRS 1960-194].

### **Euphorbia bilobata** Engelm.

*Zygophyllidium bilobatum* Standl.

Spurge

[3,500] 5,100 - 6,300 ft. Jul - Oct. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Local along streambeds.

Chiricahua Mts.: Chiricahua Nat. Mon. in East Whitetail and lower Bonita canyons; junction of Onion Saddle and Paradise roads; Cave Creek Ranch. Also Huachuca Mts., Pinaleno Mts., Animas Mts. Yavapai, Greenlee, Gila, Pinal, Cochise, and Santa Cruz counties. New Mexico, Arizona, and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8715, Reeves 3782, 4370]. SWRS [Walker s.n., Roth s.n.].

### **Euphorbia brachycera** Engelm.

*Tithymalus brachycerus* Small

Spurge

[4,500] 5,200 - 7,000 ft. May - Sep. Perennial deciduous forb. Common on canyon bottoms and rocky slopes. *Platanus wrightii*, *Quercus arizonica*, *Vitis arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Cave Creek at Camp Stewart. Also Huachuca Mts., Rincon Mts., Mule Mts., Animas Mts. Maricopa, Cochise, and Pima counties. Texas to southern Arizona and Chihuahua. Madrean.

Exsicc.: CHIR [Moir 512, Reeves 1435, 1516, 2787, 3089, 3698, Reed 246]. SWRS [Roth s.n.].

### **Euphorbia chamaesula** Boiss.

*Tithymalus chamaesula* (Boiss.) Woot. & Standl.

5,200 - [8,600] ft. Jun - [Aug]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon in sunny spots.

Chiricahua Mts.: below mouth of Pine Canyon. Also Rincon Mts. Apache, Navajo, and Coconino counties to Cochise and Pima counties. New Mexico, Arizona, and Mexico. Madrean.

Exsicc.: SWRS [SWRS 1960-218].

### **Euphorbia dentata** Michx.

*Euphorbia dentata* var. *cuphosperma* (Engelm.)

Fern., *E. dentata* var. *gracillima* Millsp.,

*Poinsettia cuphosperma* Engel., *P. dentata*

(Michx.) Kl. & Gke., *P. dentata* var.

*cuphosperma* (Engelm.) Mohlenbrock

Spurge

[3,000] 5,250 - 6,200 [8,000] ft. Aug - Sep [Oct]. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon in gravelly openings in woodland, streambeds. *Pinus discolor*, *P. leiophylla*, *P. engelmannii*, *Quercus emoryi*, *Q. arizonica*, *Nolina microcarpa*, *Garrya wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station. Also Rincon Mts., Sierra Ancha, Animas Mts. Southern Apache County and Yavapai County, south to Cochise, Santa Cruz, and Pima counties. Eastern United States to Utah, Arizona, and Mexico. Temperate.

Exsicc.: CHIR [Moir 495, Reeves 1294, 1420, 1654]. SWRS [Roth s.n.].

### **Euphorbia exstipulata** Engelm.

*Zygophyllidium exstipulatum* Woot. & Standl.

[3,700] 4,700 - [6,000] ft. Aug - [Sep]. Summer annual forb, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Rocky limestone slopes. *Larrea tridentata*, *Flourensia cernua*.

Chiricahua Mts.: 2 mi. north of Portal. Also Rincon Mts., San Bernardino Ranch, Pinaleno Mts. Coconino, Mohave, Yavapai, Cochise, and Pima counties. New Mexico, Arizona, and northern Mexico. Chihuahuan.

Exsicc.: ASU [Marrs-Smith 968; Lehto 3974].

### **Euphorbia heterophylla** L.

*Euphorbia geniculata* Ortega, *E. heterophylla* L., *E. prunifolia* Jacq., *Poinsettia geniculata* (Ortega) Kl. & Gke., *P. heterophylla* (L.) Kl. & Gke.

Painted spurge

[2,500] - [5,000] ft. Aug - [Oct]. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Common on gravelly slopes, washes and soil pockets in outcrops.

Chiricahua Mts.: 6 mi. east of Portal. Also Huachuca Mts., Rincon Mts., San Simon Valley, Mule Mts., Pinaleno Mts., San Bernardino Ranch, Peloncillo Mts., Skeleton Canyon, Canelo Hills. Cochise, Santa Cruz, and Pima counties. Southeastern United States to southern Arizona, south to tropical America. Latin American.

Exsicc.: SWRS [Roth s.n.]. ASU [Pinkava, et al. 849].

### **Euphorbia incisa** Engelm.

*Euphorbia schizoloba* Engelm., *Tithymalus schizolobus* Nort.

[3,000] 6,640 - 9,790 ft. [Feb] Jun - Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon on sunny dry slopes and flats; disturbed ground. *Pinus arizonica*, *Muhlenbergia emersleyi*.

Chiricahua Mts.: Southwestern Research Station; Wilderness Area. Also Huachuca Mts., San Simon Valley, Santa Catalina Mts., Mt. Lemmon Highway, Sabino Canyon, Sierra Ancha, Pinaleno Mts. Navajo County to Mohave County, south to Cochise and Pima counties. Nevada, Arizona, and California. Southwestern.

Exsicc.: SWRS [Pough 1961-102, Ordway 120]. CHWA [Leithliter 25, 40, 357]. NMC [Carter s.n.; Toumey 251e].

### **Euphorbia spathulata** Lam.

*Euphorbia arkansana* Engelm. & Gray, *E.*

*dictiosperma* Fisch. & Mey., *E. obtusata* Pursh.,

*Galarhoeus arkansanus* (Engelm. & Gray) Small ex Rydb., *G. obtusatus* (Pursh) Small, *Tithymalus*

*arkansus* (Engelm. & Gray) Kl. & Gke., *T.*

*missouriensis* (Nort.) Small, *T. obtusatus* (Pursh) Kl. & Gke., *T. spathulatus* (Lam.) W.A. Weber

[1,500] - [7,500] 8,200 ft. [Mar] Sep - [Aug]. Winter annual forb, scapose or leafy-stemmed therophyte, microphyll, orthophyll. Uncommon on rocky limestone slopes.

Chiricahua Mts.: Rustler Park. Also Rincon Mts., White Mts. Apache County and Yavapai, Gila, Pinal, Cochise, and Pima counties. Widely distributed in the United States and northern Mexico. Temperate.

Exsicc.: SWRS [Ordway 110].

### **Jatropha macrorhiza** Benth.

[3,500] 4,900 - 5,700 [7,500] ft. [May] Jun - Jul [Oct].  
Perennial deciduous forb, scapose or leafy-stemmed  
hemicycophyte. Mesas, plains, roadsides.  
Chiricahua Mts.: lower Half Moon Valley; above Epley's  
Mine; between Paradise and Portal. Also Huachuca Mts., Santa  
Catalina Mts., Mule Mts., Animas Mts., Canelo Hills, Sierra de los  
Ajos. Southern New Mexico, Arizona, and Mexico. Chihuahuan.  
The large thick root is said to be strongly purgative.  
Exsicc.: SWRS [SWRS 1958-98, 1959-496, 1959-746].

### **Tragia nepetifolia** Cav.

#### Nose-burn

[2,500] 5,400 - 7,000 ft. [Mar] Jun - Sep [Nov].  
Suffrutescent shrub, suffrutescent chamaephyte. Uncommon in  
wooded canyons and slopes, dry uplands, upper bajadas. *Quercus*  
*arizonica*, *Q. emoryi*, *Juniperus deppeana*, *Pinus discolor*,  
*Dasylinion wheeleri*, *Nolina microcarpa*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern  
Research Station. Also Huachuca Mts., Rincon Mts., Sierra  
Ancha, Santa Catalina Mts. Apache County to Coconino County,  
south to Cochise, Santa Cruz, Pima, and Yuma counties. Texas to  
Arizona and Mexico. Temperate.

Exsicc.: CHIR [Reeves 3074, 3760, 3804, 4271]. SWRS  
[Roth s.n.].

### **Tragia ramosa** Torr.

*Tragia angustifolia* Nutt., *T. nepetifolia* var.  
*leptophylla* (Torr.) Shinners, *T. nepetifolia* var.  
*ramosa* (Torr.) Muell.-Arg., *T. stylaris* Muell.-Arg.  
Nose-burn

[4,500] 4,900 - 7,000 ft. Apr - Aug. Perennial deciduous  
forb, spreading hemicycophyte; microphyll, orthophyll.  
Common in wooded canyons and slopes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in South  
Canyon; Chiricahua Nat. Mon.; at base of Harris Mtn. Also  
Huachuca Mts., Rincon Mts., Sierra Ancha, Pinaleño Mts., Animas  
Mts. Apache County to Mohave County and northern Gila  
County, also mountains of Cochise County. Colorado and Texas  
to California and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 8221, Reeves 1579, 2976, 4007].  
FOBO [MHoy 294]. SWRS [Walker s.n.].

### **FABACEAE (LEGUMINOSAE)—Pea Family.**

A family of herbs, shrubs, or trees. About 550 genera spread  
around the world in tropical and temperate areas. Economically  
important for food, fodder, dyes, gums, resins, oils, and  
ornamentals.

### **Acacia angustissima** (Mill.) Kuntze var. *suffrutescens* (Rose) Isely

*Acacia angustissima* var. *cuspidata* (Schlect.) L.  
Benson pro parte, *A. cuspidata* Schlecht. pro parte  
White-ball acacia

[3,000] 5,000 - 5,750 [6,500] ft. May - Sep. Pinnate  
leguminous shrub, suffrutescent chamaephyte; nanophyll,  
orthophyll. Common in grassland/scrub, open woodland and  
chaparral but often in the shade of trees, well-drained soil.  
*Bouteloua gracilis*, *B. curtipendula*, *Juniperus deppeana*, *Pinus*  
*discolor*, *Cercocarpus montanus*, *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. southwest of Jessie

James Canyon; Fort Bowie Nat. Historic Site along Apache Pass  
Road; Cave Creek Canyon at Crystal Cave; Portal to Paradise road.  
Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Animas  
Mts., Mule Mts., Pinaleño Mts., Canelo Hills, Sierra de los Ajos.  
Greenlee County to eastern Yavapai County, south to Cochise,  
Santa Cruz, and Pima counties. Missouri to Texas and Arizona,  
southward to Guatemala; southern Florida. Temperate, Latin  
American.

Exsicc.: CHIR [Clark 8532, 8287, Moir 478, 538, Reeves  
1277A, 1561, 3372, 3559]. FOBO [MHoy 462].

### **Acacia constricta** Benth.

#### White thorn, muscat acacia

[2,500] 3,800 - 5,100 ft. [Apr] Jun - [Oct]. Pinnate  
leguminous shrub, nanophanerophyte. Common on shallow  
caliche soil on dry hillsides and mesas, dry uplands.

Chiricahua Mts.: Paradise to Portal road; Fort Bowie Nat.  
Historic Site; San Simon Cienega. Also Huachuca Mts., Rincon  
Mts., Mule Mts., Dos Cabezas Mts., Pinaleño Mts., Sierra Ancha,  
Santa Catalina Mts. Greenlee, Gila, and Yavapai counties to  
Cochise, Pima and Yuma counties. Texas to Arizona and Mexico.  
Southwestern.

Foliage not very palatable to livestock though pods are eaten.  
Exsicc.: SWRS [SWRS 1958-86].

### **Acacia greggii** Gray.

#### Cat-claw, devils-claw

[1,000] - 3,900 [4,500] ft. [Apr] May - Jul [Oct]. Pinnate  
leguminous shrub, nanophanerophyte; microphyll, orthophyll.  
Common on gravelly soils along streams and washes, rocky flats.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Gas Line  
Road (near Fort Bowie); 1 mi. northeast Portal. Also Huachuca  
Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleño  
Mts., Animas Mts. Coconino County, and Mohave County to  
Greenlee, Cochise, Pima, and Yuma counties. Texas to southern  
Nevada, Arizona, southeastern California and northern Mexico.  
Southwestern.

Browsed by cattle in early spring. Indians made meal of the  
pods for mush and cakes. Good nectar source for bees. The wood  
is hard and strong.

Exsicc.: SWRS [SWRS 1958-279, Ordway 86].

### **Acacia neovernicosa** Isely

*Acacia vernicosa* Standl., *A. constricta* Benth. var.

*vernicosa* (Standl.) L. Benson

Viscid acacia

[2,000] 3,880 - [5,000] ft. May - Sep. Pinnate leguminous  
shrub, nanophanerophyte. Common on gravelly slopes and  
bajadas; tolerates limestone well. *Larrea tridentata*.

Chiricahua Mts.: San Simon Cienega and bajada along  
eastern flank of the mountains. Also Mule Mts. Cochise and  
eastern Pima counties. Western Texas to southeastern Arizona and  
northern Mexico. Madrean.

### **Amorpha fruticosa** L. var. **occidentalis**

(Abrams) Kearney & Peebles

*Amorpha angustifolia* (Pursh) Boynt., *A. bushii*

Rydb., *A. croceolanata* P.W. Wats., *A. curtissii*

Rydb., *A. dewinkeleri* Small, *A. fruticosa* var.

*angustifolia* Pursh, *A. fruticosa* var. *croceolanata* (P.

Wats.) C.K. Schneid., *A. fruticosa* var. *emarginata*

Pursh, *A. fruticosa* var. *oblongifolia* Palmer, *A.*

*fruticosa* var. *occidentalis* (Abrams) Kearney & Peebles, *A. fruticosa tennesseensis* (Schuttlw. ex Kunze) Palmer, *A. occidentalis* Abrams, *A. occidentalis* var. *arizonica* (Rydb.) Palmer, *A. occidentalis* var. *emarginata* (Pursh) Palmer, *A. tennesseensis* Shuttlw. ex Kunze, *A. virgata* Small False-indigo, indigo-bush

[2,500] 4,800 - 6,900 ft. May - Jul. Pinnate leguminous shrub, nanophanerophyte. Common near springs, along water courses, in mesic bottoms often on steep slopes but also in drier spots, sun and shade.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon, Hunt Canyon, Silver Spur Meadow; near Portal; Fort Bowie Nat. Historic Site in upper South Canyon; West Turkey Creek; Rucker Canyon; Tex Canyon; Price Canyon; Wilderness Area, along Basin Trail. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Apache County to Coconino, south to Cochise, Santa Cruz, and Pima counties. Ohio to Manitoba, south to Florida, Arizona, California and northern Mexico. Temperate.

May be poisonous to livestock. Often grows in clumps, rarely attacked by insects or disease.

Exsicc.: CHIR [Clark 8109, Reeves 1427, 2949, 3291]. FOBO [MHoy 177]. SWRS [Franclemont s.n.]. CHWA [Leithliter 460].

### ***Astragalus allochrous* Gray**

*Phaca allochroa* Rydb.

Halfmoon loco

[1,500] 4,800 - 5,000 [7,000] ft. [Mar] - May. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common on dry slopes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at Parade ground, around ruins; near Portal. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts. Coconino and Mohave counties to Graham, Cochise, Santa Cruz and Pima counties. Southeastern New Mexico to southeastern California, Mexico. Southwestern.

Causes loco disease in horses.

Exsicc.: FOBO [MHoy 166]. SWRS [Roth s.n.].

### ***Astragalus arizonicus* Gray**

*Hamosa arizonica* Rydb.

Loco weed

[3,300] - [4,500] 5,000 ft. [Mar] - May. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common on plains and mesas, beaten ground. *Fouquieria splendens*, *Parthenium incanum*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill north of Siphon Canyon. Also Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Huachuca Mts. Coconino and Mohave counties to Graham, Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and Sonora. Southwestern.

May cause loco disease.

Exsicc.: FOBO [MHoy 388].

### ***Astragalus calycosus* Torr. ex S. Wats.**

*Hamosa calycosa* Rydb.

Gray locoweed

[3,000] - 5,100 [8,000] ft. Apr - [May]. Perennial deciduous forb, semirosette hemicryptophyte, microphyll, orthophyll. Common. Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill east of trailer. Apache County to eastern Mohave and northern

Yavapai counties. Wyoming and Idaho to New Mexico, northern Arizona, and eastern California. Western.

This collection apparently represents a range extension to the south.

Exsicc.: FOBO [MHoy 117].

### ***Astragalus cobrensis* Gray var. *maguirei***

Kearn.

*Atelophragma cobrense* Rydb.

Milk-vetch

5,400 - 6,200 ft. Mar - May. Perennial deciduous forb, spreading hemicryptophyte; microphyll, orthophyll. Common in wooded canyons.

Chiricahua Mts.: Chiricahua Nat. Mon.: Bonita, East Whitetail Canyon, Pinery Canyon; Rock Canyon. Also Pinaleno Mts., Animas Mts., Peloncillo Mts. Greenlee County, Pinal County, Cochise County. Southwestern New Mexico and southeastern Arizona. Apachian.

Exsicc.: CHIR [Fish 35, Maguire, et al. 11079, Holotype, Whitetail Canyon, Reeves 2371A, 2435, 2464, 3289, 3448, 4355].

### ***Astragalus nothoxys* Gray**

*Hamosa nothoxys* Rydb., *H. goddingii* Rydb.

Loco-weed, sheep loco

[1,500] 5,150 - 5,400 [6,000] ft. Mar - Jun [Jul].

Winter-annual forb, semirosette therophyte. Common in grassland and grassland/scrub on gravelly soil, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill east of trailer; Portal. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Graham, Gila, Maricopa, Pinal, Cochise, Santa Cruz, and Pima counties. Southwestern New Mexico, southern Arizona, northern Mexico. Madrean.

Although readily eaten by deer, this species is toxic to cattle and sheep.

Exsicc.: CHIR [Fish 36, Reeves 2560, 2585, 2915, 3066]. FOBO [MHoy 77]. SWRS [Roth s.n.].

### ***Astragalus nuttallianus* DC. var. *austrinus***

(Small) Barneby

*Astragalus austrinus* (Small) E.D. Schulz

Milk-vetch

[100] 5,000 - 5,400 ft. [Feb] Mar - May. Winter-annual forb, semirosette therophyte. Common on sunny dry plains, mesas, and slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site near vistor parking lot; Portal. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts. Throughout Arizona. Arkansas and Texas to California and northern Mexico. Southwestern, Plains.

Exsicc.: CHIR [Reeves 2389, 2611, 2768]. FOBO [MHoy 93]. SWRS [Mouat s.n.].

### ***Astragalus tephrodes* Gray**

Loco weed

[3,500] - 5,000 [8,000] ft. [Apr] Mar - [Jul]. Perennial deciduous forb, spreading hemicryptophyte; mesophyll, orthophyll. Uncommon on dry uplands.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill south of the ruins. Also Sierra Ancha. Apache County to Mohave County, south to Graham, Gila and eastern Maricopa counties. Western Texas to southern Nevada, Arizona and northern Mexico.

Madrean.

Exsicc.: FOBO [MHoy 333].

### **Astragalus thurberi** Gray

*Phaca thurberi* Kearn.

Loco-weed

[3,000] 5,000 - 5,400 ft. [Mar] Apr - [May]. Uncommon in grassland, woodland scrub savannah on dry rocky slopes and mesas. Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site: Apache Pass Road. Also Huachuca Mts., Animas Mts. Graham, Cochise, Santa Cruz, and Pima counties. Western New Mexico, southern Arizona, and Sonora. Madrean. Definitely known to cause loco disease.

Exsicc.: CHIR [Reeves 2535, 2571, 2584]. FOBO [MHoy 371]. SWRS [Roth s.n.].

### **Astragalus wootoni** Sheld.

*Astragalus allochrous* Gray var. *playanus* Isely, *A. wootoni* var. *typicus* Barneby, *Phaca wootoni* Rydb. Loco-weed

[1,000] - 5,100 [7,000] ft. [Mar] Apr - Jun, Jun (fruits). Common in grassland west of monument, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill east of trailer. Also Sierra Ancha. Coconino and Mohave counties to Graham, Cochise, Santa Cruz and Pima counties. Western Texas to southeastern California, and northern Mexico. Southwestern.

Definitely produces loco disease in cattle, horses, and sheep.

Exsicc.: CHIR [Reeves 2939]. FOBO [MHoy 122]. SWRS [Roth s.n.].

### **Caesalpinia drepanocarpa** (Gray) Fisher

*Hoffmannseggia drepanocarpa* Gray

Sicklepod bush pea

[3,000] 5,000 - 5,100 ft. Feb [May] - May [Sep]. Perennial deciduous forb, spreading hemicycophyte; nanophyll, orthophyll.

Chiricahua Mts.: Fort Bowie Nat. Historic Site north of Overlook. Coconino, Mohave, Yavapai, Gila and Cochise counties. Colorado and western Texas to Arizona and Chiricahua. Chihuahuan

This taxon is not listed in Kartesz (1994)

Exsicc.: FOBO [Mhoy 108]. SWRS [Mhoy s.n.]

### **Caesalpinia gilliesii** (Wall. ex Hook.) A. Dietr.

*Poinciana gilliesii* Wall. ex Hook.

Bird-of-paradise-flower

4,700 ft. [Apr] Jun (flowers and fruits) - [Sep]. Pinnate leguminous shrub, microphanerophyte; mesophyll, orthophyll. Common, not generally in pure stands. Valley fill, disturbed ground.

Chiricahua Mts.: San Simon Valley, 1 mi. south of Portal. Also Huachuca Mts., Pinaleno Mts., Santa Rita Mts. Mohave, Gila, Maricopa, Cochise, and Pima counties. Introduced from South America, alien. Southwestern, Latin American, Introduced.

Ornamental. Plant ill-smelling.

Exsicc.: SWRS [SWRS 1958-90].

### **Calliandra eriophylla** Benth.

Fairy duster, false mesquite

[500] - 5,000 ft. Feb - Aug. Pinnate leguminous shrub, woody low chamaephyte. Common on dry rocky grassland slopes,

upper bajadas.

Chiricahua Mts.: Portal to Paradise road; Fort Bowie Nat. Historic Site on hills south of ruins; Paradise. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Tripp Canyon, Sierra Ancha, Santa Catalina Mts., Mule Mts., Sierra de los Ajos. Greenlee County to southern Mohave County, south to Cochise, Santa Cruz, Pima, and Yuma counties. Western Texas to southeastern California and Mexico. Southwestern.

Exsicc.: FOBO [MHoy 111]. SWRS [Bottimer s.n.]

### **Calliandra humilis** Benth. var. **humilis**

*Calliandra herbacea* Engelm. ex Gray

False mesquite

[4,000] 5,200 - 8,200 [9,000] ft. Jun - Aug (flowers and fruits). Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte. Uncommon in grassland and open woods, well-drained soil.

Chiricahua Mts.: Chiricahua Nat. Mon.; Picket Park; Fort Bowie Nat. Historic Site at NCO Quarters and trail; Barfoot Park. Also Rincon Mts., Mule Mts., Pinaleno Mts., Animas Mts., Canelo Hills. Navajo and Coconino counties to Greenlee, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Madrean.

This taxon intergrades with *Calliandra humilis* var. *reticulata* but most specimens are readily distinguishable.

Exsicc.: CHIR [Reeves 1277A, 3193, 3784]. FOBO [MHoy 261]. SWRS [s.c. s.n. (det. C. Mason)].

### **Calliandra humilis** Benth. var. **reticulata**

(Gray) L. Benson

*Calliandra reticulata* Gray

False mesquite

[4,500] 5,000 - 7,000 [8,400] ft. [May] Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte. Common on dry grassy woodland openings, wooded canyons and open wooded slopes, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site along road at Apache Pass. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Canelo Hills. Southern Navajo and Coconino counties to Greenlee, Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona and Mexico. Madrean.

This taxon intergrades with *C. humilis* but is usually distinguishable.

Exsicc.: CHIR [Clark 9225, Lehto 3319, Moir 430, Reeves 1231, 1456, 1600, 3624]. FOBO [MHoy 523].

### **Calliandra schottii** Torr. ex S. Wats.

[3,000] - [5,000] ft. [Aug]. Pinnate leguminous shrub, nanophanerophyte. Encinal downward to xeric desert grassland, especially on rocky slopes.

Chiricahua Mts., Santa Catalina Mts., Baboquivari Mts. Cochise and Pima counties. Southern Arizona and northern Mexico. Apachian.

### **Chamaecrista nictitans** (L.) Moench ssp.

**nictitans** var. **leptadenia** (Greenm.) Gandhi & Hatch

*Cassia leptadenia* Greenm., *C. nictitans* L. var. *mensalis* (Greenm.) Irwin & Barneby

Senna

[3,500] 3,900 - 5,400 ft. Aug - Sep [Oct] (flowers and fruits). Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon in mouth of canyons and open

oak woods, sunny fields, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station; Straight Line Road at Willow Tank. San Simon Valley: Rodeo. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Pinaleno Mts. Greenlee, Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Mexico. Madrean.

Exsicc.: CHIR [Clark 8631, Moir 529]. SWRS [Borrimer s.n., Wittman 154].

### **Clitoria mariana L.**

*Martinusia mariana* (L.) Small

Butterfly-pea

[4,000] - 5,400 [6,000] ft. Jul - Aug. Perennial deciduous forb, twining hemicryptophyte; mesophyll, orthophyll. Locally common in the shade of trees, rich soil among live oaks and junipers.

Chiricahua Mts.: Chiricahua Nat. Mon. in south end of campground, headquarters area, Rhyolite Canyon; South Fork Cave Creek. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Baboquivari Mts., Canelo Hills. Gila, Cochise, Santa Cruz, and Pima counties. New Jersey to Florida and Texas; southern Arizona. Temperate.

Exsicc.: CHIR [Clark 8648, Moir 450, Reeves 3740, 4043]. SWRS [Pough 1961-35].

### **Cologania angustifolia Kunth**

*Cologania longifolia* Gray

[4,000] 5,400 - 9,510 ft. Jul - Sep. Perennial deciduous forb, spreading hemicryptophyte. Common in rocky openings in woods, mesic canyon slopes, conifer litter on rich soil.

Chiricahua Mts.: Chiricahua Nat. Mon.: upper Jesse James Canyon; mountains west of Rustler Park; South Fork Cave Creek; Barfoot Trail; Wilderness Area. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Canelo Hills, Sierra de los Ajos. Apache County to Coconino County, south to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Madrean.

Both trailing and upright forms occur in the Rincon Mts.

Exsicc.: CHIR [Clark 8365, 8592, Lehto 3326, Reeves 3994, 4163, 4278]. SWRS [Pough 1962-64, 1961-26, Ordway 136]. CHWA [Leithliter 123, 171, 420, 428]. Repos. Unk. [Blumer 1349].

### **Cologania lemmoni Gray**

[6,000] - 7,000 [7,600] ft. Jul - Aug. Perennial deciduous forb, spreading hemicryptophyte; mesophyll, orthophyll. Uncommon on well-drained soil on flats and slopes and openings in pine forests.

Chiricahua Mts.: Chiricahua Nat. Mon. in upper Hunt and Jesse James canyons. Also Rincon Mts., Huachuca Mts., Santa Catalina Mts., Sierra de los Ajos. Cochise and Pima counties. Southern Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8452, Reeves 4283].

### **Coursetia caribaea (Jacq.) Lavin var. sericea (Gray) Lavin**

*Cracca edwardsii* var. *sericea* Gray, *C. sericea* (Gray) Gray, *Galega caribaea* Jacq., *Tephrosia caribaea* (Jacq.) DC.

[4,000] - 5,400 [6,000] ft. Jul - Aug [Sep]. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte. Uncommon in stony ground, in shade, on rocky slopes, often with

madrean oaks. *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. at mouth of Rhyolite Canyon; Southwestern Research Station near swimming pool. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Santa Rita Mts., Galiuro Mts., Sierra de los Ajos. Cochise, Santa Cruz, and Pima counties. Southern Arizona and northern Mexico. Apachian.

Exsicc.: CHIR [Clark 8723]. SWRS [Morse s.n.].

### **Crotalaria pumila Ortega**

*Crotalaria lupulina* Kunth

Rattlebox

[4,000] 5,250 - 6,000 ft. Aug - Sep. Summer-annual forb, scapose or leafy-stemmed therophyte. Common on alluvium in wooded canyons and openings in woodland. *Juniperus deppeana*, *Pinus discolor*, *Garrya wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts. Greenlee, Graham, Cochise, Santa Cruz, and Pima counties. Florida; Texas to southern Arizona and Mexico. Latin American.

Exsicc.: CHIR [Borell 30, Clark 8671, Moir 497, 530, Reeves 1229, 1357, 1441, 1586, 4367]. SWRS [Roth s.n.].

### **Crotalaria sagittalis L.**

*Crotalaria sagittalis* var. *blumeriana* Senn, *C. sagittalis* var. *fruticosa* (P. Mill.) Fawcett & Rendle, *C. sagittalis* var. *oblonga* Michx.

Rattlebox

[3,300] - 5,500 [7,000] ft. Aug - Aug [Oct]. Summer annual forb, spreading hemicryptophyte; microphyll, orthophyll. Uncommon in gravelly openings in open oak-pine woods. Sandy soil, usually along drainages.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts., Rincon Mts., Mule Mts. Cochise, Santa Cruz, and Pima counties. New England to South Dakota and Texas, southern Arizona, and south to Panama. Latin American.

Exsicc.: CHIR [Reeves 1241]. SWRS [Luettke s.n.]. ARIZ [Blumer 1772 co-type].

### **Dalea albiflora Gray**

*Dalea ordiae* Gray, *Thornbera albiflora* Rydb., *T. villosa* Rydb., *Petalostemon pilosulus* Rydb.

Indigo-bush, pea-bush

[3,500] 5,000 - 7,200 [7,500] ft. [Apr] Jul - Dec. Suffrutescent shrub, scapose or leafy-stemmed proto-chamaephyte. Common in sunny openings, drainages, and cool moist slopes. *Quercus emoryi*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site: hill east of first fort; 5.5 mi. west of Southwestern Research Station; 1 mi. north of Rustler Park. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Baboquivari Mts., Animas Mts. Southern Coconino County and Mohave County, to Greenlee (?), Graham, Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and northern Mexico. Madrean.

This plant, described as new to science was collected by J.C. Lemmon and wife in 1881 (s.n.) in Cochise County.

Exsicc.: CHIR [Borell 15, Fish 26, Lehto 3323, Moir 458, 462, Reeves 1454, 1732, 4343, 4505]. FOBO [MHoy 53]. SWRS [Day s.n., det. C. Mason].

### **Dalea candida (Michx.) Willd.**

*Petalostemum candidum* (Willd.) Michx.

**White prairie-clover**

[3,000] - 5,350 [7,000] ft. [May] Jul - Aug [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon in grassland/scrub, mesas and openings in pine forests.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Mule Mts., Animas Mts., Canelo Hills. Apache County to Coconino County, south to Cochise, Santa Cruz, and Pima counties. Indiana to Saskatchewan and Montana, south to Mississippi, Texas, Arizona, and northern New Mexico. Temperate.

Exsicc.: CHIR [Reeves 3542]. SWRS [Roth s.n.].

Exsicc.: CHIR [Reeves 1610]. ASU [Daniel 3074].

**Dalea leporina** (Ait.) Bullock

*Dalea alopecuroides* Willd., *D. lagopus* (Cav.) Willd., *Parosela alopecuroides* (Willd.) Rydb.

[5,500] - 8,000 ft. [Jun] Aug - Oct. Summer annual, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Partial shade in dry meadows. *Pinus arizonica*, *Quercus gambelii*, *Muhlenbergia filiformis*, *M. paucifolia*, *Elymus trachycaulis*, *Apocynum androsaemifolium*, *Achillea lanulosa*, *Gnaphalium viscosum*, *Geranium richardsonii*, *Lupinus neomexicanus*, *Rumex acetosella*, and *Pseudocymopterus montanus*.

Chiricahua Mts.: 2 mi. east of Onion Saddle., Barfoot Park near the San Francisco Peaks. Also Big Lue Range, Huachuca Mts., Santa Rita Mts., Animas Mts. Coconino, Yavapai, Greenlee, Gila, Cochise, and Santa Cruz counties. New Mexico and Arizona to Guatemala. Latin American, Madrean.

Exsicc.: SWRS [s.c. s.n. Det. C. Mason]. ASU [Cazier 806].

**Dalea exigua** Barneby

*Petalostemon exilis* Gray

[5,000] - 9,300 ft. Sep. Scapose or leafy-stemmed therophyte, summer annual forb; nanophyll, orthophyll. Uncommon mostly among pines. *Senecio macdougalii*, *Conyza schiedeana*, *Arenaria confusa*, *Carex vallicola rusbyi*.

Chiricahua Mts.: Centella Point; Onion Saddle. Also Huachuca Mts., Rincon Mts., Patagonia Mts., Mule Mts. Greenlee, Cochise, Santa Cruz, Pima counties. Southern New Mexico and Arizona, and northern Mexico. Chihuahuan.

Exsicc.: ARIZ [Fishbein 490].

**Dalea nana** Torr. ex Gray var. **carnescens**

(Rydb.) Kearney & Peebles

*Dalea nana* var. *elatior* Gray ex B.L. Turner

Indigo-bush, pea-bush

[3,500] 5,100 - 5,400 ft. Feb - Aug [Sep]. Perennial deciduous forb, spreading hemicryptophyte; nanophyll, orthophyll. Uncommon in grassland and grassland/scrub.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; Southwestern Research Station. Also Huachuca Mts. Southern Navajo, Yavapai, Cochise, Santa Cruz, and Pima counties. Kansas to Texas, Arizona, and Mexico. Southwestern.

Exsicc.: CHIR [Reeves 2764, 4095]. FOBO [MHoy 107]. SWRS [Roth s.n.].

**Dalea filiformis** Gray

Indigo-bush, pea-bush

[3,500] 5,400 - 6,300 [8,000] ft. Aug - Sep. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Common in openings in woodland, chaparral and grassland/scrub, rock outcrops, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; East Turkey Creek. Also Huachuca Mts., Rincon Mts., Sierra Ancha, White Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Apache or Navajo County, Hualpai Mtn. (Mohave County), Yavapai, Greenlee, Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8673, Moir 453, 560, Reeves 1268, 1500A]. SWRS [Walker s.n.].

**Dalea pogonathera** Gray

Indigo-bush, pea-bush

[2,500] 4,900 - 5,250 [6,000] ft. [Mar] May - Aug [Sep]. Perennial deciduous forb. Uncommon in grassland/scrub, and hills.

Chiricahua Mts.: Chiricahua Nat. Mon. Fort Bowie Nat. Historic Site: trail; Tex Canyon. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Mule Mts., Animas Mts. Greenlee, Graham, Pinal, Cochise, Santa Cruz, and Pima counties. Texas to southern Arizona and Mexico. Chihuahuan.

Exsicc.: CHIR [Reeves 4094]. Rincon [Jenkins 2178]. FOBO [MHoy 211]. SWRS [s.c. s.n.].

**Dalea formosa** Torr.

[2,000] - 5,100 [6,500] ft. Feb - Sep. Pinnate leguminous shrub, nanophanerophyte. Uncommon on rocky slopes, dry calcareous soil, hills and mountains.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on north side of Overlook; between Portal and Paradise. Also Rincon Mts., Santa Catalina Mts., Mule Mts., Canelo Hills. Navajo, southern Coconino, and Yavapai counties to Graham, Cochise, Santa Cruz, and Pima counties. Colorado, southern Utah, western Texas, New Mexico, Arizona, and northern Mexico. Rocky Mountain, Chihuahuan.

Exsicc.: FOBO [MHoy 110]. SWRS [Cummins 216-61].

**Dalea grayi** (Vail) L. Williams

Indigo-bush, pea-bush

[3,500] - 5,650 ft. [May] - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon on oak encinal and grassy hills. *Mimosa*, *Pine*, *Ericameria*, *Arctostaphylos*, *Cercocarpus*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Jesse James Natural Area. Also Huachuca Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Dragoon Mts. Graham, Gila, Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, Sonora, and Durango. Madrean.

**Dalea polygonoides** Gray

*Dalea polygonoides* var. *anomala* (M.E. Jones) Morton

[5,500] - 8,400 [9,000] ft. [Aug] - Oct. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon on rock outcrops, fissures, pine forest and grassland.

Chiricahua Mts.: Rustler Park. Rincon Mts., Animas Mts. Apache and Coconino counties, south to Cochise and Pima counties. New Mexico, Arizona, and Chihuahua. Southwestern.

Exsicc.: SWRS [det. C. Mason].

**Dalea versicolor** Zucc. ssp. **versicolor** var.

**sessilis** (Gray) Barneby

*Dalea wislizeni* Gray ssp. *sessilis* (Gray) H.C. Gentry, *D. wislizeni* var. *sanctae-crucis* (Rydb.) Kearney & Peebles

**Indigo-bush, pea-bush**

[4,500] 5,400 - 6,000 [6,300] ft. Apr - Aug [Oct].

Suffrutescent shrub, suffrutescent chamaephyte. Uncommon on open, wooded slopes, rocky hills.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Mule Mts., Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Greenlee, Pinal, Cochise, Santa Cruz, and Pima counties. New Mexico, southeastern Arizona, and Mexico. Madrean.

Exsicc.: CHIR [Fish 49, Reeves 3091, 3110]. SWRS [s.c. s.n.].

**Dalea wrightii Gray**

[3,300] - 5,200 ft. [May] - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon on gravelly flats and rocky slopes, grassland.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill northeast of Overlook. Also Rincon Mts., Santa Catalina Mts., Mule Mts. Navajo, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Mexico. Chihuahuan.

Exsicc.: FOBO [MHoy 45].

**Desmanthus cooleyi (Eat.) Trel.**

James' bundleflower

[3,500] 5,000 - 6,000 [7,500] ft. [Apr] Jul - Aug [Sep].

Perennial deciduous forb, spreading hemicryptophyte; microphyll, orthophyll. Common in grassland and open woods, dry uplands, dry slopes, mesas, and plains.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site along Apache Pass Road; Portal to Paradise road; Tex Canyon. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Animas Mts., Canelo Hills, Sierra de los Ajos. Apache, Navajo, and Coconino counties, south to Cochise, Santa Cruz, and Pima counties. Nebraska to Arizona and northern Mexico. Plains, Chihuahuan.

Exsicc.: CHIR [Clark 8408, Reeves 3517, 4297, 4412]. FOBO [MHoy 260]. SWRS [SWRS 1959-782].

**Desmanthus virgatus (L.) Willd. var.**

**depressus** (Humb. & Bonpl.) ex Willd.) B.L. Turner

[4,000] - 4,500 ft. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Dry scrub slopes, part sun.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Cochise County. Coastal Texas to Florida. Widely distributed in tropical and subtropical America. Latin American.

Exsicc.: FOBO [MHoy, s.n.].

**Desmodium arizonicum S. Wats.**

*Meibomia arizonicum* (S. Wats.) Vail

Tick-clover

[4,000] 5,300 - 6,900 [8,400] ft. [Jul] - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon on dry well-drained sites, and on old burns, dry pine woods.

Chiricahua Mts.: South Fork Cave Creek; Barfoot Park. Also Sierra Ancha, Rincon Mts., Huachuca Mts., Santa Catalina Mts. Gila, Cochise, Santa Cruz, and Pima counties. Southern New Mexico and Arizona and northern Mexico. Madrean.

Exsicc.: SWRS [Ordway 947]. CHWA [Leithliter 656]. ARIZ [Blumer 109, 1346].

**Desmodium batocaulon Gray**

*Meibomia batocaulis* (Gray) Kuntze

Tick-clover

[3,200] 5,300 - 6,000 [6,500] ft. [Jun] Aug - Sep. Perennial deciduous forb, spreading proto-chamaephyte. Common in deep mesic shaded canyons, streambeds, wooded slopes, often in pine woods. *Quercus arizonica*, *Salix gooddingii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station; Cave Creek. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Greenlee, Graham, Cochise, Santa Cruz, and Pima counties. Southern New Mexico and Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8339, Fish 14, Moir 429, Reeves 3711, 4344, 4546]. SWRS [Ordway s.n.].

**Desmodium cinerascens Gray**

*Meibomia canbyi* Schindler, *M. cinerascens* (Gray)

Kuntze

Tick-clover

[4,000] 5,400 - 5,500 [6,000] ft. Aug - Sep. Perennial deciduous forb. Uncommon in oak woods, dry, sunny slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Bonita Canyon; John Hands Campground. Also Huachuca Mts., Rincon Mts., Mule Mts. Cochise, Santa Cruz, and Pima counties. Southern Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [Lehto 3307, Reeves 1440A]. SWRS [Walker s.n.].

**Desmodium grahamii Gray**

*Meibomia grahamii* (Gray) Kuntze

Tick-clover

[4,500] 5,300 - 6,000 [8,000] ft. Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Common in wooded canyons, shade, dry uplands, in pine woods.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station. Also Rincon Mts., Sierra Ancha, Animas Mts., Sierra de los Ajos. Navajo, Coconino, and Greenlee counties to Cochise and Pima counties. Texas to Arizona and Mexico. Southwestern.

Exsicc.: CHIR [Fish 15, Lehto 3317, Reeves 1253, 1355, 3450, 4403]. SWRS [Ordway s.n.].

**Desmodium gramineum Gray**

*Desmodium angustifolium* (Kunth) DC. var.

*gramineum* (Gray) Schub., *Meibomia graminea* (Gray) Kuntze

[3,500] - [5,000] 8,200 ft. [Aug] - [Sep]. Suffrutescent shrub, scapose or leafy-stemmed protochamaephyte; leptophyll, orthophyll. Uncommon in crevices in outcrops, dry, rocky slopes with live-oaks and grasses.

Chiricahua Mts.: Barfoot Park. Also Rincon Mts., Patagonia Mts., and Bear Valley or Sycamore Canyon, Santa Catalina Mts., Baboquivari Mts., Mule Mts. Southwestern Cochise County, Santa Cruz and Pima counties. Southern Arizona to northern South America. Latin American.

Reportedly collected by Blumer in Barfoot Park (Russell 1982).

**Desmodium neomexicanum Gray**

*Meibomia neomexicanum* (Gray) Kuntze

### Tick-clover

[3,500] - 5,250 [6,000] ft. [Aug] Sep - Sep. Summer annual forb, spreading therophyte; microphyll, orthophyll. Uncommon along streambeds, soil pockets in rock, grassy slopes and mesas.

Chiricahua Mts.: Chiricahua Nat. Mon.: Lower Pickett Canyon. Also Pinaleño Mts., Rincon Mts., Animas Mts. Yavapai, Gila, and Greenlee counties, to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Mexico; South America. Latin American.

Type collected in the Chiricahua Mts. by J.C. Blumer.  
Exsicc.: CHIR [Moir 475]. ARIZ [Blumer 1675 (type)].

### **Desmodium procumbens** (P. Mill.) Hitchc. var. **exiguum** (Gray) Schub.

#### *Desmodium exiguum* Gray

[3,500] 5,000 - 5,400 [6,500] ft. [Aug] Sep - Sep (flowers and fruits). Summer annual forb, spreading therophyte; microphyll, orthophyll. Common on dry gravelly slopes, dry uplands.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on east side of lower Siphon Canyon; Southwestern Research Station. Also Rincon Mts., Sierra Ancha. Greenlee, Gila, Cochise, Santa Cruz, and Pima counties. Southern Arizona to South America. Latin American.

Exsicc.: FOBO [MHoy 345]. SWRS [Ordway s.n.].

### **Desmodium psilocarpum** Gray

#### Tick clover

[3,900] - 5,300 ft. [Aug] - Sep (fruit). Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon in drainage bottom.

Chiricahua Mts.: South Fork Cave Creek. Also Rincon Mts., Santa Catalina Mts., Baboquivari Mts., Pinaleño Mts. Santa Cruz and Pima counties. Texas, southern Arizona and Mexico. Chihuahuan.

Exsicc.: Rincon [Turner 75-97]. SWRS [Ordway 145].

### **Desmodium retinens** Schlect.

*Desmodium wislizeni* Engelm. ex Gray, *D. wislizeni* var. *venulosum* M.E. Jones, *Meiobomia retinens* (Schlecht.) Kuntze, *M. wrightii* (Engelm. ex Gray) Kuntze

#### Tick clover, tick-trefoil

[5,000] - [5,300] ft. Jun - Sep. Perennial deciduous forb. Uncommon on shady canyon benches. *Quercus emoryi*.

Huachuca Mts., Chiricahua Mts., Pinaleño Mts., Santa Catalina Mts., Santa Rita Mts., Mule Mts. Cochise, Pima, and Santa Cruz counties. Apachian.

### **Desmodium rosei** Schub.

#### Tick clover

[3,500] 5,400 - 6,800 ft. Aug - Sep. Summer-annual forb, scapose or leafy-stemmed therophyte. Common in wooded canyons, open wooded slopes, and rocky flats.

Chiricahua Mts.: Chiricahua Nat. Mon.; near junction Onion Saddle - Paradise roads; Wilderness Area. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleño Mts., Animas Mts. Navajo and Coconino counties to Greenlee, Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and northern Mexico. Chihuahuan.

Exsicc.: CHIR [Clark 8689, Moir 476, 564, Reeves 1494, 1595, 1620, 4391]. SWRS [Walker s.n.]. CHWA [Leithliter 654].

### **Erythrina flabelliformis** Kearn.

Western coral-bean, chilicote, coralbean, Indian-bean [3,000] - [6,000] ft. Jun - Jul. Spinose deciduous shrub or tree, nanophanerophyte. Common on dry rocky slopes, among boulders, along drainages. *Rhus choriophylla*, *Opuntia phaeacantha*.

Chiricahua Mts.: Barboot Ranch. Also Huachuca Mts., Rincon Mts., Peloncillo Mts., Santa Catalina Mts., Mule Mts., Baboquivari Mts., Pajarito Mts., Dragoon Mts., Santa Rita Mts., Swissheilm Mts., Sierra de los Ajos. Southwestern New Mexico, southern Arizona, and northern Mexico. Sonoran.

Seeds are highly toxic if ingested. In Mexico jewelry is made from them which should not be given to children. This species becomes a small tree up to 15 feet high and 10 inches in trunk diameter at base, according to Kearney and Peebles, though usually it is a small bush.

Exsicc.: ARIZ [Blumer 1300, 1793, 2008].

### **Eysenhardtia orthocarpa** (Gray) S. Wats.

[3,500] - 4,900 [6,000] ft. [May] Jun - [Aug]. Pinnate leguminous shrub, microphanerophyte; microphyll, orthophyll. Among rocks in canyons.

Chiricahua Mts.: Half Moon Valley; Pedregosa Mts. at Indian Creek. Also Mule Mts., Santa Rita Mts., Rincon Mts., Baboquivari Mts., Peloncillo Mts. Graham, Pinal, Cochise, Santa Cruz, and Pima counties. Southwestern New Mexico, southern Arizona, and Mexico. Madrean.

Exsicc.: SWRS [SWRS 1958-88].

### **Galactia wrightii** Gray var. **mollissima**

#### Kearney & Peebles

[3,000] 5,100 - 5,650 [6,000] ft. Jul - Sep. Woody vine, twining proto-chamaephyte. Common in grassland/scrub and open woodland, often climbing over other plants, lower wet canyons and along arroyos.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at Overlook; Paradise. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleño Mts., Canelo Hills, Sierra de los Ajos. Greenlee, Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 9041, Reeves 3519, 4055]. FOBO [MHoy 475]. SWRS [Walker s.n.].

### **Hoffmannseggia glauca** (Ortega) Eifert

*Hoffmannseggia densiflora* Benth. ex Gray, *H. densiflora* var. *capitata* Fisher, *H. densiflora* var. *demissa* (Gray) Fisher, *H. densiflora* var. *pringlei* Fisher, *H. densiflora* var. *stricta* (Benth.) Fisher, *H. falcaria* Cav.

#### Hog-potato, camote-de-raton

5,000 - 5,200 ft. [Apr] Jun - Aug [Sep]. Large colonies, difficult to eradicate. Uncommon in grassland. Roadsides in irrigated districts, weedy.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at fort ruins; 6 mi. east of Portal. Also Pinaleño Mts., Animas Mts., Sierra de los Ajos. Navajo County to Mojave County, south to Graham, Cochise, Pima, and Yuma counties. Kansas to Arizona, southern California, and central Mexico. Southwestern.

Cooked tuber eaten by Indians, good hog food, good soil binder.

Exsicc.: CHIR [Clark 8539, Reeves 2948, 4108]. FOBO

[MHoy 277]. SWRS [Cazier s.n.].

### **Indigofera sphaerocarpa** Gray

#### **Indigo**

[4,000] - 5,400 [6,000] ft. [Jul] - Aug. Suffrutescent shrub, prostrate proto-chamaephyte; microphyll, orthophyll. Uncommon in wooded canyons and slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Rincon Mts., Mule Mts., Huachuca Mts., Canelo Hills. Cochise, Santa Cruz, and Pima counties. Southeastern Arizona and northern Mexico. Madrean.

Exsicc.: Clark 9253, Reeves 4451.

### **Lathyrus graminifolius** (S. Wats.) White

#### **Peavine**

[4,000] 6,400 - 9,550 ft. [Apr] Jun - Aug [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common in coniferous forest openings, deep leaf litter; along drainages at lower elevations. Pines, *Pseudotsuga menziesii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in East Whitetail Canyon; Wilderness Area, Greenhouse Trail, Flys Peak, Monte Vista Trail. Also Huachuca Mts., Pinaleno Mts., White Mts., Animas Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts. Coconino County and Apache County to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and norhtern Mexico. Madrean.

Exsicc.: CHIR [Clark 8707, Reeves 3781]. SWRS [SWRS 1958-97, 1959-495]. CHWA [Leithliter 32].

### **Lathyrus lanszuertii** Kellogg var. **arizonicus**

#### (Britt.) Welsh

#### *Lathyrus arizonicus* Britt.

#### **Peavine**

[8,000] - 8,710 [11,000] ft. [May] Jun - [Oct]. Perennial deciduous forb, spreading hemicryptophyte; mesophyll, orthophyll. Uncommon in deep shade, dry uplands, in coniferous forests.

Chiricahua Mts.: Wilderness Area, along Crest Trail; Centella Point. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Animas Mts., Sierra de los Ajos. Apache and Coconino counties, south to Cochise and Pima counties. Southern Colorado and southeastern Utah to north-central Mexico. Madrean.

Exsicc.: CHWA [Leithliter 58].

### **Lotus greenei** Ottley ex Kearney & Peebles

#### **Deer-vetch**

[3,000] 4,500 - 5,400 ft. Mar - Apr [May]. Perennial deciduous forb, spreading hemicryptophyte. Uncommon on grassland, gravelly slopes, mesas and rocky hillsides.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in upper Cut Off Canyon; Birt Robard's Ranch. San Simon Valley. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Animas Mts., Canelo Hills. Graham, Pinal, Cochise, Santa Cruz, and Pima counties. Southern New Mexico, southern Arizona, and northern Mexico. Apachian.

Exsicc.: CHIR [Reeves 2272, 2597]. FOBO [MHoy 72]. SWRS [SWRS 1959-51].

### **Lotus humistratus** Greene

#### *Hosackia brachycarpa* Benth.

#### **Deer-vetch**

5,000 - 5,400 ft. Mar - May [Jun]. Winter-annual forb, spreading therophyte. Common on grassland, dry well-drained

slopes, dry uplands, sandy deserts.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in Apache Pass at the Massacre Site; Paradise. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts., Santa Rita Mts. Throughout most of Arizona except the northeastern portion. Southern Nevada, Arizona, southeastern California, and northwestern Mexico. Southwestern.

Exsicc.: CHIR [Reeves 2383, 2612]. FOBO [MHoy 150]. SWRS [Walker s.n.].

### **Lotus plebeius** (Brand) Barneby

*Hosackia puberula* Benth. var. *nana* Gray, *Lotus longibracteatus* Rydb., *L. neomexicanus* Greene, *L. oroboides* auct. non (Kunth) Ottley, *L. oroboides* var. *nanus* (Gray) Isely, *L. oroboides* var. *nummularius* (M.E. Jones) Isely

#### **Deer-vetch**

[3,300] 4,900 - 5,500 [8,000] ft. [Apr] Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon in dry pine woodland; pine-oak woodland and canyons at lower elevations. *Quercus emoryi*, *Pinus discolor*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in South Canyon; Horseshoe Canyon, Licklog Tank. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Southern Coconino County to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Mexico. Southwestern.

Exsicc.: CHIR [Clark 8614, Reeves 3715, 4003]. FOBO [MHoy 315]. SWRS [1960-338].

### **Lotus rigidus** (Benth.) Greene

#### *Hosackia rigida* Benth.

#### **Desert rock pea**

[3,300] - 5,000 [5,500] ft. [Feb] - May. Green-stemmed shrub, suffrutescent chamaephyte. Rare along arroyos and on dry rocky slopes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in upper South Canyon. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts. Southern Apache County to Mohave County, south to Graham, Pima, and Yuma counties. Southern Utah and Nevada, Arizona, southeastern California, and Baja California. Southwestern.

Exsicc.: FOBO [MHoy 181].

### **Lotus wrightii** (Gray) Greene

#### *Hosackia wrightii* Gray

#### **Deer-vetch**

[4,500] 5,200 - 8,500 [9,000] ft. Mar - Aug [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon in dry pine woodlands, dry grassland, shaded slopes. *Quercus emoryi* or *Pinus discolor*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; Wilderness Area, Saulsbury Trail. Also Huachuca Mts., Rincon Mts., Dos Cabezas Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Apache County to Mohave County, south to Cochise and Pima counties. Southwestern Colorado and southern Utah to New Mexico, Arizona, and southeastern California. Southwestern.

Exsicc.: CHIR [Reeves 2294, 2381]. SWRS [SWRS 1958-92]. CHWA [Leithliter 563].

### **Lupinus brevicaulus** S. Wats.

#### *Lupinus dispersus* Heller, *L. scaposus* Rydb.

[3,000] 5,000 - 5,200 [7,000] ft. Apr - May [Jul]. Winter annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon in grassland, dry slopes and mesas.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hills between Cut Off Canyon and trail. Also Pinaleno Mts., Animas Mts. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Colorado to Oregon, New Mexico, Arizona, and California. Southwestern.

Exsicc.: CHIR [Dole 129, Reeves 2614]. FOBO [MHoy 119].

### **Lupinus concinnus J.G. Ag.**

#### *Lupine*

4,500 - 5,400 ft. Mar - May. Winter-annual forb, semirosette therophyte. Uncommon on slopes and flats, sun, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; edge of meadow; Fort Bowie Nat. Historic Site in Siphon Canyon; foot of Harris Mtn. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts. Southern Apache County to Mohave County, south to the Mexican border. New Mexico to southern Nevada, Arizona, California, and northern Mexico. Southwestern.

Exsicc.: CHIR [Reeves 2348, 2558, 3281]. FOBO [MHoy 80]. SWRS [Walker s.n.].

### **Lupinus lemmoni C.P. Sm.**

#### *Lupine*

[4,000] - 5,150 ft. Apr - Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon in sandy washes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Pickett Canyon; Apache Pass; Sulphur Springs Valley. Santa Rita Mts. Cochise and Pima counties. Known only from southern Arizona. Apachian.

This plant, described as new to science, was collected by J.C. Lemmon and wife in Sulphur Springs Valley in 1881 (s.n.).

Exsicc.: CHIR [Clark 8637, Reeves 1652, 2556, 3149].

### **Lupinus neomexicana Greene**

#### *Lupinus blumeri* Greene

4,500 - [9,000] 9,020 ft. [Apr] May - [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon.

Chiricahua Mts.: Rustler Park, Long Park, Pinery Canyon to Barfoot Park road; Wilderness Area. Also Pinaleno Mts., Huachuca Mts., Santa Rita Mts. Graham, Cochise, and Santa Cruz counties. Apparently endemic in southeastern Arizona. Apachian.

Exsicc.: SWRS [SWRS 1959-91, Barnes s.n.]. CHWA [Leithliter 35, 69, 330, 571, 827]. ARIZ [Blumer 1357 co-type].

### **Lupinus palmeri S. Wats.**

#### *Lupinus argenteus* Pursh var. *palmeri* (S. Wats.) Barneby

[4,000] 5,500 - [8,000] ft. Apr - [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common in clearings in sun, dry uplands.

Chiricahua Mts.: near Camp Stewart. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts. Coconino County, Mohave County, and southward and southeastward through Yavapai and Gila counties to southern Navajo, Cochise, and Pima counties. New Mexico and Arizona. Southwestern.

Commonest and most widely distributed of the perennial lupines of Arizona.

Exsicc.: SWRS [Roth s.n.].

### **Lupinus sparsiflorus Benth.**

[4,500] ft. [Jan] - [May]. Winter-annual forb, semirosette therophyte. Common on well-drained slopes and flats, mesas and foothills.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Pinaleno Mts., Rincon Mts., Santa Catalina Mts. Greenlee County to Mohave County, south to the Mexican boundary. Nevada and Arizona to California, Sonora, and Baja California. Southwestern.

Exsicc.: FOBO [MHoy s.n.].

### **Macroptilium gibbosifolium (Ortega) A.**

#### *Delgado*

*Macroptilium heterophyllum* (Willd.) Maréchal & Baudet, *M. heterophyllum* var. *rotundifolium* (Gray) Maréchal, Mascherpa & Stanier, *Phaseolus heterophyllus* Willd., *P. heterophyllus* var. *rotundifolius* (Gray) Piper Bean

[4,000] 5,000 - 8,310 ft. Jul - Sep [Oct]. Perennial deciduous forb, spreading hemicryptophyte; mi. orthophyll. Common in wooded canyons, open slopes in woodland, grassland/scrub and chaparral with rocky soil. *Pinus discolor*, *Juniperus deppeana*, *Garrya wrightii*, *Opuntia spinosior*, *Aristida* *oreocutiana*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Picket Park, Hunt Canyon, Sarah Deming Canyon; Fort Bowie Nat. Historic Site along Apache Pass Road; Wilderness Area, Greenhouse Trail; Sulfur Springs Valley. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Animas Mts., Canelo Hills. Southern Navajo, Greenlee, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona, south to Central America. Southwestern, Latin American.

Exsicc.: CHIR [Moir 521, 559, Reeves 1483, 4041, 4375]. FOBO [MHoy 274]. CHWA [Leithliter 175, 755]. SWRS [Ordway s.n.]. ARIZ [Blumer 132].

### **Marina calycosa (Gray) Barneby**

#### *Dalea calycosa* Gray

#### *Indigo-bush, pea-bush*

[4,000] - 5,200 ft. Feb - Jun [Sep]. Uncommon in grassland; xeric alluvial terraces in drainages.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at Overlook; Round Valley. Also Rincon Mts. Graham, Pinal, Cochise, Santa Cruz, and Pima counties. New Mexico, southern Arizona, and northern Mexico. Madrean.

Exsicc.: CHIR [Reeves 2766]. FOBO [MHoy 210]. SWRS [Mouat s.n.].

### **Medicago lupulina L.**

#### *Medicago lupulina* var. *cupaniiana* (Guss.) Boiss., *M. lupulina* var. *glandulosa* Neirlr.

[2,500] - 5,400 [8,000] ft. Jun. Summer annual forb, spreading therophyte; nanophyll, orthophyll. Uncommon on lawns, dry uplands, roadsides.

Chiricahua Mts.: Southwestern Research Station. Also Huachuca Mts., Sierra Ancha, Canelo Hills. Navajo, Coconino, Yavapai, Graham, Gila, and Pima counties. Extensively naturalized in North America. Temperate, Introduced.

Exsicc.: SWRS [Roth s.n.].

### **Medicago sativa L.**

#### *Alfalfa, lucerne*

5,400 - 8,300 ft. Jun - Jul. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll.

Uncommon on disturbed soil, roadsides, grazed grassland.  
Chiricahua Mts.: Chiricahua Nat. Mon. in Residential Area; Barfoot Park, Canelo Hills, Sierra de los Ajos. Temperate, Introduced.  
Exsicc.: CHIR [Reeves 4465]. ARIZ [Blumer 1563].

### **Melilotus officinalis (L.) Lam.**

*Melilotus albus* Medik., *M. albus* var. *annuus* Coe  
White sweet clover

5,000 - 5,400 [7,000] ft. Jun - Oct. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon on meadows and dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon Wash; Southwestern Research Station; Centella Point. Also Pinaleño Mts., Sierra Ancha, Canelo Hills. Navajo, Coconino, Yavapai, Graham, Pinal, Cochise, and Pima counties. Southwestern, Introduced.

Exsicc.: CHIR [Reeves 1426, 1536, 2877]. SWRS [Roth s.n. (2 ea.)]. ARIZ [Blumer 1493].

### **Mimosa aculeaticarpa Ortega var. *biuncifera* (Benth) Barneby.**

*Mimosa biuncifera* (Benth.) Barneby, *M. biuncifera* var. *glabrescens* Gray, *M. biuncifera* var. *lindheimeri* (Gray) Rob., *M. lindheimeri* Gray, *M. warnockii* B.L. Turner, *Mimosopsis biuncifera* (Benth.) Britt. & Rose Wait-a-bit, wait-a-minute

[3,000] 3,880 - 6,500 ft. [May] Jun - Sep. Pinnate leguminous shrub, nanophanerophyte. Common in grassland/scrub and open woodland in sun on well-drained soil.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon, Pinery Canyon Road at Jesse James Canyon; Fort Bowie Nat. Historic Site at Apache Spring; Portal to Paradise road, Price Canyon Road, Portal, John Long Canyon; Tex Canyon; north side of Silver Peak; San Simon Cienega. Also Huachuca Mts., Rincon Mts., San Simon Valley, Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Southern Apache County, Mohave County, south to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Chihuahuan.

Good source of nectar. Seeds eaten by Gambel's and scaled quail. Browsed by deer.

Exsicc.: CHIR [Reeves 3111, 3419, 3743]. FOBO [MHoy 344]. SWRS [SWRS 1959-217, 1959-275].

### **Mimosa dysocarpa Benth.**

*Mimosa dysocarpa* var. *wrightii* (Gray) Kern. & Peeb.

[3,500] 5,000 - 9,180 ft. May - Sep. Pinnate leguminous shrub. Uncommon in forest openings and along drainages, commonly along arroyos and washes. *Pinus discolor*, *Juniperus deppeana*, *Cercocarpus montanus*, *Bouteloua curtipendula*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Cave Creek; Wilderness Area. Also Huachuca Mts., Mule Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and northern Mexico. Chihuahuan.

Exsicc.: CHIR [Reeves 4079]. SWRS [1958-845]. CHWA [Leithliter 89A, 443].

### **Mimosa grahamii Gray**

*Mimosa lemmoni* Gray, *M. grahamii* var. *lemmoni*

### **(Gray) Kearney & Peebles**

[4,000] - 5,300 [6,000] ft. [Apr] - Aug. Nanophanerophyte; nanophyll, orthophyll. Dry shaded slopes. *Quercus arizonica*, *Q. rugosa*, *Q. emoryi*, *Q. grisea*, *Pinus discolor*.

Chiricahua Mts.: South Fork Cave Creek. Also Huachuca Mts., Rincon Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Cochise, Santa Cruz, and Pima counties. Southwestern New Mexico, southeastern Arizona, and northern Mexico. Chihuahuan.

Exsicc.: SWRS [Bottimer s.n.].

### **Oxytropis lambertii Pursh**

*Aragallus areticulatus* Greene, *Oxytropis involuta* (A. Nels.) K. Schum., *O. lambertii* ssp. *bigelovii* (Gray) W.A. Weber, *O. lambertii* var. *articulata* (Greene) Barneby, *O. lambertii* Pursh var. *bigelovii* Gray, *O. patens* (Rydb.) A. Nels.

#### White loco-weed

[5,000] 5,600 - 8,500 ft. Jun - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Uncommon in pine forest openings, sandy drainages.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon and Bonita Park; Onion Creek; Pinery Canyon; Wilderness Areas, Saulsbury Trail near Little Bald Mountain. Also Huachuca Mts. Apache County to Coconino County, and Cochise County. Western Canada, south to Texas, New Mexico, and Arizona. Western.

Exsicc.: CHIR [Clark 8278, Moir 445, Reeves 1317, 1752, 2977, 4149]. SWRS [SWRS 1960-196]. CHWA [Leithliter 411, 554]. ARIZ [Blumer N30, 46].

### **Phaseolus acutifolius Gray var. *tenuifolius***

Gray  
Wild bean

[3,000] 5,000 - 5,500 [6,000] ft. Aug - Sep [Oct]. Summer-annual forb, spreading therophyte. Uncommon in open woodland, grassland, streambed rocks.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in upper South Canyon; near Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleño Mts., Animas Mts. Greenlee, Graham, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and Mexico. Southwestern.

Exsicc.: CHIR [Reeves 1492, 1567, 4019, 4569]. FOBO [MHoy 309]. SWRS [Roth s.n.].

### **Phaseolus filiformis Benth.**

*Phaseolus wrightii* Gray

[1,000] - [4,000] 8,200 ft. [Feb] Aug - [Nov]. Rocky slopes and canyons.

Chiricahua Mts.: Barfoot Park. Eastern Maricopa, Pinal, and Pima counties. Western Texas, southern Arizona, and northern Mexico. Chihuahuan, Sonoran.

Blumer's 1906 collection remains the sole specimen from the Chiricahua Mts.

Exsicc.: ARIZ [Blumer 1347].

### **Phaseolus grayanus Woot. & Standl.**

Wild bean

[5,000] 5,500 - 8,370 [8,500] ft. Jul - Sep. Perennial deciduous forb, twining hemicryptophyte. Common in pine forest, wooded canyons, open slopes in woodland and chaparral.

Chiricahua Mts.: Greenhouse Trail; South Fork Cave Creek

Trail; Wilderness Area, Rucker Canyon. Also White Mts., Pinaleno Mts., Galiuro Mts., Huachuca Mts., Santa Rita Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Apache, Graham, Cochise, and Pima counties. Western Texas to southern Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [Borell 20, Moir 558, Reeves 994, 1309, 3613, 3661, 4279]. CHWA [Leithliter 736].

### **Phaseolus maculatus** Scheele

*Phaseolus metcalfei* Woot. & Standl.

5,500 [6,575] - 7,500 ft. Jul-Sep. Perennial deciduous forb, spreading hemicryptophyte; microphyll, orthophyll. Uncommon on rocky slopes and cliffs. *Pinus discolor*, *Quercus emoryi*, *Q. hypoleucoides*, *Q. arizonica*, *Q. reticulata*, *Juniperus deppeana*, *Nolina macrocarpa*, *Vitis arizonica*, *Juglans major*.

Chiricahua Mts.: Chiricahua Nat. Mon.; East Whitetail Canyon; Southwest Research Station; below Onion Saddle. Also Huachuca Mts., Mule Mts., Pinaleno Mts., Animas Mts., Dragoon Mts. Southern Navajo county and Yavapai County to Cochise and Pima counties. Southwestern New Mexico and Arizona. Apachian.

Exsicc.: ARIZ [Blumer V.232, Briggs s.n.]. CHIR [Reeves 3805]. SWRS [Elliot s.n.].

### **Phaseolus parvulus** Greene

*Alepidocalyx parvulus* Piper

[6,500] 6,600 - 9,020 ft. Jul - Sep. Perennial deciduous forb, bulb geophyte. Common among rocks in coniferous forest openings and along drainages.

Chiricahua Mts.: Morse Canyon campground; Wilderness Area; Barfoot Park. Also Rincon Mts., Santa Catalina Mts., Santa Rita Mts., Huachuca Mts., White Mts., Sierra de los Ajos. Apache, Cochise, Santa Cruz, and Pima counties. Southwestern New Mexico and southern Arizona. Sonora, Mexico. Apachian.

Exsicc.: SWRS [Ryan 1961-83]. CHWA [Leithliter 195, 594]. Repos. Unk. [Blumer 1351].

### **Phaseolus ritensis** M.E. Jones

Bean

[4,500] - 5,400 [7,000] ft. Jul - [Sep]. Perennial deciduous forb, twining hemicryptophyte. Uncommon on dry slopes, sometimes in sun but often in shade of shrubs and trees, cool moist slopes, among live oaks and at the lower limit of the pine belt.

Chiricahua Mts.: Chiricahua Nat. Mon. in Pinery Canyon. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., White Mts., Pinaleno Mts. Graham, Cochise, Santa Cruz, and Pima counties. Southern Arizona and Mexico. Apachian.

Exsicc.: CHIR [Clark 8377].

### **Prosopis glandulosa** Torr. var. **torreyana** (L. Benson) M.C. Johnston

*Prosopis juliflora* (Sw.) DC. var. *torreyana* L.

Benson, *P. odorata* Torr. & Frém.

Honey mesquite

3,880 - 6,800 ft. [Mar] May - Jul [Aug]. Pinnate leguminous tree, microphanerophyte. Locally common in grassland/scrub and desert grassland with subsurface moisture. *Bouteloua* spp., *Aristida ternipes*, *Sporobolus cryptandrus*, *Muhlenberbia arenicola*, *M. porteri*, *Leptochloa dubia*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site along trail, among ruins, Siphon Canyon; Portal to Paradise road; San Simon Cienega. Also Huachuca Mts., Dos Cabezas Mts., Mule Mts., Pinaleno Mts., Santa Catalina Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Coconino County

(Little Colorado River, bottom of the Grand Canyon) to Mohave County, southward to Cochise, Santa Cruz, Pima, and Yuma counties. Southern Kansas to southeastern California and Mexico; West Indies. Southwestern.

The foliage, particularly the pods, are eaten by livestock. The wood is used for fence posts, and the heartwood for furniture. When cultivated crops failed, the Indians subsisted mainly upon mesquite beans. Pinole, a meal made from pods, prepared in the form of cakes and in other ways, was a staple food with the Pimas. Fermented pinole was an intoxicating drink. The gum that exudes from the bark was used for candy, to mend pottery, and as a black dye. The inner bark was used for baskets and fabrics, as well as medicine. Excellent honey is obtained from the flowers. Hastings & Turner (1965) discuss the role of cattle grazing spread of this species.

Exsicc.: CHIR [Clark 8236, Reeves 2944, 3151, 3733]. FOBO [MHoy 381]. SWRS [SWRS 1958-89, 1959-513].

### **Prosopis velutina** Woot.

*Neltuma velutina* (Woot.) Britt. & Rose, *Prosopis articulata* S. Wats., *P. chilensis* (Mol.) Stuntz var. *velutina* (Woot.) Standl., *P. juliflora* auct. pro parte non (Sw.) DC., *P. juliflora* (Sw.) DC. var. *articulata* (S. Wats.) Wiggins, *P. juliflora* (Sw.) DC. var. *velutina* (Woot.) Sarg.

Velvet mesquite

4,760 - 4,900 [6,000] ft. [Mar] Jul - [Oct]. Pinnate leguminous tree, microphanerophyte; microphyll, orthophyll. Common, frequent on rocky slopes, poorly-drained flats, near watercourses, dry uplands, along streams and where the water table is relatively high.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in Siphon Canyon; San Simon Valley just beyond Portal. Also Rincon Mts., Pinaleno Mts., Sierra Ancha. Coconino County to Mohave County, southward to Cochise, Santa Cruz, Pima, and Yuma counties. Southern Kansas to southeastern California and Mexico; West Indies. Southwestern, Latin American.

The foliage, particularly the pods, is eaten by livestock. Except for *Olneya*, mesquite is the best firewood from the semidesert. Used for fenceposts and furniture. This plant has been a mainstay of subsistence for the Southwest aborigines. When cultivated crops failed, the Indians subsisted mainly upon mesquite beans. Pinole, prepared from the pods in the form of cakes and other ways, was a staple food for the Pimas. Fermented pinole was an intoxicating drink. The gum that exudes from the bark was used for candy, to mend pottery, and as a black dye. Inner bark was used for baskets and fabrics, as well as medicine. Bees obtain excellent honey from the flowers.

Exsicc.: FOBO [MHoy 381]. SWRS [SWRS 1959-512].

### **Psoralidium tenuiflorum** (Pursh) Rydb.

*Psoralea floribunda* Nutt. ex Torr. & Gray, *P. obtusifolia* Torr. & Gray, *P. tenuifolia* Pursh, *Psoralea tenuiflora* Pursh var. *bigelovii* (Rydb.) Macbr., *Psoralidium batesii* Rydb.

Scrub-pea, scurvy pea

[4,000] 4,800 - 6,200 [7,500] ft. [May] Jun - Jul [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common on south-facing slopes, sometimes on limestone, dry uplands, dry slopes and plains, often in open pine forest.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Park; 1 mi. southwest of Portal. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties.

North Dakota and Montana to Arizona and northern Mexico. Plains.  
Poisonous to stock, used by Indians as a fish poison. Marsh (1924).  
Exsicc.: CHIR [Clark 8219, Reeves 3248, 3397, 3720]. SWRS [Pough 1962-10].

**Rhynchosia senna** Gillies ex Hook. var. **texana** (Torr. & Gray) M.C. Johnston

*Rhynchosia senna* Gillies ex Hook. var. *angustifolia* (Gray) Gear, *Rhynchosia texana* Torr. & Gray, *Thynchosia senna* Gillies ex Hook. var. *angustifolia* (Gray) Gear

Rosary-bean

[3,500] 5,000 - 6,060 [8,000] ft. [May] Jun - Jul [Sep]. Woody vine, twining proto-chamaephyte. Common on rocky slopes and occasionally in wooded canyons, dry plains and mesas.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at Apache Spring; Price Canyon. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Greenlee County to Yavapai County, south to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Mexico. Chihuahuan.

Exsicc.: CHIR [Reeves 3516, 3551, 3802]. FOBO [MHoy 220]. SWRS [SWRS 1960-315].

**Robinia neomexicana** Gray var. **neomecicana**

*Robinea luxurians* (Dieck) Schneid. ex Tarouca & Schneid., *R. neomexicana* var. *luxurians* Dieck, *R. neomexican subvelutina* (Rydb.) Kearney & Peebles New Mexico locust

[4,000] 4,900 - 8,040 [8,600] ft. May - Aug. Pinnate leguminous tree, microphanerophyte. Common in clearings in coniferous woods, sometimes on old burns; in shaded canyons and along drainages at lower elevations. *Pseudotsuga menziesii*, *Pinus arizonica*, *P. engelmannii*, *P. leiophylla*, *Juniperus deppeana*, *Quercus hypoleucoides*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in lower Cut Off Canyon; Southwestern Research Station; West Turkey Creek; Rucker Canyon; Wilderness Area; Barfoot Park. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Animas Mts., Sierra Ancha, Santa Catalina Mts., Sierra de los Ajos. Navajo, Coconino, and Mohave counties, south to Greenlee, Cochise, Santa Cruz, and Pima counties. Southern Colorado to southern Nevada, western Texas, New Mexico, Arizona, and northern Mexico. Rocky Mountain.

A Hopi Indian remedy for rheumatism. Important browse for domestic stock. Food for deer, Gambel's quail, mountain sheep, chipmunk, and porcupine. Has been used for erosion control.

Exsicc.: CHIR [Clark 8089, Reeves 2796, 2903]. FOBO [MHoy 192]. SWRS [SWRS 1958-494]. CHWA [Leithliter 351].

**Senna bauhinoides** (Gray) Irwin & Barneby

*Cassia bauhinoides* Gray, *Cassia bauhinoides* var. *arizonica* Rob. ex Macbr.

Senna

[2,000] 4,600 - 5,300 ft. [Apr] May - Aug [Sep]. Perennial deciduous forb. Uncommon on open rocky talus, roadsides, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Pinery Canyon; Fort Bowie Nat. Historic Site north of Overlook; San Simon Valley, 3 mi. east of Paradise. Also Pinaleno Mts., Sierra

Ancha, Mule Mts. Coconino, Mohave, Yavapai, and Greenlee counties to Cochise, Santa Cruz, and Pima counties. Texas to Arizona and Mexico. Madrean.

Exsicc.: CHIR [Clark 8548]. FOBO [MHoy 295]. SWRS [Bottimer s.n., SWRS 1958-484].

**Senna covesii** (Gray) Irwin & Barneby

*Cassia covesii* Gray

Desert senna

[1,800] - [3,500]. [Apr] - [Oct]. Suffrutescent shrub, scapose or leafy-stemmed proto-chamaephyte. Sunny well-drained flats and slopes, upper bajadas.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Rincon Mts., Santa Catalina Mts., Pinaleno Mts. Coconino, Mohave, Yavapai, and Greenlee counties to Cochise, Santa Cruz, and Pima counties. New Mexico to Nevada, Arizona, California, and northwestern Mexico. Sonoran.

**Senna lindeheimeriana** (Scheele) Irwin & Barneby

*Cassia lindheimerana* Scheele

[4,500] - [5,500] 7,500 ft. [Jun] - Aug [Sep]. Perennial deciduous forb. Dry mesas and foothills.

Chiricahua Mts.: near Onion Saddle. Also Huachuca Mts., Mule Mts. Cochise County. Texas to southeastern Arizona and northern Mexico. Madrean.

Exsicc.: SWRS [SWRS 1958-233].

**Sophora nuttalliana** B.L. Turner

*Sophora sericea* Nutt., *Vexibia nuttalliana* (B.L. Turner) W.A. Weber

[4,000] - 5,000 [7,000] ft. [Apr] May - [Jun]. Perennial deciduous forb, scapose or leafy-stemmed hemicyrptophyte; microphyll, orthophyll. Along wash, sometimes in cultivated land.

Chiricahua Mts.: Round Valley, 5 mi. north of Portal; along Portal to Paradise road. Also Animas Mts. Apache County to Yavapai and eastern Mohave counties, also in Cochise and Pima counties. South Dakota and Wyoming to Texas, southern Utah, and Arizona. Rocky Mountain.

Exsicc.: SWRS [Mouat s.n., Walker s.n.].

**Tephrosia tenella** Gray

[3,300] 5,200 - 5,300 ft. [Apr] Aug - Sep. Summer annual forb, spreading therophyte; microphyll, orthophyll. Uncommon in grassy openings in open oak woodland.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Rincon Mts., Sunizona near junction highway 181 and 666. Canelo Hills. Pinal, Cochise, Santa Cruz, and Pima counties. Texas to southern Arizona and northern Mexico. Chihuahuan.

Exsicc.: CHIR [Moir 528, Reeves 1247]. SWRS [Pough 1961-161].

**Thermopsis rhombifolia** (Nutt. ex Pursh) Nutt.

ex Richards. var. **montana** (Nutt.) Isely

*Thermopsis montana* Nutt., *T. pinetorum* Greene  
Golden-pea

6,000 - 9,790 ft. [Apr] May - Jul. Perennial deciduous forb, scapose or leafy-stemmed hemicyrptophyte. Uncommon in sunny meadows at higher elevations but in mesic coniferous forests and deep canyon bottoms lower down.

Chiricahua Mts.: Chiricahua Nat. Mon.; Rhyolite Canyon

3/4 mi. east of junction with Sarah Deming Canyon; Onion Saddle; Rucker Canyon; Long Park; Barfoot Park; northwest of Paradise; Wilderness Area. Also Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Sierra de los Ajos. Apache County to Coconino County, south to Cochise, Gila, and Yavapai counties. Colorado, Utah, New Mexico, and Arizona. Sonora, Mexico. Rocky Mountain.

Seeds may be poisonous.

Exsicc.: CHIR [Dole 93]. SWRS [SWRS 1959-56, Roth s.n.]. CHWA [Leithliter 331]. ARIZ [Blumer 1590, s.n., Moeller 11135].

### **Trifolium pinetorum** Greene

*Trifolium longicaule* Woot. & Standl., *T. willdenowii* Spreng. var. *longicaule* (Woot. & Standl.) L. Benson, *Trifolium wormskjoldii* Lehm. var. *longicaule* L. Benson

Clover

[5,300] 6,400 - 9,790 ft. Jun - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common in clearings, shaded flats and damp soil of springs and seeps, and in mesic coniferous forests; deep canyons at lower elevations. *Pinus arizonica*, *Abies concolor*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Rustler Park; between Rustler Park and Long Park; Wilderness Area; Centella Point. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Sierra de los Ajos. Coconino County, mountains of Apache, Graham, Cochise, Santa Cruz, and Pima counties. New Mexico and Arizona. Sonora, Mexico. Southwestern.

Exsicc.: SWRS [SWRS 1958-252, Wittmann 184]. CHWA [Leithliter 100, 183, 379, 463].

### **Trifolium repens** L.

White clover

5,400 ft. May - Sep. Perennial deciduous forb, spreading herb; nanophyll, orthophyll. Local in meadows, moist soils at middle elevations. Shade tolerant. Roadsides and lawns.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Bonita Canyon; Southwestern Research Station near Lakeside. Navajo County, Coconino County, Mohave County, Yavapai County, and Cochise County. Alien species introduced from Europe. Temperate, Introduced.

Nutritious forage that withstands trampling well. Valuable bee plant. Often used in lawn mixtures. Clovers have been cultivated since the 16th century. Host for nitrogen-fixing bacteria. Seed remains viable for 9 years or more.

Exsicc.: CHIR [Clark 9027, Reeves 1396]. SWRS [Barnes s.n.].

### **Trifolium variegatum** Nutt.

*Trifolium appendiculatum* Loja., *T. geminiflorum* Greene, *T. melananthum* Hook. & Arn., *T. trilobatum* Jepson, *T. variegatum* var. *major* Loja., *T. variegatum melananthum* (Hook. & Arn.) Greene, *T. variegatum* var. *rostratum* (Greene) C.L. Hitchc., *T. variegatum* var. *trilobatum* (Jepson) McDermott

[3,300] - 7,600 ft. Sep. Winter annual forb, spreading therophyte; nanophyll, orthophyll. Uncommon in damp soil of springs, seeps, and streambeds pools.

Chiricahua Mts.: Wilderness Area. Also Rincon Mts., Santa Rita Mts., Sierra de los Ajos. Near Kirkland, Yavapai County, and Pima County. Montana to British Columbia, south to Arizona and Baja California. Western.

Exsicc.: CHWA [Leithliter 854].

### **Vicia americana** Muhl. ex Willd. ssp. *americana*

*Vicia americana* ssp. *oregana* (Nutt.) Abrams, *V. americana* var. *oregana* (Nutt.) A. Nels., *V. americana* var. *truncata* (Nutt.) Brewer, *V. americana* var. *villosa* (Kellogg) F.J. Herm., *V. californica* Greene, *V. californica* var. *madrensis* Jepson, *V. oregana* Nutt., *V. sparsifolia* Nutt. ex Torr. & Gray var. *truncata* (Nutt.) S. Wats. Vetch

[5,000] 7,220 - 9,790 [10,000] ft. May - Aug, fruits in Aug - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon in open timbered areas or parks and meadows; damp soil near drainages at lower elevations. *Pinus arizonica*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Chiricahua Nat. Mon. on Sugarloaf Mountain; Greenhouse Trail; south slope Flys Peak near summit; between Rustler Park and Long Park; Wilderness Area; Crest Trail; Centella Point; Cave Creek, John Hands; Snow Shed trail. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Apache County to Coconino County, south Cochise and Pima counties. Most of southern Canada to Virginia, Kansas, New Mexico, California. Temperate.

Type collected in the Chiricahua Mts. by J.C. Blumer.

Exsicc.: CHIR [Reeves 3985]. SWRS [SWRS 1959-494, 1959-435]. CHWA [Leithliter 28, 294, 361, 810]. ARIZ [Blumer 1348 (Type); Fishbein 492; McCormick 543; Van Devender & O'Rourke s.n.; Goodding et al.; Kaiser 49-149].

### **Vicia leucophaea** Greene

2,682 - [8,000] ft. Jul - [Sep]. Winter annual forb, spreading therophyte; microphyll, orthophyll. Uncommon along streams, pine forests.

Chiricahua Mts.: Wilderness Area; Greenhouse Trail; Barfoot Park. Also Animas Mts., Huachuca Mts. Southern Apache County to Cochise, Santa Cruz, and Pima counties. Western New Mexico and southeastern Arizona. Madrean.

Exsicc.: CHWA [Leithliter 159]. Repos. Unk. [Blumer 1358].

### **Vicia ludoviciana** Nutt. ssp. *ludoviciana*

*Vicia exigua* Nutt., *V. leavenworthii* var. *occidentalis* Shiiners, *V. ludoviciana* var. *laxiflora* Shiiners, *V. ludoviciana* var. *texana* (Torr. & Gray) Shiiners, *V. producta* Rydb., *V. texana* (Torr. & Gray) Small

[4,000] - 5,100 ft. [Mar] Apr - May. Winter-annual forb, spreading therophyte. Uncommon on gravelly slopes and streambeds, cool moist slopes, among bushes, in canyons.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill north of Siphon Canyon; Round Valley, 5 mi. north of Portal. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Greenlee County to Mohave County, south to the Mexican boundary. Western Texas to Oregon and California. Western.

Exsicc.: FOBO [MHoy 360]. SWRS [Mouat s.n.].

### **Vicia pulchella** Kunth

*Vicia melilotoides* Woot. & Standl.

Vetch

5,500 - 9,790 ft. Jul - Oct. Perennial deciduous forb, twining hemicryptophyte. Uncommon in openings in pine forests on south-facing rocky slopes; wooded canyons at lower elevations.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; East Turkey Creek; below Onion Saddle; Wilderness Area; Barfoot Park, Centrella Point. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Apache County to Coconino County, south to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and throughout Mexico. Madrean.

Exsicc.: CHIR [Borell 2, Reeves 4405]. SWRS [Walker s.n.]. CHWA [125, 158, 295, 421, 543]. Repos. Unk. [Blumer 1350].

## FAGACEAE—Beech Family.

A family of deciduous or evergreen monoecious trees and shrubs. Mostly of temperate and subtropical regions of the northern hemisphere but with one genus in the Antarctic regions and one that is pantropical. *Quercus*, the largest genus, has about 300 species, 60 of which are found in the United States.

### **Quercus arizonica** Sarg.

Arizona white oak, gray oak, shin oak, encina blanca 4,900 - 8,120 [10,000] ft. Feb - May. Broadleaf evergreen tree, microphanerophyte; microphyll, sclerophyll. Common on sunny flats and slopes at higher elevations but becoming confined to mesoriparian canyon slopes and benches at lower elevation range limits. Usually on soils derived from igneous rock. *Pinus discolor*, *P. engelmannii*, *P. leiophylla*, *Quercus emoryi*, *Q. rugosa*, *Q. hypoleucoides*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site along Cut Off Canyon trail, Apache Spring Wash; Chiricahua Nat. Mon. in Rhyolite Canyon, Bonita Canyon, Jesse James Canyon, Pickett Park; Whitetail Canyon; below Onion Saddle; Portal/Paradise road; Tex Canyon; John Long Canyon; Price Canyon; East Turkey Creek; West Turkey Creek; Cave Creek; Rucker Canyon; Barfoot Park. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Mule Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts., and Dragoon Mts., Sierra de los Ajos. From Apache County and Coconino County to Cochise and Santa Cruz counties. Texas to New Mexico and Arizona, southward into Mexico. Madrean.

Fence posts, browse. Eaten by porcupine, deer, Viosca's pigeon, and thick-billed parrots. Landrum (1994) submerges *Quercus arizonica* into *Q. grisea* in the flora of Arizona to be published.

Exsicc.: CHIR [Clark 8085; Lehto 3342a; Reeves 1283, 1338a, 2260, 3165, 3580]. SWRS [Reese 24; SWRS 1958-46]. CHWA [Leithliter 634].

### **Quercus chryssolepis** Liebm.

*Quercus chryssolepis* Liebm. var. *palmeri* (Engelm.) Sarg., *Q. dunnii* Kellogg, *Q. Palmeri* Engelm. Palmer oak

[3,500] 5,100 - 8,120 [8,500] ft. May - [Jun]. Broadleaf evergreen tree, microphanerophyte; microphyll, sclerophyll. Common in grasslands, desert scrub, mesoriparian canyons, washes on upper bajadas, mesic slopes and ridges. *Quercus hypoleucoides*, *Q. reticulata*, *Pinus arizonica*, *P. discolor*, *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; Fort Bowie Nat. Historic Site at Overlook. Also Sierra Ancha, Rincon Mts., Santa Catalina Mts., Huachuca Mts. Coconino and Mohave County to Greenlee, Cochise, and Pima counties. Southwestern New Mexico, Arizona, California; southward into Mexico. Southwestern.

Furniture, agricultural instruments, pack saddles, and fuel. Name refers to the golden-yellow acorn-cup scales.

Exsicc.: CHIR [Clark 8177, Reeves 1360, 2838, 3123, Roseberry 4]. CHWA [Leithliter 372, 722, 769]. ARIZ [Blumer 2310; Darrow s.n.].

### **Quercus emoryi** Torr.

Emory oak, western black oak, blackjack oak, bellota.

[3,000] 5,150 - 6,250 [8,000] ft. Apr [fruit Jun] - May [fruit Sep]. Broadleaf evergreen tree, microphanerophyte; microphyll, sclerophyll. Common in xeric openings in pine woodland and oak-pine woodland, encinal and rolling grassy foothills, dry stream benches in mesic canyons, and becoming riparian at low elevations. *Pinus leiophylla*, *P. discolor*, *Quercus arizonica*, *Q. emoryi*, *Q. hypoleucoides*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Picket Park, Rhyolite Canyon, head of Hunt Canyon and Sarah Deming Canyon, Jesse James Canyon, Pickett Park; Greenhouse Canyon; West Turkey Creek; Fort Bowie Nat. Historic Site on hill south of first fort, along Apache Pass Road; Portal; West Turkey Creek; Cave Creek; west Long Canyon; Portal to Paradise road. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Southern Coconino County to Cochise, Santa Cruz, and Pima counties. Chisos, Davis, and Limpia mountains of Texas, and in southern New Mexico and Arizona. Mexico in Nuevo Leon, Chihuahua, and Sonora. Madrean.

Leaves eaten by mule deer. Acorns eaten by Gambel's, Mearns's, scaled quail, many rodents, Indian and Mexican people. There is a specimen, noteworthy because of its large size, immediately west of John Ringo's grave at the Sanders Ranch, West Turkey Creek.

Exsicc.: CHIR [Clark 8135, Reeves 2951, 3138]. SWRS [SWRS 1958-61, Reese 14, Wittmann 79].

### **Quercus gambelii** Nutt.

*Quercus eastwoodiae* Rydb., *Q. nitescens* Rydb. *Q. utahensis*, novo-mexicana (A. DC.) Rydb., *Q. gumisonii* (Torr. and Gray) Rydb., *Q. leptophylla* Rydb., *Q. submollis* Rydb., *Q. vreelandii* Rydb.

Gambel oak, Rocky Mountain white oak, white oak [4,000] 5,200 - 9,790 ft. [Jul]. Broadleaf deciduous tree, microphanerophyte; microphyll, orthophyll. Locally common on dry conifer clad slopes at high elevations, requiring more mesic habitats at lower elevations until it becomes riparian at lower limit of its elevational distribution. *Pseudotsuga menziesii*, *Pinus arizonica*, *P. engelmannii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Pinery Canyon; Pine Canyon; Barfoot Park; Onion Saddle; Greenhouse Canyon; Wilderness Area. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Throughout Arizona except the extreme western and southwestern parts. Western Texas, New Mexico, Arizona, Colorado, Utah, Nevada, Wyoming. South into Mexico in Coahuila and Chihuahua. Madrean.

Wildlife, fuel, and posts. Leaves mixed with conifers provide habitat for *Spiranthes*. *Q. gambelii* is proposed as one of the most northerly ranging Madrean species (Neilson and Wullstein 1983).

Exsicc.: CHIR [Clark 8194, Reeves 2970, 2979]. SWRS [SWRS 1958-58, 1959-14]. CHWA [Leithliter 359, 478, 686].

### **Quercus grisea** Liebm.

Gray oak, shin oak, encina blanca

4,900 - [7,800] ft. Feb. Shrub to tree size. Usually on soils derived from igneous rock.

Chiricahua Mts.: Fort Bowie Nat. Historic Site along Cut Off Canyon trail. Also Huachuca Mts., Pinaleno Mts., Animas Mts., White Mts. Apache County and Coconino County to Cochise and Santa Cruz counties. Texas to New Mexico and Arizona, southward into Mexico. Madrean.

Fence posts, browse. Eaten by porcupine, deer, Viosca's pigeon, and thick-billed parrot. Kartesz & Kartesz (1980) lists as separate from *Q. oblongifolia* but Lehr considers synonomous per: Muller, C. H., 1951, The oaks of Texas, Contr. Texas Res. Found., 1:21-323, Renner, Texas. See comments under *Q. arizonica*.

### **Quercus hypoleucoides** A. Camus

*Quercus hypoleuca* Engelm. non Miq.  
Silverleaf oak

[5,000] 5,200 - [8,600] 9,020 ft. May - Jun [Jul]. Broadleaf evergreen tree, microphanerophyte; microphyll, sclerophyll. Common at higher elevations on dry slopes with pines but becoming confined to canyon bottoms and adjacent slopes at lower elevations. *Pinus arizonica*, *P. strobiformis*, *P. leiophylla*, *P. discolor*, *Juniperus deppeana*, *Pseudotsuga menziesii*, *Quercus emoryi*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on Bowie Mtn; Greenhouse Canyon; along road between Onion Saddle and Rustler Park; Wilderness Area. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Mountains of Greenlee, Graham, Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and northern Mexico. Madrean.

Food for Apache Squirrel and thick-billed parrot. Crown sprouts vigorously following fire.

Exsicc.: CHIR [Clark 8086, Dodd 3, Reeves 1288, 1342, 1867, 2824, 3587]. SWRS [Wittmann 61]. CHWA [Leithlitter 39, 492, 690].

### **Quercus oblongifolia** Torr.

Encino azul

[4,100] 4,500 - [6,000] ft. Mar (Aug fruit) - May (Dec fruit). Broadleaf evergreen tree, microphanerophyte. Rocky slopes and streambeds, grama grassland. Lower edge of oak belt. *Quercus emoryi*, *Q. arizonica*, *Arctostaphylos pungens*, *Dasylinion wheeleri*, *Fouquieria splendens*.

Chiricahua Mts.: West Turkey Creek; Walnut Canyon. Also Huachuca Mts., Whetstone Mts., Dragoon Mts., Rincon Mts., Santa Catalina Mts., Baboquivari Mts., Mule Mts., Santa Rita Mts., Atascosa Mts., Peloncillo Mts., Pinaleno Mts., Sierra Madre Occidental: Rio Mayo, Canon Bavispes. Sierra de los Ajos. Mohave County and mountains of Cochise, Santa Cruz, and Pima counties. Arizona and northern Mexico. Madrean.

Exsicc.: ARIZ [Blumer 1297, 1955a].

### **Quercus pungens** Liebm.

Sandpaper oak

[4,000] 4,900 - 6,000 ft. Apr - Jun. Broadleaf evergreen shrub, microphanerophyte; microphyll, sclerophyll. Sometimes on limestone. *Sophora arizonica*, *Flourensia cernua*, *Glossopetalon spinescens*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in Cut Off Canyon and trail; 2 mi. west of Portal on Silver Creek Road; Swisshelm Mts. Also Huachuca Mts., Mule Mts., Whetstone Mts. Cochise County. Western Texas to southeastern Arizona. Chihuahuan.

Exsicc.: SWRS [Roth s.n.]. ASU [McLaughlin & McManus 226; Landrum 7015].

### **Quercus rugosa** Née

*Quercus diversicolor* Trel., *Q. reticulata* Humb. & Bonpl., *Q. rugosa* Nee  
Net-leaf oak

[4,000] 4,900 - [8,600] 9,760 ft. May - [Jul]. Broadleaf evergreen tree, microphanerophyte; microphyll, sclerophyll. Common in forest openings at higher elevations, becoming confined to riparian habitats lower down. *Pinus engelmannii*, *Quercus hypoleucoides*.

Chiricahua Mts.: Chiricahua Nat. Mon. at head of Natural Bridges Trail, Hunt Canyon, Rhyolite Canyon, Sarah Deming Canyon, Bonita Canyon; Fort Bowie Nat. Historic Site in upper South Canyon; West Turkey Creek; Greenhouse Canyon; Pine Canyon; Wilderness Area; Cave Creek; Shake Gulch; near Onion Saddle; Pine Canyon; Wood Canyon Park. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Santa Rita Mts. Southern Coconino County to Cochise, Santa Cruz, and Pima counties. Western Texas to central and southern Arizona and Mexico. Madrean.

Cattle eat the young leaves. Acorns are food for thick-billed parrots.

Exsicc.: CHIR [Clark 8124, Reeves 3243, 3571, 3670, 3775, 3937, Roseberry 5]. SWRS [SWRS 1958-44]. CHWA [Leithlitter 38, 327, 362, 437, 564, 685, 740]. ARIZ [Barr 66-171, 62-479; Blumer 1294, 1309, 1921, 1960, Goodding 169-47].

### **Quercus toumeyi** Sarg.

Toumey oak

[3,500] 4,900 - 7,250 ft. Fruit: Jun - Fruit: Jul. Broadleaf evergreen shrub, nanophanerophyte; nanophyll, sclerophyll. Common on sunny rocky and gravelly slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. at Pedestal Rock, Bonita Canyon. Fort Bowie Nat. Historic Site in Cut Off Canyon; West Turkey Creek; South Fork Cave Creek; Whitewater Draw. Also Huachuca Mts., Rincon Mts., Mule Mts., Animas Mts., Pajarito Mts., Santa Rita Mts., Patagonia Mts., Canelo Hills, Peloncillo Mts. Greenlee, Cochise, and Santa Cruz counties. Southwestern New Mexico, southern Arizona, and northern Mexico. Madrean.

Exsicc.: CHIR [Reeves 2357, 3053, 3500, 3594, 3935]. SWRS [SWRS 1960-263]. ARIZ [Taylor s.n.; Blumer 1280, 1924; Toumey s.n.]. SWRS [58-57; Clark 8665].

### **Quercus turbinella** Greene

*Quercus subturbanella* Trel.

Shrub live oak, turbinella oak

4,800 - 6,000 [8,000] ft. Broadleaf evergreen shrub, nanophanerophyte; nanophyll, sclerophyll. Common in Interior Chaparral type. Rocky canyon slopes, sunny washes, dry ridges. *Juniperus monosperma*, *Aloysia wrightii*, *Agave plameri*, *Cercocarpus montanus*, *Yucca baccata*, *Nolina microcarpa*, *Bouteloua curtipendula*, *B. hirsuta*, *Hilaria belangeri*, *Eragrostis intermedia*, *Muhlenbergia emersleyi*. Chiricahua Mts.: Fort Bowie Nat. Historic Site along Cut Off Canyon trail, above Apache Spring; Rucker Canyon. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Throughout Arizona, Colorado and Western Texas to California and northern Mexico. Southwestern.

Fort Bowie Nat. Historic Site is apparently one of the few localities for this species in the Chiricahua Mountains.

Exsicc.: SWRS [Roth s.n.].

### **FOUQUIERIACEAE—Ocotillo Family.**

A family of shrubs or small trees, armed with stout petiolar spines. A unigeneric family of seven species confined to the deserts of the southwest.

### **Fouquieria splendens** Engelm.

### Ocotillo

5,000 - 5,500 [6,500] ft. [Apr] May - Jun. Spinose deciduous shrub, microphanerophyte; nanophyll, orthophyll. Common on rocky and gravelly soil on bajadas and flats. Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site north of Overlook; 7 mi. northeast of Portal; Portal to Paradise road. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Southern Apache, Coconino, and northern Mohave counties to Cochise, Santa Cruz, Pima, and Yuma counties. Western Texas to southeastern California and northern Mexico. Southwestern.

Used for jacal construction and for ribs in Indian and Spanish adobe buildings. The Coahuila Indians of southern California are said to eat the flowers and capsules. Belt dressing of good quality can be manufactured from the wax that coats the stems. The Apache Indians relieve fatigue by bathing in a decoction of the roots and also apply the powdered roots to painful swellings.

Exsicc.: CHIR [Clark 8161, Reeves 2881, 3431]. FOBO [MHoy 214].

### FUMARIACEAE—Duchman's Breeches Family

Herbaceous plants with brittle stems and thin clear juice. Sixteen genera and 450 species are chiefly distributed in the north temperate Old World. Only 6 genera and 32 species are native to North America. The family is of little economic value; a few are cultivated as ornamentals.

### *Corydalis aurea* Willd ssp. *occidentalis*

(Engelm.) Owenbey

*Capnoides montanum* (Engelm.) Britt., *Corydalis aurea* var. *occidentalis* (Engelm.) Britt.

Golden corydalis

[1,500] 5,300 - 6,500 [9,500] ft. [Feb] Mar - Aug. Winter-annual forb, semirosette therophyte. Uncommon along hydoriparian streambeds and cool moist slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; Centella Point; Cave Creek. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Throughout Arizona except the extreme western part. Quebec to Alaska, south to Pennsylvania, Arizona, northern Mexico, and California. Northern, Temperate.

Exsicc.: CHIR [Reeves 2367, 2402]. SWRS [SWRS 1959-11].

### GARRYACEAE—Silk Tassel Family.

A small unigeneric family of dioecious evergreen shrubs, or less commonly, trees. There are about 15 species extending from California through the southwestern states and into Mexico and the West Indies.

### *Garrya flavescens* S. Wats.

*Garrya mollis* Greene, *G. congdonii* Eastw., *G. flavescens* var. *pallida* (Eastw.) R.C. Bacig. ex Ewan Quinine bush

[2,500] - [7,000] ft. [Jan] - [Apr]. Broadleaf evergreen shrub, nanophanerophyte; microphyll, sclerophyll. Uncommon on dry uplands. Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Sierra Ancha. Coconino, Mohave, Gila, Yavapai, Cochise, and Yuma counties. Western Texas, Arizona, southern Utah and Nevada, California, and northern Mexico. Southwestern.

Exsicc.: FOBO [MHoy s.n.]

### *Garrya wrightii* Torr.

Silk-tassel, coffeeberry-bush, quinine-bush

[3,000] 5,500 - 7,200 [8,000] ft. [Mar] Apr - Oct. Broadleaf evergreen shrub, microphanerophyte; microphyll, sclerophyll. Common but not in extensive groups. At higher elevations in dry sunny woodlands but becoming shade tolerant and growing on benches in cool canyons and ravines elevations. *Pseudotsuga menziesii*, *Pinus arizonica*, *P. strobusiformis*, *P. discolor*, *P. leiophylla*, *P. engelmannii*, *Arctostaphylos pungens*, *Juniperus deppeana*, *Quercus hypoleucoides*, *Q. arizonica*, *Q. emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon, Picket Park; Pine Canyon; West Turkey Creek Ranger Station; Fort Bowie Nat. Historic Site on hill north of first fort; South Fork Cave Creek. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Coconino, Greenlee, Gila, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Madrean.

Rubber in small quantity has been extracted from this shrub. This species vigorously rootsprouts following fire.

Exsicc.: CHIR [Clark 8153, Reeves 1322, 1904, 3423, 3742, 3975]. FOBO [MHoy 52]. SWRS [1959-185].

### GENTIANACEAE—Gentian Family.

A family of herbs, rarely subshrubs or shrubs. Plants sometimes saprophytic. About 70 genera and about 800 species, of world-wide distribution and most abundant in temperate regions.

### *Centaurium calycosum* (Buckl.) Fern.

*Centaurium arizonicum* (Gray) Heller, *C. calycosum* var. *breviflorum* Shinners  
Canchalagua

[150] 5,400 - 5,800 [6,000] ft. [Mar] Jul - Aug [Nov]. Winter annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Local. Full sun and partial shade in parks and on mesoriparian canyon benches. Can tolerate saline poorly-drained soils.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Bonita Canyon and East Whitetail Canyon. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Canelo Hills. Almost throughout Arizona. Western Texas to southern Utah, Nevada, Arizona, and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 8359, Reeves 1391, 4362].

### *Frasera speciosa* Dougl. ex Griseb.

*Frasera angustifolia* (Rydb.) Rydb., *F. macrophylla* Greene, *F. speciosa* var. *angustifolia* Rydb., *F. speciosa* var. *stenosepala* Rydb., *F. stenosepala* (Rydb.) Rydb., *Swertia radiata* (Kellogg) Kuntze, *S. radiata* var. *macrophylla* (Greene) St. John, *Tassaranthium angustifolium* (Rydb.) Rydb., *T. macrophyllum* (Greene) Rydb.

Elkweed, green-gentian

[5,000] 6,500 - 9,680 [10,000] ft. [May] Jul - Sep. Perennial deciduous forb, semirosette hemicyphotophyte; mesophyll, orthophyll. Uncommon on canyon sides, dry uplands, partial sun, in rich soil in open pine forests; progressively more confined to canyons at lower elevations.

Chiricahua Mts.: Chiricahua Nat. Mon.; North (Fork) Pinery Canyon; Bootlegger Saddle; 1 mi. east of Cima Cabin along trail; Rustler Park. Also Pinaleno Mts., Huachuca Mts., Rincon Mts., Sierra Ancha., Santa Catalina Mts. Apache County to Coconino

County, south to Cochise and Pima counties. South Dakota to Washington, south to New Mexico, Arizona, California, and northeastern Mexico. Western.

Exsicc.: CHIR [Clark 8374]. SWRS [KRoth s.n., Bertrand s.n.]. CHWA [602]. ARIZ [Blumer 28 1619; Shreve 5291; Hope & Duncan 9990; Loomis et al. 2215; Johnson s.n.; Gold s.n., 3568].

### **Gentianella microcalyx** (Lemmon) J. Gillett *Gentiana microcalyx* Lemmon Gentian

[5,000] 6,230 - 8,040 ft. [Aug] Sep - Oct. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Local. Mesic sites in wooded canyons.

Chiricahua Mts.: Chiricahua Nat. Mon.; upper Echo and far Upper Jesse James canyons; South Fork Cave Creek along trail to Maple Camp; Wilderness Area. Also Rincon Mts., Huachuca Mts., Santa Rita Mts., Santa Catalina Mts., Sierra de los Ajos. Cochise, Santa Cruz, and Pima counties. Sonora, Mexico. Madrean.

This plant, described as new to science, was collected by J.C. Lemmon and wife circa 1881, in the Chiricahua Mts.

Exsicc.: CHIR [Reeves 3606, 4286]. SWRS [Walker s.n.]. CHWA [Leithliter 708].

### **Gentianella wislizeni** (Engelm.) J. Gillett *Gentiana wislizeni* Engelm.

[7,000] 8,860 - 9,590 ft. Jul - Oct. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Rare in dry meadows, openings in pine forests. *Senecio macdougalii*, *Conyzia schiedeana*, *Arenaria confusa*, *Carex vallicola*, *Pseudotsuga menziesii*, *Populus tremuloides*, *Pinus arizonica*, *P. strobus*.

Chiricahua Mts.: Wilderness Area, Flys Peak; Centella Point; Barfoot Park; Barfoot Peak; Rustler Park; Round Park. Also White Mts. Apache and Cochise counties. Southeastern Arizona and northern Mexico. Madrean.

Exsicc.: SWRS [Cummings s.n.]. CHWA [Leithliter 677, 733]. ARIZ [Blumer 177, 1414, Barr 65-424, Van Devender et al. 89-311, Fishbein 481, Daniel 1847].

### **Halenia recurva** (Sm.) Allen

*Swertia recurva* Sm.

#### Spur gentian

[7,500] 7,540 - 9,200 [10,000] ft. Aug - Sep. Summer annual forb, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Uncommon on open mountain slopes, dry meadows, mesoriparian canyons, burn sites. *Senecio macdougalii*, *Conyzia schiedeana*, *Arenaria confusa*, *Carex vallicola*, *Pinus arizonica*, *Quercus gambelii*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Centella Point; Fly Peak Trail; Fly Park; Morse Canyon; Long Park; Barfoot Park; Rustler Park. Also Pinaleno Mts., Mogollon Mts. Sierra Madre Occidental, Sierra Madre Oriental (Coahuila). Southern Apache and Coconino counties to eastern Cochise County. Arizona and northern Mexico. Madrean.

Exsicc.: ARIZ [Starr 127, Van Devender s.n., Burgess 4650, Barr 64-487, Blumer 1359, Darrow et al. 1232, Lehto 8893]. SWRS [Cummings s.n.]. CHWA [Leithliter 535, 805, 809].

## **GERANIACEAE—Geranium Family.**

A family of mostly herbaceous plants, sometimes suffrutescent or shrubby, the stems often fleshy. About 11 genera and about 850 species widely distributed over temperate and subtropical regions of the northern and southern hemispheres.

### **Erodium cicutarium** (L.) L'Her. ssp.

**jacquinianum** (Fischer, C.A. Mey. & Ave-Lall.) Briq.

*Geranium cicutarium* L. *G. aethiopicum* Lam.,

*Erodium aethiopicum* Brumhard & Thell.

Alfilerillo, red-stemmed filaree, stork's bill

[4,000] 5,000 - 7,308 [8,000] ft. [Feb] Mar - Jul.

Winter-annual forb, rosette therophyte. Uncommon, very common. Xeric sunny slopes and flats, waste places; an indicator of disturbance.

Chiricahua Mts.: Chiricahua Nat. Mon. at Summit of Sugarloaf Mtn. and Lower Sarah Deming Canyon; 0.2 mi. west of bridge at Camp Stewart on Cave Creek; Fort Bowie Nat. Historic Site at ruins. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Throughout Arizona. Extensively naturalized in the United States from southern Europe. British Columbia to southern California. Alien. Temperate, Introduced.

Exsicc.: CHIR [Dole 99, Reeves 3982]. FOBO [MHoy 84]. SWRS [SWRS 1959-28].

### **Erodium texanum** Gray

Filaree

[1,000] 4,800 - 5,000 ft. [Feb] - Apr. Winter-annual forb, rosette therophyte. Uncommon on south-facing rocky slopes, rocky flats in grassland and desert scrub.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in Parking Lot; Portal. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts. Coconino County, Yavapai, Gila, Pinal, and Pima counties. Also reported from Greenlee County. Texas to southern Utah and southeastern California. Southwestern, Plains.

Exsicc.: FOBO [MHoy 91]. SWRS [Roth s.n.].

### **Geranium caespitosum** James

Cranesbill

[5,000] 5,400 - 8,330 [9,000] ft. [May] Jul - Aug [Sep].

Perennial deciduous forb, semirosette hemicryptophyte. Uncommon in canyons and openings on slopes in pine forests.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Park and Upper Rhyolite Canyon; Southwestern Research Station; Wilderness Area, along Greenhouse Trail. Also Huachuca Mts., Pinaleno Mts., Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Apache County to Coconino County, south to the mountains of Cochise and Pima counties. Colorado and Utah, south to western Texas, New Mexico, Arizona, and Mexico. Southwestern.

Exsicc.: CHIR [Reeves 3659, 3769, 4269]. SWRS [Ordway 125]. CHWA [Leithliter 176].

### **Geranium caespitosum** James var.

**eremophilum** (Woot. & Standl.) W.C. Martin & C.R. Hutchins

*Geranium eremophilum* Woot. & Standl.

Cranesbill

[4,500] 5,400 - 6,700 [9,000] ft. [Jun] Jul - Sep [Oct].

Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon in mesoriparian canyons, mesic forest slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Bonita Canyon, Bonita Park and upper Rhyolite Canyon. Also Sierra Ancha, Santa Catalina Mts., Pinaleno Mts. Apache County to Mohave County, south to Cochise and Pima counties. New

Mexico and Arizona. Madrean.  
Exsicc.: CHIR [Reeves 1296, 1501, 3627].

**Geranium caespitosum** James var. **fremontii**  
(Torr. ex Gray)  
*Geranium fremontii* (Torr. ex Gray, *G. toquimense* A. & N. Holmgren

[8,000] - 8,200 [9,000] ft. [Jun] - [Sep]. Perennial deciduous forb, semirosette hemicryptophyte; microphyll, orthophyll. Uncommon in coniferous forests and meadow edges.

Chiricahua Mts: Long Park. Also Santa Catalina Mts., Pinaleno Mts., Baboquivari Mts., Sierra Ancha. Apache County, Pima County, Cochise County. Wyoming, Colorado, New Mexico, Arizona. Rocky Mountain.

Chiricahua distribution fide Russell (1982).

**Geranium richardsonii** Fisch. & Trautv.  
Cranesbill

[6,500] 7,050 - 9,680 [11,500] ft. [Apr] May - Oct. Perennial deciduous forb, semirosette hemicryptophyte. Common on rich soil on cool moist slopes in coniferous forests; at higher elevations in open habitats on south slopes, at lower elevations becomes progressively confined to deep shaded canyons.

Chiricahua Mts.: Rustler Park; Long Park; Barfoot Park; Wilderness Area, along Crest Trail; Bootlegger Trail; Centella Point. Also Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Rincon Mts., Sierra de los Ajos. Apache County to Coconino County, south to Cochise and Pima counties. South Dakota to British Columbia, southward through New Mexico, Arizona, southern California into Mexico beyond the Rio Mayo. Western.

Exsicc.: SWRS [Roth s.n., SWRS 1959-775, Ordway s.n.]. CHWA [Leithliter 95, 155, 531, 542, 595, 613, 650, 838].

**GROSSULARIACEAE**

A monogeneric family (Ribes) of about 150 species distributed in the temperate zone of the northern hemisphere. Split out of *Saxifragaceae*, a taxonomically difficult family, by Bessey. Some authors do not recognize the *Grossulariaceae* but here we follow the practice by ARIZ.

**Ribes pinetorum** Greene.

*Grossularia pinetorum* Coville & Britt.

Orange gooseberry

[7,000] - 9,300 [10,000] ft. [Apr] May - Sep. Broadleaf deciduous shrub, nanophanerophyte. Uncommon in forest openings and along streams. *Senecio wootonii*, *Conyza schiediana*, *Arenaria confusa*.

Chiricahua Mts.: Greenhouse Trail; Wilderness Area, near Cima Cabin; Centella Point; Winn Falls. Also Pinaleno Mts., Santa Catalina Mts. Apache, Navajo, and Coconino counties, south to Cochise and Pima counties. New Mexico and Arizona. Southwestern.

Exsicc.: SWRS [Cummins s.n.]. CHWA [Leithliter 63, 590]. ARIZ [Fishbein 434; Fairbanks 18].

**HALORAGIDACEAE**—Water Milfoil Family.

A family of 8 genera and about 100 species. Diverse appearing aquatic or terrestrial herbs, rarely suffrutescent. Widely distributed on all continents.

**Myriophyllum aquaticum** (Vell.) Verdc.  
*Enydria aquatica* Vell., *Myriophyllum brasiliense*

Camb., *M. proserpinacoides* Gillies ex Hook. & Arn.  
Parrot-feather

6,000 ft. Perennial deciduous forb; microphyll, orthophyll. Wetlands and ponds.

Chiricahua Mts.: West Turkey Creek, El Coronado Ranch. Sierra Ancha. In a pond near Sacaton, Pinal County. Native of South America. Latin American, Introduced.

Commonly grown in aquaria and ponds.

**Myriophyllum sibiricum** Komarov

*Myriophyllum exalbescens* Fern., *M. exalbescens* var. *magdalenense* (Fern.) A. Löve, *M. magdalenense* Fern., *M. spicatum* L. ssp. *exalbescens* (Fern.) Hult., *M. spicatum* var. *capillaceum* Lange, *M. spicatum* ssp. *exalbescens* (Fern.) Hult.én, *M. spicatum* ssp. *squamulosum* Laestad. ex Hartman, *M. spicatum* var. *capillaceum* Lange.

Parrot feather, water milfoil

[5,000] 5,400 - [9,000] ft. [Apr]. Perennial deciduous forb; microphyll, orthophyll. Uncommon in ponds and tanks, lakes.

Chiricahua Mts.: Southwestern Research Station reservoir. Also Pinaleno Mts. Apache, Navajo, and Coconino counties. Canada to Florida, northern Arizona, and California. Temperate.

Exsicc.: SWRS [Roth s.n.].

**HYDRANGEACEAE**—Hydrangea Family.

Split out of *Saxifragaceae*, a taxonomically difficult family, by Bessey. Some authors do not recognize the *Hydrangeaceae* but here we follow the practice by ARIZ.

**Fendlera rupicola** Gray

Fendler bush

[4,500] 5,000 - 8,560 ft. [Mar] Apr - Aug. Broadleaf deciduous shrub, nanophanerophyte. Common in woodland and shaded canyons.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on Bowie Mountain; South Fork Cave Creek; Cypress Gap Canyon; below Southwestern Research Station; Wilderness Area. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Santa Rita Mts. Southwestern.

Exsicc.: CHIR [Clark 8148, Reeves 2832, 3631, 3675]. FOBO [MHoy 238]. SWRS [SWRS 1958-222, 1959-61, Walker s.n.]. CHWA [Leithliter 560].

**Fendlerella utahensis** (S. Wats.) Heller var.

**cymosa** (Greene) Kearney & Peebles

[4,500] 5,400 - 9,680 ft. [May] Jun - Sep. Broadleaf deciduous shrub, nanophanerophyte. Common on rocky slopes, wooded canyons and chaparral, sometimes on limestone.

Chiricahua Mts.: Chiricahua Nat. Mon.; west ridge of Silver Peak; north-facing slope of Greenhouse Canyon; Wilderness Area. Also Huachuca Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts. Graham, Cochise, Santa Cruz, and Pima counties. Southern New Mexico, southern Arizona, and northern Mexico. Deer browse. Chihuahuan.

Exsicc.: CHIR [Clark 8147, Reeves 977, 1734A, 3256, 3932]. SWRS [id. C. Mason]. CHWA [416, 472].

**Philadelphus argenteus** Rydb.

*Philadelphus microphyllus* Gray ssp. *argenteus* (Rydb.) C.L. Hitchc., *P. microphyllus* var. *argenteus*

(Rydb.) Kearney & Peebles

[5,000] 6,000 - 9,000 ft. May - Aug. Broadleaf deciduous shrub, nanophanerophyte. Uncommon on rocky mesic slopes and mesoriparian drainages. *Pseudotsuga menziesii*, *Abies concolor*, *Picea engelmannii*.

Chiricahua Mts.: above Rustler Park; Rucker Canyon; Chiricahua Nat. Mon. on Sugarloaf Mtn. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Baboquivari Mts., Mule Mts., Peloncillo Mts., Animas Mts. Apache County to Coconino County, south to Cochise, Santa Cruz, and Pima counties. Southwestern Wyoming to western Texas, southeastern California, and northern Mexico. Southwestern.

Exsicc.: ARIZ [Reeves 928; Taylor & Cassidy s.n., O.M. Clark 8176, Goodding s.n.].

**Philadelphus madrensis** Hemsl.

*P. microphyllus* Gray ssp. *argyrocalyx* (Woot.) C.L.

Hitchc. pro parte, *P. madrensis* ssp. *argenteus* C.L.

Hitchc. pro parte

Mock-orange

5,200 - 9,790 ft. Jun - Sep. Broadleaf deciduous shrub, nanophanerophyte. Common on rocky, wooded slopes and along drainages.

Chiricahua Mts.: Chiricahua Nat. Mon.; near Paradise turnoff; Mineral Peak; Wilderness Area. Also Huachuca Mts., Santa Catalina Mts., Animas Mts. Southern Coconino County to Graham, Cochise, and Pima counties. Southern New Mexico and northern Mexico. Southwestern, Rocky Mountain.

The Southwestern Research Station holdings may be a mixed collection.

Exsicc.: CHIR [Clark 8176, Reeves 980, 3404, 3595, 3640, 3674, 3931]. SWRS [Waler s.n., s.c. s.n.]. CHWA [Leithliter 184, 394, 538, 724, 847].

**Philadelphus microphyllus** Gray

*Philadelphus argenteus* Rydb., *P. microphyllus* var. *argenteus* (Rydb.) Kearney & Peebles

Mock-orange

[5,000] 6,000 - 9,790 ft. May - Sep. Broadleaf deciduous shrub, nanophanerophyte. Uncommon on rocky mesic slopes, mesoriparian drainages. *Pseudotsuga menziesii*, *Abies concolor*, *Picea engelmannii*, *Pinus arizonica*.

Chiricahua Mts.: above Rustler Park; Rucker Canyon; Chiricahua Nat. Mon. on Sugarloaf Mtn., Sara Deming Canyon, Rhylolite Canyon; near Paradise; Mineral Peak; Wilderness Area; Barfoot Park; Tub Spring; Flys Peak. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Baboquivari Mts., Mule Mts., Peloncillo Mts., Huachuca Mts., Animas Mts., Santa Rita Mts. Apache County to Coconino County, south to Cochise, Santa Cruz, and Pima counties. Southwestern Wyoming to western Texas, southeastern California, and northern Mexico. Rocky Mountain.

Exsicc.: ARIZ [Reeves 928, Taylor & Cassidy s.n., Clark 8148, 8176, Goodding s.n., Henry 41, Kaiser 49-188, Mason et al. 2685, Spaulding 75-10-33, McCormick 58-74, 58-156].

**HYDROPHYLACEAE—Waterleaf Family.**

A family mostly of annual or perennial herbs, often scabrid hairy, glandular, or bristly. A widely distributed family occurring on all continents except Australia. It is especially abundant in western North America and extends south to the Straits of Magellan. It is represented by 20 genera and 265 species with 15 genera in the United States, most of them in the west.

**Nama dichotomum** (Ruiz & Pavon) Choisy

[5,500] 5,800 - [8,000] ft. [Aug] Sep - Sep. Summer annual forb, scapose or leafy-stemmed therophyte, nanophyll, orthophyll. Uncommon in disturbed areas.

Chiricahua Mts.: Chiricahua Nat. Mon.; East Whitetail Canyon at monument boundary. Also Huachuca Mts., Rincon Mts., Coconino County and Cochise County. Colorado, New Mexico, Arizona, and Mexico; South America. Southwestern, Latin American.

Exsicc.: CHIR [Moir 454].

**Nama hispidum** Gray

*Nama foliosum* (Woot. & Standl.) Tides., *N.*

*hispidum* var. *mentzelii* Brand, *N. hispidum* var.

*revolutum* Jepson, *N. hispidum* Gray var.

*spathulatum* (Torr.) C.L. Hitchc., *N. tenue* (Woot. & Standl.) Tides.

5,400 ft. [Feb] - Jun. Winter-annual forb, scapose or leafy-stemmed therophyte. Uncommon in sandy streambeds, gravelly flats.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Bonita Canyon; Fort Bowie Nat. Historic Site. Also Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts. Almost throughout Arizona. Oklahoma and Colorado to Arizona, southeastern California, and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 8189]. SWRS [Roth s.n.].

**Phacelia arizonica** Gray

*Phacelia popei* Torr. & Gray var. *arizonica* (Gray) Voss

[1,500] 5,000 - 6,000 ft. [Feb] Mar - Apr [May]. Winter annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon on grassy plains and mesas, south-facing slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in East Whitetail Canyon; Fort Bowie Nat. Historic Site at ruins. San Simon Valley near Rodeo. Also Huachuca Mts., Animas Mts. Graham, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and northern Mexico. Chihuahuan.

Exsicc.: CHIR [Reeves 2539, 3523, 3822]. SWRS [Walker s.n.]. FOBO [MHoy 364].

**Phacelia coerulea** Greene

*Phacelia intermedia* Woot. pro parte

[2,000] - [5,000] ft. [Mar] May - [Jun]. Winter annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon on rocky slopes, most common on limestone.

Chiricahua Mts.: Round Valley 6 mi. north of Portal. Also Huachuca Mts., Rincon Mts., Animas Mts. Coconino and Mohave counties to Greenlee, Graham, Santa Cruz, Pima and Yuma counties. Western Texas to southern Nevada, southeastern California, and northern Mexico. Southwestern, Californian.

Exsicc.: SWRS [Mouat s.n.].

**Phacelia congesta** Hook.

*Phacelia congesta* var. *dissecta* Gray

5,100 ft. Apr. Winter annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill northeast of Overlook. Also Animas Mts. Yavapai County. Texas to southeastern Arizona. Southwestern.

Exsicc.: FOBO [MHoy 349].

### **Phacelia crenulata** Torr.

5,100 ft. [Feb] Apr - [Jun]. Winter-annual forb, semirosette therophyte. On sunny plains, mesas, and foothills.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill east of trail. Also Santa Catalina Mts. Throughout the state except in the extreme northeastern portion. Southern Utah to New Mexico, Arizona, southeastern California, and Baja California. Southwestern.

Exsicc.: SWRS [Roth s.n.]. FOBO [MHoy 100].

### **Phacelia egena** (Greene ex Brand) Greene ex

J.T. Howell

#### *Phacelia magellanica* (Lam.) Coville

[4,000] 7,200 - 9,000 [9,500] ft. [Apr] - Aug [Oct].

Perennial deciduous forb, semirosette hemicryptophyte. Uncommon on rocky slopes in coniferous forests, often on old burns in sun, along drainages at lower elevations.

Chiricahua Mts.: Wilderness Area, along Crest Trail; Winn Falls. Also Pinaleno Mts., Sierra Ancha, Rincon Mts., Santa Catalina Mts., Huachuca Mts., Sierra de los Ajos. Apache County to Coconino County, south to Cochise, and Pima counties. Alberta and British Columbia to New Mexico, Arizona, and California; South America. Western, Latin American.

Exsicc.: SWRS [Roth s.n., Wittmann 98]. CHWA [Leithliter 627A].

### **Phacelia heterophylla** Pursh

[4,000] ft. - 8,400 [9,500] ft. [Apr] - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Mesic coniferous forests and drainages.

Chiricahua Mts.: Barfoot Peak, upper Pine Canyon. Also Pinaleno Mts., Animas Mts. Alberta and British Columbia south to New Mexico, Arizona, California; South America. Western.

Exsicc.: NMC [Moeller s.n.; Blumer 1471].

### **IRIDACEAE—Iris Family.**

A family of perennial herbs or very rarely subshrubs, the roots produced from rhizomes, bulbs, or corms. About 58 genera and about 1,500 species, distributed over much of the earth except in coldest regions; the center of distribution is Africa. About 33 genera are restricted to the Old World, 14 to the New World, and 2 are disjuncts each occurring in Chile and Australasia. Economic usefulness is mostly as ornamentals but also as a source of orris root used to flavor toothpaste and for saffron dye.

### **Iris missouriensis** Nutt.

*Iris longipetala* Herbert, *I. missouriensis* var.

*arizonicus* (Dykes) R.C. Foster, *I. missouriensis* var.

*pelagonius* (Goodding) R.C. Foster, *I. parviflora*

Welsh, *I. tolmieana* Herbert

Rocky Mountain iris

[6,000] 8,300 - 9,600 ft. May - Jun [Sep]. Perennial deciduous forb, bulb geophyte; microphyll, orthophyll. Common in wet meadows, swales, and lower slopes; often extensive in disturbed and over-grazed habitats. *Pinus engelmannii*, *P. arizonica*, *Agrostis scabra*, *Muhlenbergia filiformis*, *Poa fendleriana*, *P. pratensis*, *Delphinium andesicola*, *Senecio bigelovii*.

Chiricahua Mts.: Rustler Park; Greenhouse Trail; Barfoot Park; Pine Canyon; Wilderness Area; Long Park; Round Park; Cima Park; Centella Point; Flys Peak, Bootlegger Saddle. Also

Sierra Ancha, Huachuca Mts., Sierra de los Ajos. Apache, Navajo, and Coconino counties, south to Cochise County. North Dakota to British Columbia, south to New Mexico, Arizona, and California. Western.

Type collected in the Chiricahua Mts. by J.C. Blumer.

Exsicc.: SWRS [Ordway 95, Abbott s.n.]. CPSU [Bennett s.n.]. ARIZ [Blumer 1556].

### **Sisyrinchium arizonicum** Rothrock

*Oreolirion arizonicum* (Rothr.) Bickn.

[6,000] ft. - 9,000 [9,500] ft. [Jul] - [Aug]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Dry portions of meadows, in coniferous woods. *Iris missouriensis*.

Chiricahua Mts.: Round Park. Also White Mts., Huachuca Mts., Santa Catalina Mts. Apache County, Coconino County, Cochise and Pima counties. New Mexico and Arizona, northern Mexico. Madrean.

Exsicc.: SWRS [Walker s.n.].

### **Sisyrinchium longipes** (Bickn.) Kearney & Peebles

*Hydastylus longipes* Bickn.

Yellow-eyed grass

[7,500] - 9,590 ft. Jul - Aug [Sep]. Perennial deciduous forb, rosette therophyte. Uncommon in springy places and open spruce and pine woods, wet soil of springs, seeps, and pools, dry meadows.

Chiricahua Mts.: Wilderness Area. Also Santa Catalina Mts., White Mts., Pinaleno Mts., Rincon Mts. San Francisco Peaks (Coconino County), Apache, Graham, Cochise, and Pima counties. Arizona and northern Mexico. Madrean.

Exsicc.: CHWA [Leithliter 185, 553].

### **JUGLANDACEAE—Walnut Family.**

A family of deciduous monoecious trees or rarely shrubs. About 6 or 7 genera and about 60 species, mostly of the north temperate zone but with a distributional zone extending through Central America along the Andes to Argentina and another from temperate Asia to Java and New Guinea. *Juglans* is the only genus indigenous to western North America. This family is of major importance for lumber (walnut, hickory) and nuts (walnut, hickory, pecan).

### **Juglans major** (Torr.) Heller

*Juglans microcarpa* Berl. var. *major* (Torr.) L.

Benson, *J. rupestris* Engelm. ex Torr. var. *major*

Torr., *J. elaeopyren* Dode

Arizona walnut

[3,500] 4,700 - 5,500 [7,000] ft. May - Jun [Jul]. Broadleaf deciduous tree, microphanerophyte; mesophyll, orthophyll. Common in riparian woods and lower slopes. *Platanus wrightii*, *Populus fremontii*, *Fraxinus pennsylvanica velutina*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Lower Bonita Canyon; Fort Bowie Nat. Historic Site in Siphon Canyon; West Turkey Creek; Pine Canyon, East Turkey Creek, Cave Creek, Portal to Paradise road; junction of Cave Creek - Portal - San Simon roads.; Paradise; lower Whitetail Canyon. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Mule Mts., Animas Mts., Sierra Ancha, Santa Catalina Mts., Sierra de los Ajos. New Mexico, Arizona, and northern Mexico. Madrean.

Shade tree. Nuts eaten by Indians of Arizona and New Mexico. Wood is durable but little used. Other species have been employed medicinally and as insecticides, and it is probable that

the native species has similar properties. Kearney & Peebles question the validity of this species since it freely hybridizes.  
Exsicc.: CHIR [Clark 8162, Pinkava 2336-5, Reeves 1392, 2283]. SWRS [SWRS 1959-221].

### JUNCACEAE—Rush Family.

A family of rushlike or grasslike perennial or annual herbs (or rarely shrubs) often with hairy roots from an erect or horizontal rhizome. About 8 genera and about 315 species largely of temperate regions of the southern hemisphere. It is absent or rare in the tropics. This is a very ancient family, reportedly extending through the Tertiary and back into the Cretaceous. The mountains of Eurasia, or Old World tropics, or Antarctica are thought by various experts to be the center of origin. The family is closely allied to the Liliaceae.

**Juncus balticus** Willd. var. **montanus** Engelm.  
*Juncus arcticus* ssp. *ater* (Rydb.) Hult.én, *J. arcticus* var. *montanus* (Engelm.) Welsh, *J. ater* Rydb.

#### Rush, wire rush

[3,500] - 5,400 [9,500] ft. Jul - [Sep]. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon in meadows, cool moist slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station in swamp. Also Sierra Ancha, Pinaleno Mts. Throughout Arizona. From Kansas to Alaska, Arizona, and California. Temperate.

Exsicc.: CHIR [Reeves 3278]. SWRS [Roth s.n.].

**Juncus drummondii** E. Mey.

#### Rush

5,100 - [11,500] ft. Apr. Perennial deciduous forb, rhizome geophyte; nanophyll, orthophyll.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at Spring by Pass Tank. San Francisco Peaks, Coconino County. Alaska to California, northern Arizona, and New Mexico. Temperate.

Exsicc.: FOBO [MHoy 368].

**Juncus interior** Wiegel

#### Rush

[1,000] 5,400 - 7,000 [8,000] ft. Jun - Sep. Perennial graminoid, rosette hemicyclopedia. Common in mountain ravines and wet places.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Coconino County to Graham, Cochise, and Pima counties. Illinois and Missouri to Washington, south to Texas and Arizona. Western.

Exsicc.: CHIR [Clark 8204, 8296, Reeves 1376, 3099, 3592].

**Juncus longistylis** Torr.

#### Rush

[4,500] - 5,400 [9,500] ft. [Jun] Jul - Sep. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon in meadows.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Pinaleno Mts., Canelo Hills. Apache, Navajo, Coconino, Yavapai, Greenlee, Graham, and Gila counties. Minnesota to British Columbia, south to New Mexico, Arizona, and California. Temperate.

Exsicc.: CHIR [Clark 8273, Reeves 1395, 3476].

**Juncus marginatus** Rostk. var. **setosus** Coville  
*Juncus setosus* (Coville) Small

### Rush

[2,500] - 6,800 ft. Jun - Aug. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon on damp soil in streambeds. *Cupressus arizonica*.

Chiricahua Mts.: Wilderness Area. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Animas Mts. Graham and Pima counties. Maine to Ontario and Nebraska, southward to Florida, Louisiana, and Mexico. Temperate.

Exsicc.: CHWA [Leithlitr 365].

**Juncus mexicanus** Willd. ex J.A. & J.H. J.A.

#### Schultes

*Juncus balticus* Willd. var. *mexicanus* (Willd.)

#### Kuntze

#### Rush

[3,500] - 5,400 [9,500] ft. Jun - Sep. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon in meadows, especially in slightly saline soils.

Chiricahua Mts.: Chiricahua Nat. Mon.; Canelo Hills. Apache, Navajo, Coconino, Yavapai, Cochise, and Santa Cruz counties. Texas, Arizona, California, and Mexico. Southwestern.

Exsicc.: CHIR [Reeves 1404, 2875A].

**Juncus saximontanus** A. Nels.

*Juncus ensifolius* Wikstr. var. *brunnescens* (Rydb.)

Cronq., *J. ensifolius* var. *montanus* (Engelm.) C.L.

Hitchc., *J. saximontanus robustior* Peck, *J.*

*xiphiooides* E. Mey. var. *macranthus* Engelm., *J.*

*xiphiooides* var. *montanus* Engelm.

#### Rush

[4,000] 4,900 - 9,000 [9,500] ft. May [Jul] - Oct. Perennial graminoid, rosette hemicyclopedia. Common in mountain ravines, springs, and cool moist slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in upper South Canyon; below Echo Canyon Dam; Herb Martyr Dam; Wilderness Area near Bear Spring and at Monte Vista Lookout. Also Huachuca Mts., Rincon Mts., Animas Mts., Pinaleno Mts., Lukachukai Mts., Sierra Ancha, Santa Catalina Mts., Canelo Hills, Sierra de los Ajos. Coconino County, Yavapai, Greenlee, Apache, Cochise, and Pima counties. Colorado to British Columbia, south to New Mexico, Arizona, and California. Sonora, Mexico. Western.

Exsicc.: CHIR [Clark 8272, Reeves 1887, 2856, 3475, 4379]. FOBO [MHoy 176]. SWRS [Walker s.n.].

**Juncus tenuis** Willd.

*Juncus macer* S.F. Gray, *J. tenuis* var. *anthelatus*

Wieg., *J. tenuis* var. *multicornis* E. Mey., *J. tenuis*

var. *williamsii* Fern.

#### Rush

[1,000] - 5,800 [6,500] ft. Aug. Perennial graminoid, rosette hemicyclopedia. Uncommon in wet, sometimes open, drainages.

Chiricahua Mts.: Cave Creek Canyon above Herb Martyr; Chiricahua Nat. Mon. in Whitetail Canyon. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts. Coconino, Yavapai, Maricopa, Pinal, and Cochise counties. From Newfoundland to Washington, south to Mexico and California. Temperate.

Exsicc.: CHIR [Reeves 4380]. SWRS [Roth s.n.].

**LABIATAE (LAMIACEAE)**—Mint Family.

A family of predominantly annual or perennial herbs, sometimes

shrubs, and rarely trees or lianas, herbage usually with aromatic oils; stems and twigs usually quadrangular. A large family of about 200 genera and 3,200 species of world-wide distribution but with center of distribution in the Mediterranean region where they form a dominant part of the vegetation. Economically important as spices (sage, rosemary, mint, marjoram, basil, thyme, savory) and essential oils.

**Agastache breviflora** (Gray) Epling

Giant-hyssop

[6,000] 6,100 - 9,300 ft. Jul - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon on wooded canyon slopes and shaded cliffs. *Pinus arizonica*, *P. engelmannii*, *Pseudotsuga menziesii*, *Quercus hypoleucoides*.

Chiricahua Mts.: Chiricahua Nat. Mon. in upper Rhyolite Canyon, Hunt Canyon, Totem Canyon; Pine Canyon, 2.5 mi. above Methodist Camp; Wilderness Area, Centrelia Point. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts. Graham, Cochise, Santa Cruz, and Pima counties. Southern New Mexico and Arizona, and northern Mexico. Apachian.

Exsicc.: CHIR [Clark 8589, 8734, Reeves 983, 4245].  
SWRS [SWRS 1959-696]. CHWA [Leithliter 180, 376, 505, 577].

***Agastache pallidiflora* (Heller) Rydb. ssp.*****neomexicana* (Briq.) Lint. & Epl. var.*****harvardii* (Gray) Sanders***Agastache breviflora* (Gray) Epl. var. *harvardii* (Gray) Shinners, *A. pallidiflora* ssp. *harvardii* (Gray) Lint & Epl.**Giant hyssop**

[7,000] - 8,300 [10,000] ft. [Jun] - Sep [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon on rich, moist soil of coniferous forests.

Chiricahua Mts.: Rustler Park; Barfoot Park. Also Pinaleno Mts., Animas Mts., Lukachukai and White Mts. Apache, Graham, Coconino, and Cochise counties. Colorado, New Mexico, and Arizona. Southwestern.

Exsicc.: SWRS [Walker s.n.]. NMC [Blumer 1407].

***Hedeoma dentata* Torr.****Mock-pennyroyal**

[4,000] 5,400 - 6,800 [7,500] ft. May - Sep [Oct]. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte; nanophyll, orthophyll. Uncommon in sunny woodland clearings, wooded canyons, well-drained soil. *Quercus emoryi*, *Pinus discolor*, *Garrya wrightii*, *Salix gooddingii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Little Jesse James Canyon, Bonita Canyon, Echo Canyon; East Turkey Creek; Paradise; Herb Martyr Dam, East Whitetail Canyon. Also Huachuca Mts., Santa Rita Mts., Atascosa Mts., Dragoon Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Dos Cabezas Mts., Canelo Hills. Graham, Gila, Cochise, Santa Cruz, and Pima counties. Southern Arizona and northern Mexico. Apachian.

Exsicc.: CHIR [Clark 8106, Dole 103, Reeves 3600, 4358A]. SWRS [s.c.s.n., Walker s.n.]. NMC [Blumer 1700; Thornber 183]. ASU [Daniel 3124; Lehto 5340; Rapson s.n.].

***Hedeoma drummondii* Benth.**

*Hedeoma campora* Rydb., *H. ciliata* Nutt., *H. drummondii* var. *crenulata* Irving, *H. longiflora* Rydb., *H. ovata* A. Nels.

[3,500] 5,000 - 5,300 [9,000] ft. [Apr] Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte. Uncommon on dry slopes, tolerates limestone soils.

Chiricahua Mts.: Fort Bowie Nat. Historic Site along Apache Pass Road; Paradise. Also Sierra Ancha, Santa Catalina Mts., Mule Mts. Apache County to eastern and northern Mohave County, south to Cochise, and Santa Cruz counties. North Dakota and Montana to Texas, Arizona, and northern Mexico. Plains.

Exsicc.: FOBO [MHoy 276]. SWRS [MHoy s.n.]. NMC [Blumer 1701].

***Hedeoma hyssopifolia* Gray****Mock-pennyroyal**

[5,000] 5,400 - 9,350 [9,500] ft. May - Oct. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte; leptophyll, orthophyll. Common in woodlands and roadsides, dry uplands and slopes; canyons at lower elevations; prefers heavy litter. *Pseudotsuga menziesii*, *Pinus arizonica*, *P. strobiformis*, *P. discolor*, *Juniperus deppeana*, *Quercus hypoleucoides*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. on north side of Sugarloaf Mtn., mouth of Bonita Canyon; Fort Bowie Nat. Historic Site; South Fork Cave Creek; Barfoot Park; Wilderness Area. Also

Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Huachuca Mts. Southern parts of Apache, Navajo, and Coconino counties to Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 8180, Reeves 985, 1428, 1449, 1763, 1844, 3245]. SWRS [Pough 1961-92, Welch s.n.]. CHWA [Leithliter 165, 198, 409, 523, 574, 717]. NMC [Blumer 1413; Carter, s.n.].

***Hedeoma nana* (Torr.) Briq. ssp. *nana***

*Hedeoma nana* ssp. *typica* W.S. Stewart, *H. thymoides* Gray

**Mock-pennyroyal**

[650] 5,000 - 5,400 [5,500] ft. [Mar] May - Sep [Oct].

Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte. Uncommon in pine-oak woods, rocky slopes and gravelly flats, prefers limestone soils. *Larrea tridentata*, *Flourensia cernua*, *Parthenium incanum*, *Bouteloua curtipendula*, *Muhlenbergia porteri*, *Gutierrezia sarothrae*.

Chiricahua Mts.: Chiricahua Nat. Mon. at base of Garfield Peak; Fort Bowie Nat. Historic Site on hill east of trailer; slope off Paradise Road. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Dos Cabezas. Coconino and Mohave counties to Cochise, Pima, and Yuma counties. Western Texas to southeastern California and Mexico. Apachian.

Exsicc.: CHIR [Reeves 4456]. FOBO [MHoy 155]. SWRS [Mouat s.n.]. NMC [Goodding s.n.].

***Hedeoma oblongifolium* (Gray) Heller**

*Hedeoma piperita* Benth. var. *oblongifolia* Gray, *H. thymoides* Gray var. *oblongifolia* (Gray) Gray

**Mock-pennyroyal**

[2,000] 5,400 - 5,800 [8,000] ft. [Apr] Aug - Aug [Sep].

Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte. Uncommon in wooded canyons and slopes, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Coconino and Mohave counties to Greenlee, Cochise, and Pima counties. New Mexico, Arizona, and northern Mexico. Madrean.

Exsicc.: CHIR [Lehto 2283, Reeves 1473, 1480]. NMC [Moeler-Richardson 151].

***Lamium amplexicaule* L.**

*Lamium amplexicaule* var. *album* A.L. & M.C. Pickens Dead nettle

5,000 ft. May. Winter annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Rare in swales and lower slopes, lawns and waste ground.

Chiricahua Mts.: Fort Bowie Nat. Historic Site around trailer. Also Sierra Ancha. San Francisco Peaks. Tucson, Pima County, and Coconino County. Extensively naturalized in the United States; from Eurasia. Temperate, Introduced.

Exsicc.: FOBO [MHoy 404].

***Marrubium vulgare* L.****Horehound**

4,700 - 5,400 [8,000] ft. Feb - Oct. Evergreen perennial forb, scapose or leafy-stemmed proto-chamaephyte; microphyll, semi-sclerophyll. Uncommon in wooded canyons, disturbed sites, dry uplands, roadsides. *Quercus arizonica*, *Piptochaetium fimbriatum*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon

below campground; Faraway Ranch; Fort Bowie Nat. Historic Site near headquarters; Portal to Paradise road, Barfoot Park. Also Rincon Mts., Dos Cabezas, Sierra Ancha, Animas Mts., Canello Hills, Santa Rita Mts., Sierra de los Ajos. Throughout Arizona. Extensively naturalized in the United States; from Europe. Temperate, Introduced.

Exsicc.: CHIR [Clark 8130, Reeves 1773, 3095]. FOBO [MHoy 103]. SWRS [SWRS 1958-120]. Repos. Unk. [Blumer 1383].

### **Monarda citriodora** Cerv. ex Lag. ssp.

#### **austromontana** (Epling) Scora

#### *Monarda austromontana* Epling

#### Bee-balm, horse-mint

[4,000] 5,800 - 9,790 ft. [May] Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; leptophyll, orthophyll. Common in pine forest, wooded canyons, talus slopes and base of cliffs in grassland/scrub, swales and lower slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in lower Bonita Canyon; Greenhouse Trail; Barfoot Park; Wilderness Area along Crest Trail; Centella Point. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Apache, Navajo, and Gila counties to Cochise, Santa Cruz, and Pima counties. Southwestern New Mexico, Arizona, and northern Mexico. Madrean.

Exsicc.: CHIR [Borell 10, Reeves 3957, 4136]. SWRS [Ordway s.n.]. CHWA [Leithliter 161, 207, 292, 557, 583]. Repos. Unk. [Blumer 1382].

### **Monarda fistulosa** L. ssp. **fistulosa** var.

#### **menthifolia** (Graham) Fern.

#### *Monarda menthifolia* Graham

#### Bee-balm

[3,600] 5,200 - 8,200 ft. Jun - Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon on rich soil on shaded slopes and in streambeds, cool moist slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Park and Hunt Canyon; 2 mi. east of Southwestern Research Station; Wilderness Area. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts., Huachuca Mts. Apache County to Coconino County, south to Cochise and Pima counties. Canada to New Mexico and Arizona. Rocky Mountain.

Exsicc.: CHIR [Clark 8117, Reeves 3399, 3646]. SWRS [Pough 1962-16]. CHWA [Leithliter 170, 438].

### **Monardella ordoratissima** Benth. ssp.

#### **parvifolia** (Greene) Epling

#### *Monardella parvifolia* Greene, *M. odoratissima* var. *parvifolia* (Greene) Jepson

[3,500] 8,040 - 9,790 [11,000] ft. [Jun] Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon on rocky openings in the forest, mostly in coniferous forest.

Chiricahua Mts.: Wilderness Area, Monte Vista Lookout; Centrella Point. Coconino, Mohave, and Cochise counties, Yavapai County. Montana to Washington, south to New Mexico, Arizona, and California. Western.

Exsicc.: SWRS [Walker s.n.]. CHWA [Leithliter 293, 474, 666].

### **Nepeta cataria** L.

#### Catnip

5,400 ft. Jun - Aug [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon in bottoms and waste places, at roadsides.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Bonita Canyon; Paradise. Navajo County, Coconino County, Yavapai County, and Cochise County. Widely distributed in North America; naturalized from the Mediterranean region. Temperate, Introduced.

Exsicc.: CHIR [Clark 8218]. SWRS [Walker s.n.].

### **Prunella vulgaris** L.

#### Heal all

[5,000] 6,500 - [9,500] ft. Apr - [Sep]. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Common on wet soil.

Chiricahua Mts.: East Turkey Creek. Also Pinaleno Mts., Huachuca Mts. Apache, Navajo, and Coconino counties to the mountains of Graham, Cochise and Pima counties. Throughout the cooler parts of North America; Eurasia. Temperate, Introduced.

Has been used in folk medicine  
Exsicc.: SWRS [Roth s.n.].

### **Salvia columbariae** Benth.

#### Chia

[1,000] 4,800 - 5,000 ft. [Mar] Apr - [May]. Winter-annual forb, semirosette therophyte. Common in sandy washes and gravelly flats, dry uplands.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill east of South Canyon. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts. Mohave County to Graham, Cochise, and Pima counties (doubtless also in Yuma County). Southern Nevada, Arizona, and California. Southwestern.

Seeds were utilized by the Indians to make pinole and also for mucilaginous poultices. A beverage prepared from the seeds was popular with the Pima Indians.

Exsicc.: SWRS [Roth s.n.]. FOBO [MHoy 104].

### **Salvia davidsonii** Greenm.

Apr - Jul. Uncommon on mesic rocky slopes in shade.

Chiricahua Mts.: Pinery Canyon, Coconino, Greenlee, Maricopa, and Cochise counties. Arizona and New Mexico. Madrean.

Exsicc.: ARIZ [Lemmon 3077 (type)].

### **Salvia henryi** Gray

5,100 - 5,400 ft. [Apr] May - [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll.

Chiricahua Mts.: Fort Bowie Nat. Historic Site north of Overlook; Paradise. Also Santa Rita Mts. Cochise and Pima or Santa Cruz counties. Western Texas to southern Arizona and Chihuahua. Madrean.

Exsicc.: FOBO [MHoy 138]. SWRS [Walker s.n.].

### **Salvia lemontii** Gray

*Salvia microphylla* Benth. var. *wislizeni* Gray  
Sage

5,800 - 9,020 ft. Jul - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Common in canyons, openings in woods, open woods, and rocky slopes. *Quercus emoryi*, *Pinus discolor*, *Juniperus deppeana*, *Garrya wrightii*, *Acer grandidentatum*, *Bouteloua curtipendula*.

Chiricahua Mts.: Chiricahua Nat. Mon. on west side of

Sugarloaf Mtn., Echo Canyon Trail; Fort Bowie Nat. Historic Site; Greenhouse Trail; 3 mi. east of Onion Saddle; Wilderness Area; road to Long Park; Rucker Canyon; Gooseneck, Paradise; Cave Creek, Herb Martyr Dam. Also Huachuca Mts., Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Cochise and Pima counties. Southern Arizona and northern Mexico. Apachian.

Exsicc.: CHIR [Borell 29, Clark 8564, Reeves 1318, 1845, 3971]. SWRS [s.c. s.n.]. CHWA [Leithliter 168, 319, 521, 853, 856, 862]. NMC [Todsen s.n.; Blumer 1762].

### **Salvia subincisa** Benth.

#### **Sage**

4,960 - 5,500 ft. Aug - Oct. Summer-annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Common in grassland and openings in open woods, plains and mesas, tolerates limestone. *Pinus discolor*, *Juniperus deppeana*, *Garrya wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in lower Bonita Canyon; Fort Bowie Nat. Historic Site along Apache Pass Road; Tex Canyon, flats below canyon; Paradise. Also Huachuca Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts. Yavapai, Greenlee, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [Borell 20, Moir 437, 505, Reeves 1495, 3996, 4116]. FOBO [MHoy 269]. SWRS [1959-781]. NMC [Blumer 1741].

### **Stachys coccinea** Jacq.

#### *Stachys limitanea* A. Nels.

#### Betony, hedge-nettle

[1,500] 5,000 - 7,540 [8,000] ft. [Mar] Jul - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon on rocky cool moist slopes, often among boulders along streams. Chiricahua Mts.: Chiricahua Nat. Mon. on south-facing slopes of upper Bonita Canyon; Silver Spur Meadow; Fort Bowie Nat. Historic Site in upper South Canyon; 2 mi. up Cave Creek Canyon from Southwestern Research Station; Wilderness Area. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Southern Apache County to Maricopa County, south to Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and Mexico. Southwestern.

Exsicc.: CHIR [Clark 8424, Reeves 1507, 1793, 4289]. FOBO [MHoy 280]. SWRS [SWRS 1959-600]. CHWA [Leithliter 387, 452].

### **Trichostema arizonicum** Gray

#### Blue-curls

[3,500] 5,000 - 5,600 ft. [Jun] Jul - Sep [Oct]. Suffrutescent shrub, suffrutescent chamaephyte. Common on dry well-drained rocky slopes and open canyon bottoms. Tolerates limestone.

*Acacia*, *Quercus*, *Rhus*, *Agave*, *Dasyliion*, *Fouquieria*.

Chiricahua Mts.: Portal to Paradise; Fort Bowie Nat. Historic Site on hill east of lower Siphon Canyon; Chiricahua Nat. Mon. on Pickett Canyon sideslopes and canyon mouth; Stewart Campground; above Silver Creek; between Whitetail and Jhus canyons. Also Huachuca Mts., Pinaleno Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Canello Hills, Sierra de los Ajos. Greenlee, Cochise, Santa Cruz, and Pima counties. Southern New Mexico and Arizona, and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8626, Reeves 1242, 1559, 1611]. FOBO [MHoy 343]. SWRS [Walker s.n.]. ASU [McGill 5670]. Repos. Unk. [Blumer 1336].

### **LEMNACEAE—Duckweed Family.**

A family of small free-floating and submerged freshwater perennial herbs. Temperate and tropical distribution; 4 genera and 25 species.

### **Lemna minor** L.

*Lemna cyclostata* Ell. ex Schleid., *L. minima* Chev. ex Schleid.

#### Duckweed

Hydroriparian habitats: ponds, springs, and slow-flowing streams. Chiricahua Mts.: West Turkey Creek at El Coronado Ranch. Also Animas Mts., Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Sierra Ancha. Apache, Navajo, Yavapai, Maricopa, Pinal, Cochise, and Pima counties. Cosmopolitan.

### **LILIACEAE—Lily Family.**

A family of mostly perennial herbs, infrequently or only occasionally woody; rootstock a rhizome, bulb, corm or tuber. About 240 genera and 4,000 species widely distributed over most of the vegetated portions of the earth.

### **Allium acuminatum** Hook.

*Allium acuminatum* var. *cuspidatum* Fern.

[2,000] - 5,000 [7,000] ft. [Apr] - [Jun]. Perennial deciduous forb, bulb geophyte.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Coconino and Mohave counties to Graham, Cochise, and Pinal Counties. Montana (?) to British Columbia, south to Arizona and California. Western.

Exsicc.: FOBO [MHoy s.n.].

### **Allium cernuum** Roth **neomexicanum** (Rydb.)

J.F. Macbr.

*Allium neomexicanum* Rydb.

#### Nodding onion

[5,000] 6,000 - 9,790 ft. Jul - Oct. Perennial deciduous forb, bulb geophyte. Common in mesic canyons, rocky forest slopes, mostly in pine forests.

Chiricahua Mts.: Chiricahua Nat. Mon.; Greenhouse Trail; Middle Fork, Cave Creek; Wilderness Area, along Crest Trail; Centella Point. Also Animas Mts. Apache, Navajo, and Coconino counties to Cochise, Santa Cruz, and Pima counties. In mountainous or cool regions, almost throughout temperate North America. Temperate.

Exsicc.: CHIR [Clark 8699, Reeves 4263, 4506]. SWRS [Walker s.n.]. CHWA [Leithliter 108, 130, 145].

### **Allium glandulosum** Link & Otto

*Allium rhizomatatum* Woot. & Standl.

7,120 - 8,610 ft. Jun - Jul [Aug]. Perennial deciduous forb, bulb geophyte. Uncommon along streams.

Chiricahua Mts.: Winn Falls. Also Mule Mts., Animas Mts. Cochise County. Western Texas to southeastern Arizona and far south into Mexico. Madrean.

Exsicc.: CHWA [413].

### **Allium kunthii** G. Don

*Allium scaposum* Benth., *Schoenoprasum lineare* Kunth

[4,000] - [5,000] 7,200 ft. Jul - Aug [Sep]. Perennial

deciduous forb, bulb geophyte. Grassland or lower encinal. Draba, Galium, Stachys, Oxalis.

Chiricahua Mts.: Winn Falls; Skeleton Canyon. Also Animas Mts. Cochise and Pima counties. Western Texas to southeastern Arizona, south to Central America. Madrean, Latin American.

Exsicc.: ASU [Leithliter 383; Cazier 727].

### **Allium macropetalum** Rydb.

*Allium deserticola* (M.E. Jones) Woot. & Standl. Onion

[1,000] - 5,100 [7,000] ft. [Mar] Apr - [Jun]. Perennial deciduous forb, bulb geophyte. Uncommon on gravelly slopes among rocks. Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill east of trail. Also Rincon Mts., San Simon Valley near Rodeo, Pinaleno Mts., Santa Catalina Mts., Animas Mts. Apache County to Coconino and Yavapai counties, south to Cochise and Pima counties. Western Colorado and eastern Utah to Arizona, New Mexico, and western Texas. Southwestern.

Exsicc.: FOBO [MHoy 98]. SWRS [Walker s.n.].

### **Allium plumerae** S. Wats.

[5,000] 6,600 - 7,300 [9,000] ft. Jun - Sep. Perennial deciduous forb, bulb geophyte; microphyll, succulent. Uncommon on mesic steep north-facing slopes and cliff faces.

Chiricahua Mts.: Pinery Canyon; East Turkey Creek; West Turkey Creek; Onion Creek. Also Huachuca Mts., Baboquivari Mts. Cochise and Pima counties. Southeastern Arizona, southwestern New Mexico, Sonora, Mexico. Apachian.

Type collected in Huachuca Mts. by Lemmon (2893).

Exsicc.: ARIZ [Googding 166-47, Hernbrode 134, McCormick 165, Barr 60-183, Hesselberg s.n.].

### **Asparagus officinalis** L.

Asparagus

5,300 - 5,400 ft. Jun - Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicyclophtye; nanophyll, orthophyll. Uncommon in riparian woods. *Plantanus wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Paradise; Canelo Hills. Sacaton, Pinal County. Occasionally escaping from cultivation, but scarcely naturalized. Native of Europe. Western, Introduced.

Exsicc.: CHIR [Reeves 1401]. SWRS [Walker s.n.].

### **Calochortus ambiguus** (M.E. Jones) Ownbey

*Calochortus watsonii* M.E. Jones var. *ambiguus* M.E.

Jones

Mariposa

[3,000] 5,200 - 5,400 [8,000] ft. Apr - May [Aug]. Perennial deciduous forb, bulb geophyte. Uncommon on grassland, rocky well-drained slopes, dry uplands, chaparral and open pine forests.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; 1.5 mi. northwest of Portal on Paradise Road. Also Rincon Mts., Pinaleno Mts., Frye Mesa, Sierra Ancha, Animas Mts., Santa Catalina Mts. Navajo County to eastern Mohave County, south to Cochise, Santa Cruz, and Pima counties. New Mexico and Arizona. Madrean.

Exsicc.: CHIR [Fish 54, Reeves 2603]. SWRS [Mouat s.n.].

### **Dichelostemma capitatum** (Benth.) Wood ssp. *capitatum*

*Brodiaea capitata* Benth., *Dichelostemma lacuna-*

*vernalis* Lenz, *D. pulchellum* (Salisb.) Heller var.

*capitatum* (Benth.) Reveal

Bluedicks

[4,000] - 5,400 ft. [Feb] Mar - Apr [May]. Perennial deciduous forb, bulb geophyte. Uncommon on sunny gravelly flats and rocky slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; 5.3 mi. northeast of Portal. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Animas Mts., Canelo Hills. Coconino and Mohave counties to Cochise, Santa Cruz, and Pima (doubtless also Yuma) counties. Southwestern New Mexico to Oregon, California, Baja California, and Sonora. Western.

Exsicc.: CHIR [Fish 39, Reeves 2266, 2628]. SWRS [s.c. s.n.].

### **Echeandia flavescens** (J.A. Schultes & J.H.

Schultes) Cruden

*Anthericum flavescens* J.A. Schultes & J.H. Schultes,

*A. torreyi* Baker pro parte

Crag-lily, amber-lily

5,100 - 9,790 ft. Aug - Sep. Perennial deciduous forb, bulb geophyte; nanophyll, orthophyll. Uncommon on rocky dry upland slopes, partial shade, beneath trees. *Quercus hypoleucoides*, *Q. arizonica*, *Pinus leiophylla*, *P. arizonica*, *Piptochaetium fimbriatum*, *Abies concolor*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon, Bonita Canyon, Pinery Canyon; Fort Bowie Nat. Historic Site: Apache Pass Summit; near Onion Saddle; West Turkey Creek; Greenhouse Trail; between Rustler Park and Long Park; near Southwestern Research Station; Wilderness Area, Greenhouse Canyon; between Rock Creek and West Turkey Creek; East Turkey Creek; Barfoot Park. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Pinaleno Mts., Santa Rita Mts., Patagonia Mts., Canelo Hills. Apache, Navajo, and Coconino counties, south to Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and southward. Madrean.

Exsicc.: CHIR [Borell 14, Clark 8616, Reeves 4415]. SWRS [Welch s.n., Wittmann 178]. CHWA [Leithliter 306, 316, 527]. ARIZ [Clark 8549, 8607, Barr 61-300, 68-553, 64-418, Blumer N94, 1355, 2120, McCormick et al. 437, 660, Hernbrode 141].

### **Lilium parryi** S. Wats.

*Lilium parryi* var. *kessleri* A. Davids.

Lemon Lily

[4,000] 6,500 - [9,000] ft. [May] - [Jul]. Perennial deciduous forb, bulb geophyte. Rare and declining along shaded perennial streams, seeps, and springs. *Pseudotsuga menziesii*, *Pinus arizonica*, *P. engelmannii*.

Chiricahua Mts.: East Turkey Creek. Also Huachuca Mts., Santa Rita Mts., Sierra de los Ajos. Southern Arizona and southern California. Sonora, Mexico. Southwestern.

### **Maianthemum racemosum (L.) Link ssp.**

#### **racemosum**

*Convallaria racemosa* L., *Smilacina ciliata* Desf., *S. flexicaulis* Wender, *S. racemosa* (L.) Desf., *S. racemosa* var. *cylindrata* Fern., *S. racemosa* var. *lanceolata* Boivin, *S. racemosa* var. *typica* Fern., *Vagnera australis* Rydb., *V. racemosa* (L.) Morong False-Solomon-seal

[6,000] 6,400 - 9,020 [10,000] ft. May - Aug. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll. Uncommon in mesic, forested, canyons, shade, cool moist slopes, along streams. *Pseudotsuga menziesii*, *Acer glabratum*, *Quercus hypoleucoides*, *Rhamnus betulifolia*, *Smilacina stellata*, *Viola canadensis*, *Prunus serotina*, *Montia perfoliata*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Rustler Park; Round Park; Wilderness Area, along Crest Trail; Rucker Canyon; Monument Peak; Cave Creek; Centella Point. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Sierra de los Ajos, Santa Rita Mts., Winchester Mts., Winchester Mts., Huachuca Mts. Apache, Coconino, Greenlee, Graham, Gila, Cochise, and Pima counties. Sonora, Mexico and throughout most of temperate North America. Temperate.

Exsicc.: CHIR [Clark 8205, Reeves 2806, 3626]. SWRS [1960-440, Hackner s.n.]. CHWA [Leithliter 64, 67, 341, 364]. ARIZ [Felger & Fishbein 92-858; Darrow & Phillips 2504; Blumer 1537; McCormick 75, 440].

### **Maianthemum stellatum (L.) Link**

*Convallaria stellata* L., *Smilacina liliacea* (Greene) Wynd, *S. sessilifolia* Nutt. ex Baker, *S. stellata* (L.) Desf., *S. stellata* var. *crassa* Victorin, *S. stellata* var. *mollis* Farw., *S. stellata* var. *sessilifolia* (Nutt.) ex Baker G. Henderson, *S. stellata* var. *sylvatica* Victorin & Rouss., *Vagnera liliaceae* (Greene) Rydb., *V. sessilifolia* (Nutt. ex Baker) Greene, *V. stellata* (L.) Morong

#### Starflower

6,400 - 9,100 [10,000] ft. May - Jun. Perennial deciduous forb, rhizome geophyte. Uncommon along watercourses and on shaded slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon Wilderness Area, Flys Peak, south side; East Turkey Creek. Also Rincon Mts., Pinaleño Mts., Santa Catalina Mts., Huachuca Mts., Santa Rita Mts., Sierra de los Ajos. Coconino, Apache, Graham, and Cochise, and Pima counties. Throughout most of temperate North America; Europe. Holarctic.

Exsicc.: SWRS [SWRS 1959-486]. CHWA [Leithliter 68, 345]. ARIZ [Clark 8205; McCormick 935].

### **Milla biflora Cav.**

#### Mexican Star

[4,000] 5,300 - 8,650 ft. Aug - Sep. Perennial deciduous forb, bulb geophyte. Uncommon in grassy openings in woodland and forest. *Juniperus deppeana*, *Pinus discolor*, *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Portal to Paradise road; Southwestern Research Station; Turkey Creek, El Coronado Ranch below new ranch house; Wilderness Area, Little Bald Mtn. Also Huachuca Mts., Mule Mts., Animas Mts., Canelo Hills. Cochise, Santa Cruz, and Pima counties, near the Mexican boundary. Southern New Mexico, and Arizona southward to Oaxaca, Mexico. Madrean.

Exsicc.: CHIR [Clark 8666, Reeves 1215]. SWRS [Ordway 141]. CHWA [Leithliter 519].

### **Veratrum californicum T. Dur.**

#### Skunk cabbage

[5,000] - 9,510 ft. Jul - Aug. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll. Common on moist soil in meadows, seeps, streams, bogs.

Chiricahua Mts.: Greenhouse Trail; Fly Peak, north face along trail, Cima Cabin, Booger Springs, Bear Wallow Spring, Tub Spring, Anita Spring. Also Pinaleño Mts., White Mts. Apache County, near Lakeside (Navajo County), Mogollon Mesa (Coconino County), Graham and Cochise counties. Montana to Washington, south to New Mexico, Arizona, and California. Western.

Used by the Greeks to cure insanity. Hellebore comes from helleboria (to need hellebore), i.e. to be insane. Poisonous to stock under some conditions. Toxins concentrated in root and young shoots. Nectar toxic sometimes causing heavy losses among honeybees, ants, beetles, flies and other insects feeding on the flowers or nectar.

Hanzlik (1927), Vansell and Watkins (1933)

Exsicc.: SWRS [Ordway s.n.]. CHWA [Leithliter 404]. ARIZ [Blumer, s.n.].

### **Zephyranthes longifolia Hemsl.**

#### *Atamosco longifolia* (Hemsl.) Cockerel

#### Plains rain lily

4,000 - 6,000 ft. Jun - Jul. Perennial deciduous forb. Gravelly soil on hillsides.

Chiricahua Mts.: San Bernardino Ranch; Fort Bowie Nat. Historic Site. Also Santa Catalina Mts., Rincon Mts., Santa Rita Mts., Animas Mts., Canelo Hills. Cochise and Pima counties. Western Texas to Arizona and Mexico. Madrean.

Warren (1991) places this taxon in the Amaryllidaceae.

Exsicc.: FOBO [MHoy 542].

### **LINACEAE—Flax Family.**

A family mostly of herbs, sometimes shrubs. About 9 genera and 200 species, of cosmopolitan distribution, and primarily of temperate regions of both northern and southern hemispheres. The family is represented in the United States by about 60 indigenous species. The family is of economic importance for the flax fiber and linseed oil.

### **Linum aristatum Engelm.**

*Cathartolinum aristatum* (Engelm.) Small, *Mesynium aristatum* (Engelm.) W.A. Weber

#### Flax

[4,500] 5,300 - 6,200 [8,000] ft. [May] Jun - Jul [Sep]. Winter annual forb, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Common in grassland and woodland, plains and mesas, mostly in sandy soil.

Chiricahua Mts.: Chiricahua Nat. Mon. Apache County to Hualpai Mtn., Mohave County. Colorado and western Texas to northern Arizona and Mexico. Rocky Mountain.

Exsicc.: CHIR [Reeves 3015, 3543, 3757, 3806].

### **Linum lewisii Pursh var. *Lpagei* (Boivon)**

#### Rogers

*Linum lepagei* (Boivin) Rogers, *L. lewisii* var. *lewisii* Flax, western blue flax

[3,500] 5,000 - 6,100 [9,500] ft. [Mar] Apr - Jul [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicyclophtophyte. Uncommon in mountain meadows and grassy

slopes, dry uplands, open mesas and in coniferous forests.

Chiricahua Mts.: Chiricahua Nat. Mon. at head of (East) Whitetail Canyon; FOBO on hill east of trailer. San Simon Valley: 7 mi. southwest of Apache. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Huachuca Mts., Sierra de los Ajos. Apache County to Mohave County, south to Cochise and Pima counties. Saskatchewan and Alaska to southern California and northern Mexico, east to Manitoba, Montana, Wisconsin and Texas. Western.

The subspecies intended is not specified.

Exsicc.: CHIR [Clark 8332]. FOBO [MHoy 157]. SWRS [Mouat s.n.].

### **Linum neomexicanum** Greene

*Cathartolinum neomexicanum* (Greene) Small  
Flax

[4,500] 5,400 - 8,300 [9,000] ft. [May] Jul - Oct.

Summer-annual forb, scapose or leafy-stemmed therophyte. Common in pine woodland clearings at upper elevations and sunny drainages lower down.

Chiricahua Mts.: Chiricahua Nat. Mon.; 3.2 mi. toward Rustler Park from Onion Saddle; Onion Saddle; Rustler Park, Barfoot Park. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Apache County to Hualpai Mtn., Mohave County, south to Cochise, and Pima counties. New Mexico, Arizona, and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8429, Reeves 3449, 3941, 4158, 4260, 4483]. SWRS [Wittmann 182, sc.s.n., Ordway s.n.]. Repos. Unk. [Blumer 1360].

### **Linum puberulum** (Engelm.) Heller

*Cathartolinum puberulum* (Engelm.) Small, *Linum rigidum* Pursh var. *puberulum* Engelm., *Mesynium puberulum* (Engelm.) W.A. Weber

Plains flax

[4,800] - 5,600 ft. Apr [Jul] - May [Sep]. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon on rocky slopes and grassy flats, may prefer limestone substrate.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill east of trailer; near Galeyville townsite. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Apache County to eastern Mohave County, south to Cochise and Pima counties. Colorado, Utah, New Mexico. Sonora, Mexico. Southwestern.

Exsicc.: FOBO [MHoy 156]. SWRS [SWRS 1959-68].

### **Linum usitatissimum** L.

*Linum humile* P. Mill., *L. usitatissimum* var. *humile* (P. Mill.) Pers.

Common flax, cultivated flax

5,000 ft. Apr. Winter annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Roadside.

Chiricahua Mts.: FOBO on hill east of trailer. Near Florence, Pinal County. Here and there in the United States; adventive from Europe. Temperate, Introduced.

Exsicc.: FOBO [MHoy 97].

### **LOASACEAE—Loasa Family.**

A predominantly American family of herbs or shrubs, sometimes lianas. About 3 genera and 27 species. The family is important for the edible fruit, papaya.

### **Cevallia sinuata** Lag.

4,500 - 5,000 ft. May - Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Common on disturbed ground; sandy creek beds.

Chiricahua Mts.: Fort Bowie Nat. Historic Site around ruins; 5 mi. north of Portal on road to Round Valley. Also Peloncillo Mts., Animas Mts. Greenlee, Graham, Pinal, Cochise, and Pima counties. Western Texas to southeastern Arizona and northern Mexico. Madrean.

Exsicc.: FOBO [MHoy 189]. SWRS [s.c. s.n., Randall s.n.].

### **Mentzelia albicaulis** (Dougl. ex Hook.) Torr. & Gray

*Bartonia albicaulis* Dougl. ex Hook., *Acrolasia albicaulis* (Dougl. ex Hook.) Dougl., *Mentzelia albicaulis* var. *gracilis* J. Darl., *M. albicaulis* var. *tenerima* (Rydb.) St. John, *M. gracilis* H.J. Thompson & Lewis non Urban & Gilg

Stick-leaf

4,600 - 5,100 ft. Mar [Jun] - May [Aug]. Winter annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Common in grassland, dry sandy or gravelly soils, sometimes on disturbed ground.

Chiricahua Mts.: Chiricahua Nat. Mon. west of the monument; Fort Bowie Nat. Historic Site around the ruins; 3 mi. north of Bernardino. Also Huachuca Mts., Pinaleno Mts., Animas Mts. Throughout Arizona. Wyoming to Washington, south to New Mexico, Arizona, and California. Western.

Exsicc.: CHIR [Reeves 2344, 2406, 3064]. FOBO [MHoy 167]. SWRS [Walker s.n.].

### **Mentzelia multiflora** (Nutt.) Gray var. *integra* M.E. Jones

*Mentzelia integra* (M.E. Jones) Tidestrom, *M. pumila* Nutt. ex Torr. & Gray var. *integra* (M.E. Jones) Kearn. Peeb. & Gigl. Stick-leaf

4,300 - 7,000 ft. May - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common along roadsides.

Chiricahua Mts.: Paradise to Portal road, Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in Siphon Canyon, near Portal on Rodeo Road. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts. Throughout Arizona. Wyoming and Utah to southeastern California and northern Mexico. Southwestern, Rocky Mountain.

Exsicc.: CHIR [Clark 8109, 9006, Reeves 992, 2884]. FOBO [MHoy 168].

### **Mentzelia texana** Urban and Gigl

Stick-leaf

5,400 - 5,650 [6,500] ft. Aug - Sep. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon in wooded canyons and open, wooded slopes. *Quercus emoryi* and *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and northern Mexico. Southwestern.

Exsicc.: CHIR [Reeves 1343, 1527, 1613]. SWRS [Luetcke s.n.].

### **LYTHRACEAE—Loosestrife Family.**

A family of herbs, shrubs, or trees. About 23 genera and 475

species; generally distributed, but abundant in the American tropics. Most of the tropical species are trees while those in temperate zones are suffrutescent or herbaceous.

### **Cuphea wrightii** Gray

*Cuphea wrightii* var. *nematopetala* R.C. Bacig.,  
*Parsonia wrightii* (Gray) Kearn.

[5,300] - 5,400 [5,625] ft. [Aug] - Sep. Summer annual forb. Uncommon in canyons, soil pockets on bedrock outcrops. *Platanus wrightii*, *Juglans major*, *Vitis arizonica*, *Quercus arizonica*, *Q. rugosa*.

Chiricahua Mts.: Southwestern Research Station along Cave Creek. Also Huachuca Mts., Rincon Mts., Mule Mts. Graham, Cochise, Santa Cruz, and Pima counties. Southern Arizona to Panama. Madrean.

Exsicc.: SWRS [s.c. s.n].

### **Lythrum californicum** Torr. & Gray

Loosestrife

5,000 - 5,400 ft. Aug - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte, nanophyll, orthophyll. Local in meadows.

Chiricahua Mts.: Chiricahua Nat. Mon.; West Turkey Creek. Also Pinaleno Mts., Sierra Ancha. Apache, Yavapai, and Mohave counties to Cochise, Santa Cruz, and Pima counties. Texas to southern Nevada, Arizona, California, and Mexico. Southwestern.

Exsicc.: CHIR [Clark 8251, Reeves 1394, 1535]. ARIZ [Blumer 1789].

## **MALPIGHIACEAE**

A family of tropical trees and shrubs, often lianas in character, of 60 genera and 850 species. The family has little economic importance.

### **Janusia gracilis** Gray

[1,000] - 5,000 ft. [Apr] May - [Oct]. Woody vine. Suffrutescent chamaephyte; nanophyll, orthophyll. Common on dry rocky sunny slopes, along arroyos. *Ericameria laricifolia*, *Nolina microcarpa*, *Dasyllirion wheeleri*, *Aloysia wrightii*, *Fouquieria splendens*, *Opuntia phaeantha*, *Ceanothus greggii*, *Rhus microphylla*, *Parthenium incanum*, *Yucca baccata*, *Bouteloua curtipendula*, *B. hirsuta*, *B. eriopoda*, *Muhlenbergia emersleyi*, *Leptochloa dubia*, *Hilaria belangeri*, *Bothriochloa barbinodis*, *Heteropogon contortus*, *Eragrostis intermedia*, *Elyneurus barbiculus*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill east of overlook. Also Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Baboquivari Mts., Santa Rita Mts., Santa Catalina Mts. Coconino County, Greenlee and Mohave counties, south to Cochise, Santa Cruz, Pima, and Yuma counties. Western Texas to Arizona and northern Mexico (including Baja California). Southwestern.

Exsicc.: FOBO [MHoy 172].

## **MALVACEAE—Mallow Family.**

A family of herbs, shrubs, or trees. The family is composed of about 82 genera and 1,500 species, widely distributed but particularly abundant in the American tropics. Indigenous United States species number about 200 distributed among 27 genera. Cotton and okra are two plants of the greatest economic importance in the family.

### **Abutilon incanum** (Link.) Sweet ssp. *pringlei* (Hochr.) Felger & Lowe *Abutilon pringlei* Hochr.

[4,400] ft. May. Suffrutescent shrub, suffrutescent chamaephyte. Common on well-drained rocky slopes and along drainages.

Chiricahua Mts.: Round Valley. Also Rincon Mts., Santa Catalina Mts. Yavapai, Greenlee, Graham, Pinal, Maricopa, Pima, Mohave, Cochise, and Yuma counties. Southern Arizona, central Texas, and northern Sonora, Mexico. Sonoran.

Fibers extracted from stems reported to be used in Mexico for making rope.

Exsicc.: SWRS [Mouat s.n].

### **Abutilon parvulum** Gray

Small-leaved abutilon

[2,500] - 5,000 ft. [Apr] May - Aug [Oct]. Suffrutescent shrub, scapose or leafy-stemmed proto-chamaephyte. Common on dry plains and slopes, dry uplands. Scrub oak.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on parade grounds, around ruins; Portal. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Navajo County to Mohave County, south to Cochise and Pima Counties. Colorado and Texas to Arizona, California and northern Mexico. Southwestern.

Exsicc.: FOBO [MHoy 283]. SWRS [Roth s.n].

### **Anoda cristata** (L.) Schlecht.

*Anoda acerifolia* auct. non (Zucc. ex Roem.) DC., *A. cristata* var. *brachyanthera* (Rchb.) Hochr., *A. cristata* var. *digitata* Gray, *A. cristata* var. *digitata* (Gray) Hochr., *Sida cristata* L.

Crested anoda

[4,200] 5,200 - 5,400 [6,575] ft. [Jun] Aug - Oct [Sep]. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon on moist disturbed areas, rocky slopes. *Pinus discolor*, *Juniperus deppeana*, *Quercus emoryi*, *Garrya wrightii*, *Nolina macrocarpa*, *Opuntia spinosior*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Animas Mts., Canelo Hills. Southern Apache County to Yavapai County, south to Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona, southward to South America. Southwestern, Latin American.

Exsicc.: CHIR [Fish 28, Moir 439, Reeves 4126]. SWRS [Pough 1961-91, Ordway 124].

### **Anoda lanceolata** Hook. & Arn.

*Anoda wrightii* Gray

5,400 ft. Amongst grasses.

Chiricahua Mts.: Paradise; Cave Creek, Chiricahua Mts. Cochise County. Southwestern New Mexico, southeastern Arizona, and Mexico. Madrean.

Exsicc.: SWRS [Walker s.n].

### **Anoda thurberi** Gray

[4,200] - 5,500 ft. Sep - Oct. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon on benches, sandy flats and on limestone. *Ceanothus greggii*.

Chiricahua Mts.: Paradise. Also Huachuca Mts.

The most recent collection for Arizona at ARIZ is 1940 and the most recent for the Chiricahua Mts. is 1907.

Exsicc.: ARIZ [Blumer 39, 164, 1670, 1730].

### **Hibiscus coulteri** Harvey ex Gray

*Hibiscus coulteri* var. *brevipedunculata* M.E. Jones  
[4,500] 5,000 ft. May. Suffrutescent shrub, suffrutescent chamaephyte. Uncommon among shrubs on well-drained slopes and along small drainages.

Chiricahua Mts. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts. Southern Yavapai, western Gila, Pinal, Maricopa, Pima, and Yuma counties. Western Texas to southern Arizona and Mexico. Chihuahuan.

Exsicc.: SWRS [Barnes s.n.].

### **Malva neglecta** Wallr.

*Malva rotundifolia* auctt. non L.

5,400 ft. Aug. Winter annual forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon on cool moist slopes.

Chiricahua Mts.: Southwestern Research Station. Sierra Ancha, Navajo, Coconino, Yavapai, Graham, and Gila counties. Temperate, Introduced.

Boiled and eaten by the Indians in times of scarcity.

Exsicc.: SWRS [SWRS 1958-493].

### **Malvella lepidota** (Gray) Fryxell

*Sida lepidota* Gray.

Scurfy sida

5,000 ft. Jun. Perennial deciduous forb, spreading hemicryptophyte; nanophyll, orthophyll.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on disturbed ground around the ruins; Straight Line Road at Willow Tank. Also Animas Mts. Mohave, Yavapai, Pinal, Maricopa, Cochise, and Pima counties. Western Texas and southern Colorado to Arizona and Mexico. Madrean.

Exsicc.: FOBO [MHoy 282].

### **Rhynchosida physocalyx** (Gray) Fryxell ined.

*Sida physocalyx* Gray

Tuberous sida

[4,200] - 5,000 ft. Jul. Perennial deciduous forb, spreading hemicryptophyte; microphyll, orthophyll. Uncommon on floodplains, often in shade of trees.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at monument office in vicinity of trailer. Also Animas Mts., Canelo Hills. Cochise, Santa Cruz, and Pima counties. Also at Beaver Creek, Yavapai County (Purpus 57). Texas to Arizona and northern Mexico, South America. Latin American.

Exsicc.: FOBO [MHoy 445].

### **Sida abutifolia** P. Mill.

*Sida filicaulis* Torr. & Gray, *S. filiformis* Moric., *S. procumbens* Sw., *S. supina* L'Her.

[4,300] 4,975 - 5,300 ft. May - Sep. Perennial deciduous forb. Common on sunny slopes and flats, damp soil in streambeds and bedrock pockets.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat.

Historic Site south of Overlook; 6 mi. east of Portal; near Portal. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Greenlee, Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Southern United States and West Indies to northern South America. Latin American.

Clement (1957).

Exsicc.: CHIR [Clark 8943, Moir 503, Reeve 2761, 3512, 3724, 4216]. SWRS [Cazier s.n., 1960-125]. FOBO [MHoy 131].

### **Sida neomexicana** Gray

5,200 - 6,200 ft. Aug - Sep. Perennial deciduous forb. Common in grassland, grassland/scrub and open woodland. *Pinus discolor*, *P. engelmannii*, *Juniperus deppeana*, *Garrya wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; near Southwestern Research Station. Also Huachuca Mts., Mule Mts., Animas Mts. Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and Mexico. Madrean.

Exsicc.: CHIR [Fish 10, Reeves 1293, 1693, 3732, 4128, 4361]. SWRS [Roth s.n.].

### **Sida spinosa** L.

*Sida alba* L., *S. angustifolia* acut. pro parte non Lam., *S. spinosa* L. var. *angustifolia* (Lam.) Griseb.

[4,300] - 5,200 ft. Sep - Oct. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon on moist earth in streambeds and soil pockets on bedrock.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts., Rincon Mts. Cochise, Santa Cruz, and Pima counties. Southern U.S. to Argentina. Temperate, Latin American.

Exsicc.: CHIR [Moir 440].

### **Sidalcea neomexicana** Gray.

[5,000] - [9,500] ft. Jun - Sep. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon in wet meadows and along streams, cool moist slopes.

Chiricahua Mts., Huachuca Mts., Sierra Ancha. Apache County to Coconino and Yavapai counties, Cochise County. Wyoming and Idaho to northern Mexico and California. Southwestern.

Sometimes used as greens by the Indians. Roush (1931).

### **Sphaeralcea angustifolia** (Cav.) G. Don ssp.

**cuspidata** (Gray) Kearn.

*Phymosia cuspidata* (Gray) Britt., *S. angustifolia* var. *cuspidata* Gray, *S. cuspidata* (Gray) Britt.

Globe-mallow

5,100 ft. [May] - Jun. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Grassland.

Chiricahua Mts.: Chiricahua Nat. Mon. west of the monument. Also Huachuca Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Navajo and Coconino counties, south to Cochise, Santa Cruz, and Pima counties. Western Kansas and Colorado to western Texas, Arizona, and Mexico. Madrean.

Exsicc.: CHIR [Reeves 2927].

### **Sphaeralcea emoryi** Torr. ex Gray ssp.

**variabilis** (Cockerell) Kearn.

*Sphaeralcea emoryi* var. *californica* (Parish) Shinners, *S. emoryi* var. *variabilis* (Cockerell) Kearn.

### Globe-mallow

[3,200] 5,150 - 7,308 ft. [Apr] Aug - Sep [Oct].

Suffrutescent shrub, suffrutescent chamaephyte. Common in grassland, grassland/scrub, open woodland, streambeds, and disturbed soil.

Chiricahua Mts.: Chiricahua Nat. Mon.; near Herb Martyr Dam in Cave Creek. Also Rincon Mts., Santa Catalina Mts. Mohave, Graham, Pinal, Maricopa, Cochise, Pima, and Yuma counties. Type from near the mouth of the Gila River (Emory in 1846). Western and southern Arizona, southern Nevada, southeastern California, and northern Baja California. Sonoran.

Exsicc.: CHIR [Reeves 1002, 1687, 4062]. SWRS [Pough 1961-31].

### *Sphaeralcea fendleri* Gray

#### Globe-mallow

[3,300] - 8,530 ft. Apr - Sep. Suffrutescent shrub, scapose or leafy-stemmed proto-chamaephyte. Uncommon on grassland, streambeds, and well-drained slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station; Wilderness Area. Also Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts. Apache County to Coconino County, south to Cochise, Santa Cruz, and Pima counties. Southern Colorado to western Texas, Arizona, and northern Mexico. Madrean.

Exsicc.: Chiricahua Mts.: [Reeves 907, 4123]. SWRS [Pough 1961-181]. CHWA [Leithliter 318, 610, 635].

### *Sphaeralcea hastulata* Gray

*Sphaeralcea subhastata* Coulter. *S. subhastata* ssp. *connata* Kearney, *S. subhastata* ssp. *latifolia* Kearney, *S. subhastata* ssp. *martii* (Cockrell) Kearney, *S. subhastata* ssp. *pumila* (Woot. and Standl.), Kearney, *S. subhastata* ssp. *thyrsoidaea* Kearney, *S. subhastata* var. *connata* (Kearney) Kearney, *S. subhastata* var. *latifolia* (Kearney) Kearney, *S. subhastata* var. *martii* (Cockrell) Kearney, *S. subhastata* var. *pumila* (Woot. and Standl.) Kearney, *S. subhastata* var. *thyrsoidaea* (Kearney) Kearney  
Globe mallow

5,000 - 6,100 ft. May - Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicyclophtye; microphyll, orthophyll. Uncommon in grassland and open woodland.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site around ruins. Also Animas Mts. Apache County to Mohave county, south to Cochise and Pima counties. Western Texas to Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8184, Reeves 3527, 4373]. FOBO [MHoy 142].

### *Sphaeralcea laxa* Woot. & Standl.

#### Globe-mallow

4,700 - 7,000 ft. Feb - Aug. Suffrutescent shrub, scapose or leafy-stemmed proto-chamaephyte. Common in dry grassland, open woodland, chaparral and disturbed soils.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at Apache Spring; Portal; South Fork Cave Creek. Also Rincon Mts., Santa Catalina Mts., Pinaleno Mts. Navajo and Coconino counties (local), southward to Graham, Cochise and Pima counties. Southwestern.

Exsicc.: CHIR [Ma251, Reeves 2893, 2904, 3972]. SWRS [Roth s.n.]. FOBO [106, 143].

### *Sphaeralcea wrightii* Gray

4,700 ft. Perennial deciduous forb, scapose or leafy-stemmed hemicyclophtye; microphyll, orthophyll.

Chiricahua Mts.: Fort Bowie Nat. Historic Site, Camp Grant. Graham County, Douglas and Sulphur Springs Valley, Cochise County. Western Texas to southeastern Arizona and Chihuahua. Madrean.

Exsicc.: FOBO [MHoy s.n.].

## MOLLUGINACEAE-Mollugo Family

### *Mollugo verticillata* L.

#### *Mollugo berteriana* Ser.

#### Carpet-weed, Indian-chickweed

[2,500] 5,000 - 6,000 ft. May - Sep [Oct]. Summer-annual forb, spreading therophyte. Uncommon in grassland and openings in woods, along washes, sandy soil. *Quercus emoryi*, *Q. arizonica*, *Q. hypoleucoides*, *Pinus discolor*, *P. leiophylla*, *Bouteloua rothrockii*, *Prosopis velutina*, *Senecio douglasii*, *Isocoma tenuisecta*, *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon. in campground, Pickett Canyon; West Turkey Creek. Also Huachuca Mts, Animas Mts., Baboquivari Mts., Pinaleno Mts., Santa Catalina Mts., and Sierra Ancha. Yavapai, Greenlee, Cochise, Santa Cruz, and Pima counties. Widely distributed in North America and the Eastern hemisphere. Alien. Holarctic.

Exsicc.: CHIR [Clark 8697, Reeves 1693, 4002, 4171]. ASU [Lehto 3334; McGill & Keil 8535].

## MONOTROPACEAE-Pine Drop Family

A family of boreal and temperate distribution. Eight genera and 9 species are found in North America.

### *Monotropa hypopithys* L.

*Hypopitys americana* (DC.) Small, *H. fimbriata* (Gray) J.T. Howell, *H. insignata* Bickn., *H. lanuginosa* (Michx.) Nutt., *H. latisquama* Rydb., *H. monotropa* Crantz, *Monotropa hypopithys* ssp. *lanuginosa* (Michx.) Hara, *M. hypopithys* var. *americana* (DC.) Domin, *M. hypopithys* var. *latisquama* (Rydb.) Kearney & Peebles, *M. hypopithys* var. *rubra* (Torr.) Farw., *M. lanuginosa* Michx., *M. latisquama* (Rydb.) Hult.

#### Pinesap

[7,000] 8,000 - 8,700 [9,000] ft. [Jul] Aug - [Sep]. Perennial deciduous forb, saprophyte geophyte. Uncommon on mesic slopes, rich soil in the shade of pines, firs, and aspens, along mesoriparian drainages.

Chiricahua Mts.: junction of Rustler Park and Barfoot Park roads; Wilderness Area; Tub Spring; Bootlegger Saddle. Also Pinaleno Mts., Sierra Ancha, Santa Catalina Mts. Coconino County to Cochise and Pima counties. Widely distributed in the Northern Hemisphere. Holarctic.

Exsicc.: SWRS [SWRS 1960-415]. CHWA [Leithliter 530].

### **Pterospora andromeda** Nutt.

Pine drops

6,000 - 6,400 [9,500] ft. [May] - Aug. Perennial deciduous forb, saprophytic geophyte. Uncommon in coniferous forest openings in deep needle litter. *Pinus arizonica*, *Quercus hypoleucoes*.

Chiricahua Mts.: Rucker Canyon 1 mi. east of Forest Camp. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Santa Rita Mts., Pinal Mts. Sierra Madre Occidental: near Colonia Garcia. Apache and Coconino counties to Cochise and Pima counties. Canada to Pennsylvania, Arizona, California, and northern Mexico. Temperate.

This plant is protected by law.

Exsicc.: ARIZ [J.C. Blumer U.201, Windham & Yatskiewych 82-216].

### **MORACEAE—Mulberry Family.**

A family of deciduous or evergreen trees or shrubs with milky latex. About 72 genera and over 1,000 species, mostly of pantropical distribution. The family is of considerable economic importance for its many edible fruits: figs (*Ficus*), mulberries (*Morus*), and breadfruit and jack fruit (*Artocarpus*).

#### ***Morus microphylla* Buckl.**

*Morus confinis* Greene; *M. crataegifolia* Greene, *M. grisea* Greene, *M. radulina* Greene

Texas mulberry

[3,400] - 5,100 ft. [Mar] May - [Apr] Jul. Broadleaf deciduous shrub, microphanerophyte. Uncommon along drainages and on shaded rocky slopes.

Chiricahua Mts.: Portal to Paradise road; Fort Bowie Nat. Historic Site in Siphon Canyon; Silver Creek 6 mi. south of Eddington's Ranch; Tex Canyon. Also Huachuca Mts., Rincon Mts., Peloncillo Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts. Coconino County, where perhaps introduced, and Greenlee County to Yavapai County, south to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico to Graham and Pima counties. Rocky Mountain region, south to New Mexico and Arizona. Madrean.

Exsicc.: FOBO [MHoy 415]. SWRS [SWRS 1959-269, 1960-303, Walker s.n.].

### **NYCTAGINACEAE—Four o'clock Family.**

A family of herbs or (in the tropics) shrubs or trees. About 28 genera and about 250 species distributed mostly in the tropics and subtropics of both hemispheres. In this country it is mostly restricted to the Pacific and southern regions. Economically the family is important only for its ornamentals four-o'clock (*Mirabilis*), sand verbena (*Abronia*), and bouganvillea.

#### ***Allionia choisyi* Standl.**

[4,000] - [6,000] 8,200 ft. [Jul] - [Oct]. Summer annual forb, spreading therophyte, leptophyll, orthophyll.

Chiricahua Mts.: Paradise, Apache, Navajo, Coconino, Yavapai, and Cochise counties. Western Texas to Arizona and south to Oaxaca. Russel (1982) cites a Blumer collection from Barfoot Park, no height altitude specimens are found at ARIZ.

Exsicc.: ARIZ [Blumer 118, 119, 1695].

#### ***Allionia incarnata* L.**

Trailing-four-o'clock, desert snow-ball

[2,200] 4,700 - 5,400 ft. Apr - Aug [Sep]. Perennial

deciduous forb, spreading hemicryptophyte; nanophyll, orthophyll. Uncommon on desert slopes and grasslands, juniper savannahs.

Chiricahua Mts.: Chiricahua Nat. Mon.: Pinery Canyon; Paradise; Portal; Fort Bowie Nat. Historic Site in Apache Pass near road, hill east of trailer at headquarters; Portal to Paradise road. Also Huchuca Mts., Pinaleno Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Throughout most of Arizona. Colorado and Utah to southern Mexico; South America. Southwestern, Latin American.

Exsicc.: CHIR [Clark 9260]. FOBO [MHoy 191]. SWRS [Roth s.n., Bottimer s.n.].

### ***Ammocodon chenopodioides* (Gray) Standl.**

*Selinocarpus chenopodioides* Gray

4,700 - 4,800 ft. Jul. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll.

Chiricahua Mts.: 1 mi. west of Portal. Also Peloncillo Mts. Duncan, Greenlee County, Chiricahua Mts., Cochise County, Tucson, Pima County. Western Texas to southern Arizona and Chihuahua. Chihuahuian.

Exsicc.: SWRS [Barr 66-80, Pough 1961-103]. ASU [3980].

### ***Boerhaavia coulteri* (Hook. f.) S. Wats.**

*Senkenbergia coulteri* Hook. f.

4,700 - 5,400 ft. Aug. Summer-annual forb, scapose or leafy-stemmed therophyte. Common in weedy grasslands, full sun.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; 2 mi. northeast of Portal. Also Santa Catalina Mts., Pinaleno Mts. Coconino and Mohave counties to Graham, Cochise, Pima, and Yuma counties. Southern California, Sonora, and Baja California. Sonoran.

One of the commonest and most widely distributed species of *Boerhaavia* in Arizona.

Exsicc.: SWRS [MHoy s.n., SWRS s.c. s.n.].

### ***Boerhaavia diffusa* L.**

Spiderling

5,150 - 6,200 [7,000] ft. [Apr] Jun - Sep [Nov]. Perennial deciduous forb, spreading hemicryptophyte. Common on grassland, grassland/scrub, open woodland, disturbed soil, roadsides and fields. Chiricahua Mts.: Chiricahua Nat. Mon. in residential area; Fort Bowie Nat. Historic Site in Apache Pass; 6 mi. east of Portal. Also Huachuca Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Mohave and Yavapai counties to Cochise, Santa Cruz, and Pima counties. Widely distributed in tropical and subtropical America. Temperate, Latin American.

Weedy pest.

Exsicc.: CHIR [Reeves 3103, 4166, 4357]. FOBO [MHoy 265]. SWRS [Cazier s.n.].

### ***Boerhaavia erecta* L.**

Spiderling

5,150 - 6,200 [7,000] ft. [Jun] Aug - [Jul] Sep. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Common in sunny or partly sunny woodlands and dry uplands. *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Animas Mts. Yavapai, Cochise, Santa Cruz, Pima, and Yuma counties. Widely distributed in tropical and subtropical America. Latin American.

Exsicc.: CHIR [Clark 8625, Moir 525, Reeves 1500, 3989, 4396A]. SWRS [Roth s.n.].

**Boerhaavia intermedia** M.E. Jones*Boerhaavia erecta* var. *intermedia* (M.E. Jones)

Kearney &amp; Peebles

Five-winged ringstem

[1,000] - 4,900 [5,500] ft. [May] - Aug. Summer-annual forb, scapose or leafy-stemmed therophyte. Common on dry uplands.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in South Canyon. Also Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Mohave, Gila, Cochise, and Pima counties. Western Texas to southeastern California, and northern Mexico. Southwestern.

Exsicc.: FOBO [MHoy 287].

**Boerhaavia purpurascens** Gray

Spiderling

5,300 - 6,100 [6,650] ft. Aug - Sep. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon in grassland/scrub and open woodland. *Pinus discolor*, *Juniperus deppeana*, *Quercus emoryi*, *Garrya wrightii*, *Opuntia spinosior*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; Paradise. Also Huachuca Mts., Santa Catalina Mts., Pinaleno Mts. Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Sonora. Chihuahuan.

Exsicc.: CHIR [Clark 8305, 8620, Reeves 1490, 4396]. SWRS [Ordway s.n.].

**Boerhaavia spicata** Choisy*Boerhaavia torreyana* (S. Wats.) Standl.

[1,500] 4,900 - [2,000] 4,900 ft. Aug - Aug. Summer-annual forb, scapose or leafy-stemmed therophyte. Common on dry slopes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in South Canyon. Also Sierra Ancha, Santa Catalina Mts. Navajo, Coconino, Yavapai, Gila, Maricopa, Pinal and Pima counties. Western Texas, Arizona, southern California and northern Mexico. Southwestern.

Exsicc.: FOBO [MHoy 474].

**Mirabilis bigelovii** Gray var. **bigelovii***Hesperonia bigelovii* (Gray) Standl., *H. glutinosa gracilis* Standl.

Suffrutescent shrub, suffrutescent chamaephyte. Uncommon on dry uplands and small drainages.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Sierra Ancha, Santa Catalina Mts., Pinaleno Mts. Coconino and Mohave counties to Pima and Yuma counties. Type from the Grand Canyon (Gray in 1885), type of *H. glutinosa gracilis* from Sabino Canyon, Pima County (Toumey 471c). Southern Utah to Arizona and southeastern California. Southwestern.

Exsicc.: [MHoy, s.n.].

**Mirabilis coccineus** (Torr.) Benth. & Hook. f.*Oxybaphus coccineus* Torr., *Allionia coccinea*

Standl.

[4,000] 5,000 - 6,200 [6,500] ft. May - Aug. Perennial deciduous forb. Common in grassland, grassland/scrub, open woodland and alluvium in lower canyons, dry open slopes, dry uplands.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at Apache Spring; Chiricahua Nat. Mon.; Horseshoe Canyon. Also Huachuca Mts., Sierra Ancha, Mule Mts., Pinaleno Mts., Animas Mts.,

Canelo Hills. New Mexico, Arizona, Sonora. Madrean.

Exsicc.: CHIR [Clark 8674, 9212, Fish 58, Reeves 1590, 2780, 2863, 4067]. FOBO [MHoy 178]. SWRS [Mouat s.n.].

**Mirabilis jalapa** L.

Cultivated four o'clock

5,400 ft. Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll.

Chiricahua Mts.: Southwestern Research Station; Cave Creek, Chiricahua Mts. (Harrison & Kearney 6132); probably an escape from cultivation. A native of tropical America. Latin American, Introduced.

This is the well known four-o'clock of old-fashioned gardens.  
Exsicc.: SWRS [Roth s.n.].

**Mirabilis linearis** (Pursh) Heimerl

*Allionia gausapoides* Standl., *A. linearis* Pursh, *Mirabilis gausapoides* (Standl.) Standl., *M. hirsutia* (Pursh) MacM. var. *linearis* (Pursh) Boivin, *M. lanceolata* (Rydb.) Standl., *M. linearis* var. *subhispidia* Heimerl, *O. angustifolius* Sweet, *O. exaltatus* (Standl.) Weatherby, *O. gausapoides* Standl. *O. lanceolatus* (Rydb.) Standl., *O. linearis* (Pursh) Rob., *O. linearis* var. *subhispidus* (Heimerl) Dayton

[4,500] 4,900 - 6,400 [9,500] ft. Feb - Jul [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common on grassland/scrub and talus slopes, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; FOBO in South Canyon; Paradise. Also Huachuca Mts., Mule Mts., Santa Catalina Mts., Sierra Ancha, Pinaleno Mts., Canelo Hills. South Dakota and Montana to northern Mexico. Rocky Mountain, Plains.

Exsicc.: CHIR [Fish 61, Reeves 3227, 3547]. FOBO [MHoy 216]. SWRS [Walker s.n., Mouat s.n.].

**Mirabilis longiflora** L.

*Mirabilis longiflora* var. *wrightiana* (Gray ex Britt. & Kearn.) Kearn. and Peeb., *M. wrightii* Gray ex Britt. & Kearn.

Four-o'clock

[2,500] 5,000 - 7,250 ft. [Mar] Jul - Sep [Oct]. Suffrutescent chamaephyte; microphyll, orthophyll. Common in open woodland and chaparral, sometimes in shaded mesic spots, streams, uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in South Canyon; Southwestern Research Station; Wilderness Area, Winn Falls. Also Sierra Ancha, Mule Mts., Pinaleno Mts., Animas Mts., Canelo Hills, Huachuca Mts. Apache and Yavapai to Cochise, Santa Cruz and Pima counties. West Texas to Arizona and far southward in Mexico. Latin American.

Exsicc.: CHIR [Clark 9312, Reeves 987, 1530, 4395]. FOBO [MHoy s.n.]. SWRS [SWRS 1959-516].

**Mirabilis multiflora** (Torr.) Gray var.**multiflora***Quamoclidion multiflorum* Torr., *Q. cordifolium* Osterh.

5,000 ft. May. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Common on dry uplands.

Chiricahua Mts.: Fort Bowie Nat. Historic Site along trail on weakly disturbed ground. Also Sierra Ancha, Pinaleno Mts., Santa Rita Mts. Almost throughout Arizona. Colorado and Utah to northern Mexico. Southwestern.

Exsicc.: FOBO [MHoy s.n.].

### **Mirabilis nyctaginea** (Michx.) MacM.

*Allionia nyctaginea* Michx., *Oxybaphus nyctaginea* (Michx.) Sweet

Wild four-o'clock

6,000 - 7,200 ft. Jul - Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Uncommon in woodland and chaparral.

Chiricahua Mts.: Chiricahua Nat. Mon.

Exsicc.: CHIR [Reeves 3226, 4282].

### **Mirabilis oblongifolia** (Gray) Heimerl.

*Oxybaphus comatus* (Small) Weatherby, *Allionia comata* Small, *Mirabilis comata* (Small) Standl.

[3,500] 5,000 - 8,900 [9,000] ft. [May] Aug - Oct. Perennial deciduous, scapose or leafy-stemmed hemicryptophyte. Common in woodland and chaparral on south-facing slopes; in drainages and on north-facing slopes at lower elevations.

Chiricahua Mts.: Fort Bowie Nat. Historic Site around trailer; Chiricahua Nat. Mon.; Paradise; 2 mi. east of Onion Saddle; Wilderness Area; Barfoot Park; Cave Creek. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Coconino County to Greenlee, Cochise, Santa Cruz, and Pima counties. Western Texas and Arizona, south into Mexico. Madrean.

Exsicc.: CHIR [Borell 12, Clark 8563, Moir 446, Reeves 1290, 1430, 1750]. FOBO [MHoy s.n.]. SWRS [Walker s.n., Mason s.n.]. CHWA [Leithliter 681]. ARIZ [Blumer 1384 (co-type), 1385 (co-type)].

### **Mirabilis oxybaphoides** (Gray) Gray

*Quamoclidion oxybaphoides* Gray, *Allioniella oxybaphoides* (Gray) Gray ex Torr.

Spreading four-o'clock

[6,000] - 7,500 [9,000] ft. [Aug] - [Sep]. Perennial deciduous forb, spreading hemicryptophyte; microphyll, orthophyll. Uncommon on dry slopes. *Pinus arizonica*, *P. engelmannii*, *Pseudotsuga menziesii*, *Quercus gambelii*.

Chiricahua Mts.: Onion Saddle. Also Pinaleno Mts., Sierra Ancha, Animas Mts., Santa Rita Mts. Apache, Navajo, and Coconino counties. Colorado and Utah to northern Mexico. Southwestern.

Exsicc.: ASU [Cazier 662].

### **Mirabilis pumila** (Standl.) Standl.

*Allionia pumila* Standl., *Oxybaphus pumilus* (Standl.) Standl.

5,000 ft. Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Uncommon on dry uplands. *Quercus rugosa*, *Q. emoryi*, *Q. arizonica*, *Pinus discolor*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in Cut Off Canyon. Also Huachuca Mts., Sierra Ancha, Coconino, Mohave, Gila, and Yavapai counties. New Mexico, Arizona, Nevada, and southeastern California. It has an exceptionally deeply cleft involucre, with narrowly triangular teeth. Southwestern.

Exsicc.: FOBO [MHoy s.n.].

## **OLEACEAE—Olive Family.**

A family of trees or shrubs, sometimes lianous. About 22 genera

and 500 species, of temperate and paleotropical regions, notably Asia and the East Indies. The family is of considerable economic importance. The olive (*Olea*) is a source of food, and oil expressed from the fruit is of high value. Ash lumber (*Fraxinus*) is of value for cabinet work. Additionally, lilac (*Syringa*), privet (*Ligustrum*), jasmine (*Jasminus*), and golden bells (*Forsythia*) are of ornamental use.

### **Fraxinus papillosa** Lingeh.

5,000 - 6,500 ft. May - Jun. Broadleaf deciduous tree, nanophanerophyte; microphyll, orthophyll. Uncommon in mesoriparian canyons, mesic slopes. *Pinus leiophylls*, *P. engelmannii*, *P. discolor*, *Quercus hypoleucoides*, *Q. rugosa*, *Populus fremontii*, *Juniperus deppeana*.

Chiricahua Mts.: West Turkey Creek at Ranger Station; Pine Canyon. Also Huachuca Mts., Santa Rita Mts. Pima and Cochise counties.

Exsicc.: ARIZ [Little 17045, 17051].

### **Fraxinus velutina** Torr.

*Fraxinus pennsylvanica* Marsh ssp. *velutina* (Torr.) G.N. Mill., *F. velutina* Torr. var. *coriacea* (S. Wats.) Rehd., *F. velutina* var. *glabra* Rehd., *F. velutina* var. *toumeyi* (Britt.) Rehd.

Velvet ash

[2,000] 5,000 - 7,220 ft. [Mar] Apr - May [Jun]. Broadleaf deciduous tree, microphanerophyte; microphyll, orthophyll. Common in mesoriparian canyons and along arroyos.

Chiricahua Mts.: Chiricahua Nat. Mon.; FOBO at Apache Spring; West Turkey Creek; Whitewater Draw; Halfmoon Valley (Pedregosa Mts.); South Fork Cave Creek; Wilderness Area; Whitetail Canyon. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Apache County to Coconino County, south to Cochise, Santa Cruz, and Pima counties. Western Texas to southern California and northern Mexico. Temperate.

Exsicc.: CHIR [Clark 8290, Reeves 2552, 2810, 3446, 3976]. FOBO [MHoy 412]. SWRS [Ordway 186, s.n., SWRS 1958-116]. CHWA [Leithliter 622, 702, 745]. NMC [Blumer 1250].

### **Menodora scabra** (Engelm.) Gray

*Menodora scabra* var. *glabrescens* Gray, *M. scabra* var. *laevis* (Woot. & Standl.) Steyermark., *M. scabra* var. *longituba* Steyermark., *M. scabra* var. *ramosissima* Steyermark., *M. scoparia* Engelm ex Gray

[1,500] - 5,000 [7,500] ft. [Mar] Jul - [Sep]. Suffrutescent shrub, suffrutescent low shrub. Common on well-drained soils on flats and slopes, upper bajadas.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in Cut Off Canyon; Portal. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts. Apache County to Mohave County, south to Cochise, Pima and Yuma counties. Western Texas to southern Utah, Arizona, southeastern California, and northern Mexico. Southwestern.

Exsicc.: FOBO [MHoy 455]. SWRS [Walker s.n.].

## **ONAGRACEAE—Evening Primrose Family.**

A family mostly of herbs (occasionally aquatics), rarely shrubs (*Fuchsia*) or trees (*Hauya*). About 20 genera and 650 species, of world-wide distribution, especially in temperate regions of the New World but also abundant in South America. Economic value is limited to ornamentals.

**Calylophus hartwegii** (Benth.) Raven ssp.  
**pubescens** (Gray) Towner & Raven  
*Calylophus hartwegii* var. *pubescens* (Gray) Shinners,  
*Galpinsia camporum* Woot. & Standl., *G. interior*  
Small, *Oenothera greggii* Gray, *O. greggii* Gray var.  
*lampasana* (Buckl.) Munz

[4,000] - 9,000 ft. [Apr] May - Jul. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon on rocky limestone slopes. *Pinus arizonica*, *Abies concolor*, *Populus tremuloides*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on southeast side of Overlook; along road 5 mi. southwest of Chiricahua National Monument; along Crest Trail between Long Park and Round Park. Also Rincon Mts., Santa Catalina Mts., White Mts. Apache County to Pinal, Cochise, Santa Cruz, and Pima counties. From Oklahoma and Texas to southeastern Arizona. Southwestern.

Exsicc.: FOBO [MHoy 129]. SWRS [Mouat s.n., Wittmann 41].

**Calylophus toumeyi** (Small) Towner  
*Calylophus hartwegii* (Benth.) ssp *toumeyi* (Small) Towner, *Galpinsia toumeyi* Small, *Oenothera hartwegii* (Small) Towner, , *O. hartwegeii* Benth. var. *toumeyi* (Small) Munz, *O. toumeyi* (Small) Tidestrom

Evening primrose

[5,000] 5,800 - 9,020 ft. Jun - Sep. Common on talus slopes, rock outcrops, wooded canyons, and open slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; Wilderness Area; upper Pinery Canyon. Also Huachuca Mts., Santa Rita Mts., Animas Mts. Cochise, Santa Cruz, and Pima counties. New Mexico, Sonora, and Chihuahua. Madrean.

Exsicc.: CHIR [Reeves 3393, 3693]. CHWA [Leithliter 199, 419, 525]. SWRS [Pough 1962-35].

**Camissonia californica** (Nutt. ex Torr. & Gray)  
Raven

*Eulobus californicus* Nutt. ex Torr. & Gray,  
*Oenothera leptocarpa* Greene, *O. californica* (Nutt. ex Torr. & Gray) Greene

[4,500] ft. Winter-annual forb, scapose or leafy-stemmed therophyte. Common on dry, rocky slopes, plains and washes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Rincon Mts., Santa Catalina Mts. Greenlee, Yavapai, and Mohave counties south to Pima and Yuma counties. Western Arizona and southern California to Sonora and Baja California. Sonoran.

Exsicc.: FOBO [MHoy s.n.].

**Epilobium canum** (Greene) Raven ssp.

**latifolium** (Hook.) Raven

*Zauschneria californica* Presl ssp. *latifolia* (Hook.)

Keck, *Z. latifolia* (Hook.) Greene, *Z. latifolia*

*arizonica* (A. Davids.) Hilend

Hummingbird-trumpet

[2,500] 5,200 - 6,100 [7,000] ft. [Jun] Aug - Oct [Dec].

Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte. Rare on cool slopes and among rocks in damp streambed soils.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Park and East Whitetail Canyon; Fort Bowie Nat. Historic Site; South Fork Cave Creek; Wilderness Area. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Canelo Hills, Sierra de los Ajos. Southern Coconino, Greenlee, and Gila counties, south to the Mexican border, west to the Ajo Mts. (Pima County). Southwestern New Mexico, southern Arizona, and northern Sonora. Southwestern.

Exsicc.: CHIR [Borell 31, Reeves 1753, 4398]. CHWA [631].

**Epilobium ciliatum** Raf. ssp. **ciliatum**

*Epilobium adenocaulon* Hausskn., *E. adenocaulon* var. *ecomosum* (Fassett) Munz, *E. adenocaulon* var. *holosericeum* (Trel.) Munz, *E. adenocaulon* var. *parishii* (Trel.) Munz, *E. andnocaulon* var. *perplexans* Trel., *E. americanum* Hausskn. *E. brevistylum* Barb., *E. brevistylum* var. *ursinum* (Parish ex Trel.) Jepson, *E. californicum* Hausskn., *E. californicum* Hausskn. var. *holosericeum* (Trel.) Munz, *E. ciliatum* var. *ecomosum* (Fassett) Boivin, *E. delicatum* Trel., *E. ecomosum* (Fassett) Fern., *E. fendleri* Hausskn., *E. glandulosum* Lehm. var. *adenocaulon* (Hausskn.) Fern., *E. glandulosum* var. *macounii* (Trel.) C.L. Hitchc., *E. leptocarpum* Hausskn., *E. leptocarpum* var. *macounii* Trel., *E. watsonii* Barneby var. *parishii* (Trel.) C.L. Hitchc. Willow-weed

[4,000] 5,800 - 8,250 [9,500] ft. [Jun] Jul - Sep [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon on swales and lower slopes, moist places, logged forests, streams, rocky soil.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon at lower springs; beneath Wynn Falls; Wilderness Area; Barfoot Park; near Paradise; Herb Martyr Dam. Also Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Santa Rita Mts., Galiuro Mts., Rincon Mts., Huachuca Mts., Patagonia Mts., Animas Mts. Widely distributed in Arizona. Eastern United States to British Columbia, Washington to New Mexico, Arizona, and Baja California. Temperate.

Exsicc.: CHIR [Clark 8276]. SWRS [Wittmann 92]. CHWA [Leithliter 385]. ARIZ [Blumer s.n. 163, 1333, 1400; O.M. Clark 8277, 8329]. ASU [Cazier 117].

**Gaura coccinea** Nutt. ex Pursh

*Gaura coccinea* var. *arizonica* Munz, *G. coccinea* var. *epilobioides* (Kunth) Munz, *G. coccinea glabra* (Lehm.) Torr. & Gray, *G. coccinea* var. *parvifolia* (Torr.) Rickett, *G. coccinea* var. *typica* Munz, *G. glabra* Lehm., *G. odorata* Ses. ex Lag.

Scarlet gaura

5,100 - 5,250 [8,100] ft. [Apr] May - Aug. Narrowleaf dicot shrub, suffrutescent low shrub, chamaephyte. Uncommon along roadsides and open talus, disturbed sites.

Chiricahua Mts.: Chiricahua Nat. Mon.; west and south of monument; Portal. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Throughout Arizona except the southwest desert portion. Southern Canada to Mexico. Southwestern, Plains.

Exsicc.: CHIR [Clark 8539, Reeves 2934]. SWRS [Toller 60].

**Gaura hexandra** Gomez Ortega ssp. **gracilis**

(Woot. &amp; Standl.) Raven &amp; Gregory

*Gaura gracilis* Woot. & Standl., *G. gracilis* var. *typica* Munz

Scarlet gaura

5,000 - 8,800 ft. May - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Common in meadows, seasonally wet streambeds, open woodland and around rocks in chaparral, dry uplands. Douglas-fir.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita and East Whitetail Canyons; Fort Bowie Nat. Historic Site on hill north of Overlook; Pinery Canyon; above Rustler Park. Also Rincon Mts., Sierra Ancha, Pinaleno Mts., Animas Mts., Canelo Hills. Nearly throughout the state except the most western portion, especially common about Flagstaff and in the mountains of Cochise County. Western Texas to Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [8742, Reeves 1393, 2868, 3275, 3444, 3739]. FOBO [MHoy 387]. SWRS [SWRS 1959-417].

**Gaura parviflora** Dougl. ex Lehm.*G. parviflora* var. *lachnocarpa* Wreath., *G. parviflora* var. *typica* Munz

Lizard tail, velvet leaf gaura

5,100 - 5,400 ft. May - Jul [Aug]. Biennial. Uncommon in disturbed and waste places, often low-lying areas, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. in large stand along entrance west of monument; Paradise; Rock Creek. Also Rincon Mts., Sierra Ancha, Pinaleno Mts., Canelo Hills. Navajo County to Mohave County, south to Cochise, Pima, and Yuma counties. Mississippi Valley to Washington and northern Mexico; Argentina. Western, Latin American.

Exsicc.: CHIR [Reeves 3075]. SWRS [Walker s.n.]. Repos. unk. [Blumer 1738, 1776].

**Oenothera albicaulis** Pursh*Anogra albicaulis* (Pursh) Britt., *Oenothera ctenophylla* (Woot. & Standl.) Tides.

Evening primrose

[4,200] 5,150 - 9,020 ft. Apr - Aug. Winter annual. Uncommon on alluvium of lower canyons, talus slopes, disturbed areas.

Chiricahua Mts.: Chiricahua Nat. Mon.; Wilderness Area. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Animas Mts. Widely distributed in Arizona. South Dakota and Montana to Chihuahua and Arizona. Rocky Mountain.

Exsicc.: CHIR [Fish 48, Reeves 2530, 2569, 2917]. CHWA [Leithliter 148, 177, 581].

**Oenothera brachycarpa** Gray*Lavauxia brachycarpa* (Gray) Britt., *Megaterium brachycarpum* (Gray) Lev., *Oenothera brachycarpa* var. *wrightii* (Gray) Lev., *O. cespitosa* Nutt. ssp. *australis* (Woot. & Standl.) Munz,

Sun-drops

[4,000] - 5,000 [6,000] ft. Feb - [Jul]. Perennial deciduous forb. Rare on dry slopes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill south of ruins. Also Huachuca Mts., Mule Mts. Navajo, Coconino, Cochise, and Pima counties. Idaho to Texas, Arizona, and Chihuahua. Southwestern, Rocky Mountain.

Exsicc.: FOBO [MHoy 212].

**Oenothera caespitosa** Nutt. var. **caespitosa***Oenothera cespitosa* ssp. *montana* (Nutt.) Munz, *O. cespitosa* ssp. *purpurea* (S. Wats.) Munz, *O.**cespitosa* var. *montana* (Nutt.) Dur., *O. cespitosa*var. *purpurea* (S. Wats.) Munz, *Pachylophis**caespitosus* (Nutt.) Raimann, *P. montanus* (Nutt.) A. Nels.

Evening primrose

[3,800] 4,900 - 5,200 ft. Mar - Apr [Jun]. Perennial deciduous forb, rosette hemicryptophyte. Uncommon on rocky slopes and sandy flats, swales and lower slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. frequent west of monument; Fort Bowie Nat. Historic Site in Cut Off Canyon; 5 mi. east of Portal. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. The typical glabrous form of the species is not known in Arizona, but 4 varieties are found there. Var. *marginata* (Nutt.) Munz is well distributed throughout the state. Ranging from Colorado and Arizona to Washington and California. Var. *Jonesii* Munz, otherwise known only from Utah, has been found north of Cameron, Coconino County (Ripley & Barneby 8498). Var. *montana* (Nutt.) Durand, occurs in Apache, Navajo, and Coconino counties. Ranging from Montana and Oregon to New Mexico and Arizona. Var. *australis* (Woot. & Standl.) Munz is known from several localities in Cochise County and is found also in New Mexico. A glabrescent form, approaching var. *longiflora* (Heller) Munz, was found on the north side of the Grand Canyon (Eastwood & Howell 1073a). Western.

Exsicc.: CHIR [Reeves 2343, 2605]. FOBO [MHoy 123]. SWRS [Mouat s.n.].

**Oenothera elata** Kunth ssp. **hirsutissima** (Gray ex S. Wats.) W. Dietr.*Oenothera biennis* L. var. *hirsutissima* Gray ex S. Wats., *O. hookeri* Torr. & Gray ssp. *angustifolia* (R.R. Gates), *O. hookeri* ssp. *grisea* (Bartlett) Munz, *O. hookeri* ssp. *hewettii* Cockerell, *O. hookeri* ssp. *hirsutissima* (Gray ex S. Wats.) Munz, *O. hookeri* ssp. *ornata* (Nels.) Munz, *O. hookeri* ssp. *venusta* (Bartlett) Munz, *O. hookeri* var. *angustifolia* R.R. Getes, *O. hookeri* var. *hewettii* (Cockerell) Cockerell, *O. hookeri* var. *hirsutissima* (Gray ex Wats) Munz, *O. hookeri* var. *ornata* (Nels.) Munz, *O. ornata* (Nels.) Rydb., *O. simsiana* auct. non Ser.
*Oenothera jepsonii* Greene, *O. hookeri* Small, *O. franciscana* Bartlett.

Evening primrose

[4,400] 5,200 - 8,400 [9,000] ft. [Jun] Jul - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon on talus slopes, roadcut banks, meadow, streambeds, pools, and woodlands on lower slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; Southwestern Research Station; Rustler Park; Barfoot Park; Wilderness Area, Winn Falls. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Sierra de los Ajos.

This species is represented in Arizona by two subspecies, both growing in damp places. These are: subsp. *hirsutissima* (Gray) Munz; and subsp. *Hewettii* Cockerell (*O. irrigua* Woot. & Standl.). Subsp. *hirsutissima* occurs in Apache and Coconino counties, south to Cochise and Pima counties, and ranges from Colorado and Utah to northern Mexico. Subsp. *Hewettii* is known from Navajo, Coconino, Graham, and Gila counties, and ranges

from Kansas to Nevada, south to northern Mexico. Western.

These subspecies intergrade with each other and with other forms of *O. hookeri*.

Exsicc.: CHIR [Borell 24, Clark 8419, Reeves 3655, 4498, 4524]. SWRS [Roth s.n.]. CHWA [Leithlitter 609].

### ***Oenothera laciniata* Hill**

*Raimannia laciniata* (Hill) Rose

Cut-leaved evening primrose

[7,000] 7,800 - 9,300 ft. Jul - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon on dry well-drained soils, often on old burn sites; meadows and lower forested slopes. *Pinus arizonica*, *Abies concolor*, *Pseudotsuga menziesii*.

Chiricahua Mts.: between Rustler Park and Long Park; Turkey Park; Centella Point. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Almost throughout the state except the extreme western part. Represented in Arizona by var. *pubescens* (Willd.) Munz, which ranges from Texas to Arizona, south to Ecuador. Temperate, Latin American.

The flowers open in the evening.

Exsicc.: SWRS [Wittmann 182, s.c. s.n., Pough 1962-34].

### ***Oenothera pallida* Lindl. ssp. *runcinata***

(Engelm.) Munz & W. Klein

*Oenothera pallida* var. *runcinata* (Engelm.) Cronq., *O. runcinata* (Engelm.) Munz, *O. runcinata* var. *brevifolia* (Engelm.) Munz, *O. runcinata* var. *leucotricha* (Woot. & Standl.) Munz, *O. runcinata* var. *typica* Munz

[4,000] 5,500 - [7,000] ft. [May] - [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Dry plains and hills.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Apache, Navajo, Coconino, Yavapai, Greenlee, Cochise, and Pinal counties. Texas and Chihuahua to New Mexico, and California. Madrean.

### ***Oenothera primiveris* Gray**

*Lavauxia primiveris* Small, *L. lobata* A. Nels.,

*Oenothera primaveris* ssp. *bifonis* (M.E. Jones) Munz, *O. primaveris* ssp. *caulescens* (Munz), *O. primaveris* var. *caulescens* Munz

Evening primrose

4,800 - 5,100 ft. Mar - May. Winter-annual forb, rosette therophyte. Common in well-drained soils on slopes and flats.

Chiricahua Mts.: Chiricahua Nat. Mon. west of monument; Fort Bowie Nat. Historic Site in cemetery; Portal, schoolgrounds. Also Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts. Greenlee and Mohave counties, south to Cochise, Santa Cruz, Pima, and Yuma counties. Texas to Nevada and California. Southwestern.

Exsicc.: CHIR [Reeves 2347, 2531, 2555]. FOBO [MHoy 358]. SWRS [Roth s.n.].

### **ORCHIDACEAE—Orchid Family.**

A family of perennial herbs; terrestrial, epiphytic, or saprophytic, sometimes vinelike, the terrestrial forms with fibrous or with thickened tuberous or cordlike roots, the epiphytic forms often with the leaf-bearing stem swollen to form a pseudobulb and often with aerial hanging cordlike roots covered by a layer of water-absorbing tissue, the saprophytic forms lack chlorophyll. A very large family of about 450 genera and 10,000 to 15,000 species, of wide distribution over the earth in all hemispheres but

most abundant in the tropics where the majority of genera are epiphytes. Most of the genera of the temperate and all those of the arctic regions are terrestrial. There are about 43 genera and 145 species in North America north of Mexico. Aside from their value as ornamentals, the orchid family is the source of vanilla (Vanilla).

### ***Corallorrhiza maculata* (Raf.) Raf.**

*Corallorrhiza maculata* var. *flavida* (Peck) Cockerell, *C. maculata* *immaculata* Peck, *C. maculata* var. *intermedia* Farw., *C. maculata* *occidentalis* (Lindl.) Cockerell, *C. maculata* var. *punicea* (Bartlett) Weath. *C. multiflora* Nutt. & Adams

Spotted coral root

7,220 - 9,790 ft. Jun - Jul. Perennial deciduous forb, saprophyte geophyte. Uncommon in deep conifer litter on cool, moist, shaded slopes.

Chiricahua Mts.: Wilderness Area, Round Park, southeast slope of Flys Peak along Summit Trail; Rustler Park to Long Park. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts. Lukachukai and White Mts. (Apache County), North Rim of Grand Canyon and San Francisco Peaks (Coconino County), south to the Pinaleno Mts. (Graham county) and the Santa Catalina Mts. (Pima County). Nova Scotia to Alaska, south to Florida, New Mexico, Arizona, and California. Temperate, Latin American.

Exsicc.: SWRS [SWRS 1959-790, 1958-38]. CHWA [Leithlitter 33, 349].

### ***Corallorrhiza striata* Lindl.**

Striped coral root

7,000 - 9,200 ft. Jun [Jul] - Aug. Perennial deciduous forb, saprophyte geophyte. Rare on partly sunny to deeply shaded, cool moist slopes in coniferous forests; more often in ravines at lower elevations.

Chiricahua Mts.: Greenhouse Canyon trail; Wilderness Area, Tub Spring, Crest Trail. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Pinaleno Mts. (Graham County), Pinal Mts. and Sierra Ancha (Gila County), Chiricahua Mts. (Cochise County), Santa Catalina Mts. (Pima County). Quebec to British Columbia, Michigan, Arizona, and California. Temperate.

Exsicc.: SWRS [Walker s.n., SWRS 1959-460].

### ***Corallorrhiza wisteriana* Conrad**

Spring coral root

6,000 - [9,200] ft. May - [Jul]. Parasite scapose or leafy-stemmed hemicryptophyte. Uncommon on cool moist slopes.

Chiricahua Mts.: 1 mi. above Herb Martyr Dam; East Turkey Creek; Rock Creek. Also Pinaleno Mts., Sierra Ancha. North Rim of Grand Canyon and San Francisco Peaks (Coconino County), Sierra Ancha and Pinal Mts. (Gila County), Santa Catalina Mts. (Pima County). Pennsylvania to Florida and Texas; Arizona. Temperate.

Exsicc.: SWRS [Morse s.n., Walker s.n.].

### ***Goodyera oblongifolia* Raf.**

*G. decipiens* (Hook.) F.T. Hubbard, *G. oblongifolia* var. *reticulata* Boivin, *Perarium decipiens* (Hook.) Piper

Rattlesnake plantain

8,000 - 9,300 ft. Aug. Evergreen perennial forb, rosette hemicryptophyte. Uncommon on east-, west- or north-facing shaded mesic slopes in light conifer litter. *Pseudotsuga menziesii*,

*Abies concolor*, *Picea engelmannii*.

Chiricahua Mts.: Wilderness Area between South Fork Cave Creek and Anita Park, along Crest Trail; Flys Peak, Centrelle Point. Also Sierra Ancha, Santa Catalina Mts. Luckachukai and White Mts. (Apache and Greenlee counties), Kaibab Plateau, Elden Mts., and Bill Williams Mts. (Coconino County), Pinaleno Mts. (Graham County). Nova Scotia to Alaska, south to New Hampshire, New Mexico, Arizona, and California. Northern. Exsicc.: SWRS [Walker s.n.]. ARIZ [Baric 64-497].

**Goodyera repens** (L.) R.Br.

*Goodyera ophioides* (Fern.) Rydb., *G. repens* ssp. *ophioides* (Fern.) A. Löve & Simon, *G. repens* var. *ophioides* Fern., *Perarium ophioidium* (Fern.) Rydb. Rattlesnake plantain

Perennial deciduous forb, rosette hemicryptophyte; nanophyll, orthophyll. Uncommon.

Chiricahua Mts.: Wilderness Area, Greenhouse Trail, Crest Trail, Phelps Meadow, White Mountains, Apache county. Widely distributed in the Northern Hemisphere. Northern.

**Hexalectris spicata** (Walt.) Barnh.

Crested coral-root

5,550 [6,200] ft. Jul - Aug. Perennial deciduous forb, saprophyte geophyte. Rare in oak-pine woods, under oaks.

Chiricahua Mts.: Chiricahua Nat. Mon.; Jesse James Canyon, 1/3 mi. south of Chiricahua Nat. Mon. boundary; north of road across from Southwestern Research Station swimming pool. Also Rincon Mts., Santa Catalina Mts., Santa Rita Mts., Huachuca Mts. Santa Cruz or Pima County (Pringle 353, the type of *C. arizonica*, Thornber in 1903). Virginia to Missouri, Florida, and Texas; Arizona. Temperate.

Exsicc.: CHIR [Reeves 3710]. SWRS [Todsen s.n.].

**Hexalectris warnockii** Ames & Correll

Texas purple-spike

5,400 ft. Sep. Perennial deciduous forb, bulb geophyte; microphyll, orthophyll. Rare in oak-pine woodlands.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite and Bonita Canyons. Also Mule Mts., Huachuca Mts. Western Texas, northern Mexico (?), and southeastern Arizona. Chihuahuan.

Population near Chiricahua National Monument headquarters in Rhyolite Canyon was apparently destroyed by past construction activities. A population nearby has apparently survived but is uncollected.

Exsicc.: CHIR [Fish 20, Reeves 1214].

**Malaxis corymbosa** (S. Wats.) Kuntze

7,000 ft. Jul.

Chiricahua Mts.: Mormon Canyon Trail. Also Huachuca Mts., Santa Catalina Mts., Sierra de los Ajos. Type from Tanners Canyon, Huachuca Mts. (Lemmon 2882). Pima and Cochise counties. Southern Arizona to Guatemala. Madrean.

Exsicc.: SWRS [Luetcke s.n.].

**Malaxis ehrenbergii** (Reichenb. f.) Kuntze

Adder's mouth

9,100 - 9,325 ft. Aug - Sep. Perennial deciduous forb, bulb geophyte; microphyll, orthophyll. Uncommon on rocky outcrops.

Chiricahua Mts.: Long Park; Wilderness Area, Raspberry Ridge Trail. Huachuca Mts. (Cochise County), Santa Catalina Mts. (Pima County), Sierra de los Ajos. New Mexico and Arizona to Guatemala. Madrean, Latin American.

Exsicc.: SWRS [SWRS 1959-774]. CHWA [Leithliter 673].

**Malaxis macrostachya** (Lexarza) Kuntze

*Malaxis soulei* L.O. Williams

Rat-tail malaxis

6,000 - 9,790 ft. Jul - Sep. Perennial deciduous forb, bulb geophyte. Uncommon in pine woods in deep litter. *Pinus arizonica*, *P. strobus*, *Pseudotsuga menziesii*, *Quercus gambelii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Wilderness Area; 0.5 mi. above Herb Martyr Dam; along Mormon Canyon near W. Turkey Creek. Also Rincon Mts., Santa Catalina Mts. White Mountains (Apache County), Mogollon Escarpment (Coconino County), Pinaleno Mountains (Graham County), fairly common in the mountains to Cochise, Santa Cruz, and Pima counties, Sierra de los Ajos. Western Texas to Arizona, south to Panama. Southwestern, Latin American.

Exsicc.: CHIR [Clark 8596, Reeves 961]. CHWA [Leithliter 196, 489, 845]. SWRS [Todsen s.n., Wittmann 76].

**Malaxis tenuis** (S. Wats.) Ames

8,000 ft. - Aug. Perennial deciduous forb, bulb geophyte; microphyll, orthophyll. Northwest-facing slope.

Chiricahua Mts.: Rustler Park; West Turkey Creek. Also Santa Catalina Mts. Pima County (Thornber in 1903, Peebles et al. 2518). New Mexico, Arizona, and Mexico. Madrean.

Exsicc.: SWRS [Gallagher s.n.].

**Platanthera limosa** Lindl.

*Habenaria limosa* (Lindl.) Hemsl., *Limnorchis thurberi* (Gray) Rydb.

Thurber's bog orchid

7,000 - [8,000] 9,180 ft. Jun - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon near streams at bottom of deep steep canyon, wet springy places, shade. *Pseudotsuga menziesii*, *Pinus strobus*, *Abies concolor*, *Nasturtium officinale*, *Rudbeckia laciniata*, *Mimulus cardinalis*, *Mimulus guttatus*, *Viola canadensis*, *Aquilegia chrysanthia*.

Chiricahua Mts.: Pine Canyon; Wilderness Area; Monte Vista Peak. Also Rincon Mts., Santa Catalina Mts., Huachuca Mts. Mountains of Cochise and Pima counties. Type of *Habenaria thurberi* from south of Babocomari, Cochise County (Thurber 925), type of *Limnorchis arizonica* from the Rincon Mts., Pima County (Nealley 78). New Mexico, southern Arizona, and Mexico. South of Babocomari (Cochise Co.). New Mexico, southern Arizona, and Mexico. Madrean.

Browsed by cattle.

Exsicc.: PB []. CHWA [202, 482, 591].

**Spiranthes michuacana** (Ll. & Lex.) Hemsl.

*Stenorrhynchos michuacanus* (Ll. & Lex.) Schlechter

6,000 - [7,000] ft. [Sep] - [Oct]. Deciduous perennial forb, tuber geophyte; leptophyll, orthophyll. Rare in mesic canyons and shaded rocky slopes.

Chiricahua Mts.: Rucker Canyon (?). Also Dragoon Mts., Huachuca Mts.

Specimen not seen. Lemmon did collect in the vicinity of Camp Rucker in 1881 and his number (477) fits the time-frame. However, some of his given localities are known to be in error.

**Spiranthes parasitica** A. Rich. & Gal.

*Schiedea parasitica* (A. Rich. & Gal.) Schlechter

7,200 - 8,200 ft. Jun - Jul. Perennial deciduous forb,

saprophyte geophyte. Rare. Probably more common than usually indicated. The key to finding this species is to find the proper habitat. Shaded slopes without herbaceous understory in mixture of equal parts of pine or douglas-fir needles and gambels oak or aspen leaves, cool moist slopes. Chiricahua Mts.: just below Rustler Park; Barfoot Park; Rustler Park; at Onion Saddle. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Santa Catalina Mts., Pinaleno Mts. Pima County (Thomber & Lloyd 4196, Phillips 2403, 2420). Southern Arizona and Mexico. Apachian.

Phillips' specimens were collected on north slopes in deep shade under Douglas-firs.

Exsicc.: SWRS [Walker s.n.]. ARIZ [Barr 65-301a, 64-497].

## OROBANCHACEAE—Broomrape Family.

A family of annual or perennial, somewhat fleshy herbs, root parasites; commonly lacking chlorophyll or seemingly so. About 13 genera and 140 species, mostly of north temperate regions but primarily of the warm temperate parts of the Old World. *Orobanche*, with about 90 species, is the largest genus. The members of the family are of no significant economic importance. In previous times some of them have been used medicinally for their alleged therapeutic properties.

### **Conopholis alpina** Liebm. var. **mexicana** (Gray ex S. Wats.) Haynes

*Conopholis mexicana* Gray ex S. Wats., *Orobanche multiflora* Nutt. var. *xanthochroa* A. Nels. & Cockerell

Squaw-root, cone-flower

5,400 - 6,600 ft. Jun - [Jul]. Parasite scapose or leafy-stemmed hemicryptophyte. Uncommon in heavy leaf litter, woodland and forest, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Ash Spring; South Fork Cave Creek; Wilderness Area. Also Pinaleno Mts., Sierra Ancha, Animas Mts., Sierra de los Ajos. Southern Apache County to Cochise and northern Gila counties. New Mexico, Arizona, and Mexico. Madrean.

The plant grows with and is presumably parasitic on species of *Pinus*, *Cupressus*, *Juglans*, and *Quercus*.

Exsicc.: CHIR [Fish 57, Reeves 2995, 3126, 3145]. SWRS [Roth s.n.]. CHWA [Leithliter 360].

### **Orobanche cooperi** (Gray) Heller

*Orobanche ludoviciana* Nutt. var. *cooperi* (Gray) Beck., *Orobanche ludoviciana* Nutt. var. *latiloba* Munz.

Burro weed strangler, broom-rape

[3,400] 5,100 - 7,000 ft. Oct - Nov. Herbaceous parasite, scapose or leafy-stemmed hemicryptophyte. Rare on cool moist slopes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill northeast of Overlook; north side Silver Peak. Also Rincon Mts., Sierra Ancha, Mule Mts. Navajo, Coconino, and Mohave counties, south to Santa Cruz, Pima, and Yuma counties. Western Texas to southern Utah and Nevada, southeastern California, and northwestern Mexico. Sonoran.

Exsicc.: FOBO [MHoy 47]. SWRS [Walker s.n.].

### **Orobanche fasciculata** Nutt.

*Anoplanthus fasciculatus* (Nutt.) Walp., *Orobanche fasciculata* var. *franciscana* Achey, *O. fasciculata* var. *lutea* (Parry) Achey, *O. fasciculata* var. *subulata*

Goodman, *O. fasciculata* var. *typica* Achey, *Thalesia fasciculata* (Nutt.) Britt., *T. lutea* (Parry) Rydb.

Pinyon strangleroot

5,200 - 8,800 ft. May - [Aug]. Herbaceous parasite, scapose or leafy-stemmed hemicryptophyte. Uncommon on dry uplands.

Chiricahua Mts.: on trail between Long Park and Rustler Park Pinaleno Mts., Sierra Ancha, Rincon Mts. Apache County to Mohave County, south to Cochise and Pima counties. Michigan to British Columbia, south to Texas, Arizona, and Baja California. Western.

Exsicc.: SWRS [Roth s.n.].

## OXALIDACEAE—Oxalis Family.

A family of herbs (sometimes suffrutescent) or shrubs, rarely arborescent, often producing fleshy rhizomes or bulblike tubers. About 7 genera and about 1,000 species, mostly pantropical, with numbers decreasing as ranges extend north and south into temperate zones. The family is of little economic importance.

### **Oxalis albicans** Kunth ssp. **pilosa** (Nutt.) Eiten

*Oxalis corniculata* ssp. *pilosa* (Nutt.) Lourteig, *O. pilosa* Nutt.; *O. wrightii* Gray var. *pilosa* (Nutt.) Weig., *Xanthoxalis pilosa* (Nutt.) Small

[3,400] 5,200 - [5,300] 5,400 ft. Apr - Jun. Deciduous perennial forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon on damp soil in streambeds, swales and lower slopes; in shade of trees.

Chiricahua Mts.: Portal Ranger Station; Southwestern Research Station. Also Rincon Mts., Sierra Ancha, Pinaleno Mts., Santa Rita Mts. Apache County to Coconino County, south to Cochise, Santa Cruz, Pima, and Yuma counties. Western Texas to Arizona and Mexico. Chihuahuan.

Exsicc.: SWRS [Roth s.n.]. NMC [Hershey s.n.; Blumer 1547].

### **Oxalis alpina** (Rose) Knuth

*Oxalis metcalfei* (Small) Knuth, *O. monticola* Small Wood-sorrel

6,000 - 8,200 [9,000] ft. Jul - Aug. Perennial deciduous forb, rosette hemicryptophyte. Common on rock ledges, talus slopes in wooded canyons, meadows; rich soil, cool moist slopes; in deep well-watered canyons at lower elevations.

Chiricahua Mts.: Chiricahua Nat. Mon.; Barfoot Park, upper Pine Canyon; Pinery Canyon Campground; Rustler Park; Centella Point, Canelo Hills, Sierra de los Ajos. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Greenlee County to Coconino County, south to Cochise, Santa Cruz, and Pima counties. New Mexico and Arizona. Sierra Madre Mts. near Colonia Garcia, Mexico. Apachian.

Exsicc.: CHIR [Clark 8434, 9045, Reeves 3574, 3677, 3791]. SWRS [SWRS 1959-501, Cummins s.n.]. NMC [Blumer 1584; Carter s.n.; Todsen s.n.].

### **Oxalis decaphylla** Kunth

*Oxalis grayi* (Rose) Knuth Wood-sorrel

5,500 - 6,200 ft. Jul - Aug. Perennial deciduous forb, bulb geophyte; microphyll, orthophyll. Uncommon on alluvium, sandy stream beds and wooded canyons. *Quercus rugosa*, *Q. emroyi*, *Pinus discolor*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Wilderness Area, South Fork Cave Creek. Also Huachuca Mts., Sierra Ancha, Animas Mts. Apache, Navajo, Coconino, Yavapai, Gila, and Cochise counties. New Mexico, Arizona, and Sierra Madre near Colonia Garcia, Mexico. Madrean.

Exsicc.: CHIR [Reeves 3710, 3942]. SWRS [SWRS 1958-198, Cummins s.n.]. NMC [Townsend & Barber 64].

### **Oxalis stricta L.**

*Ceratoxalis coloradensis* (Rydb.) Lunell, *C. cymosa* (Small) Lunell, *Oxalis bushii* (Small) Small, *O. coloradensis* Rydb., *O. cymosa* Small, *O. europaea* Jord., *O. europaea* var. *bushii* (Small) Weig., *O. europaea* var. *rufa* (Small) Young, *O. fontana* Bunge, *O. fontana* var. *bushii* (Small) Hara, *O. interior* (Small) Fedde, *O. rufa* Small, ?*O. stricta* var. *decumbens* Bitter, *O. stricta* var. *piletocarpa* Weig., *O. stricta* var. *rufa* (Small) Farw., *O. stricta* var. *villicaulis* (Weig.) Farw., *Xanthoxalis bushii* Small, *X. coloradensis* (Rydb.) Rydb., *X. cymosa* (Small) Small, *X. dillenii* (Jacq.) Holub var. *piletocarpa* (Weig.) Holub, *X. interior* Small, *X. rufa* (Small) Small, *X. stricta* (L.) Small, *X. stricta* var. *piletocarpa* (Weig.) Moldenke  
Yellow wood sorrel, chanchaquila

5,400 - 5,600 ft. Aug - Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon in shaded meadow habitat.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon. Also Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Coconino, Yavapai, Graham, Maricopa, Cochise, Santa Cruz, and Pima counties. Throughout much of North America. Temperate.

Exsicc.: CHIR [Clark 8266, Reeves 1418, 4151].

### **PAPAVERACEAE—Poppy Family.**

A family of herbaceous annuals or perennials, rarely shrubs and very rarely trees. About 28 genera and about 250 species, mostly of the subtropic and temperate regions of the northern hemisphere, with centers of distribution in western North America, the Mediterranean, Irano-Turanian, and Eastern Asiatic regions. The family is of economic importance chiefly as the source of opium and secondarily as ornamentals.

#### ***Argemone pleicantha* Greene ssp. *pleicantha***

*Argemone intermedia* Sweet, *A. platyceras* Link. & Otto

Prickly-poppy

4,700 - 5,200 ft. Feb - Sep. Summer-annual forb, scapose or leafy-stemmed leafy-stemmed therophyte. Uncommon in grassland, along roads, less common on dry uplands.

Chiricahua Mts.: Portal to Paradise road; Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in wash east of trailer. Also Huachuca Mts., Sierra Ancha, Animas Mts., Canelo Hills, Sierra de los Ajos. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Nebraska and Wyoming to Arizona and Mexico. Plains, Madrean.

Exsicc.: CHIR [Clark 8190, Reeves 1659, 4224]. FOBO [MHoy 102]. SWRS [SWRS 1959-249].

#### ***Eschscholtzia californica* Cham. ssp. *mexicana* (Greene) C. Clark**

*Eschscholtzia mexicana* Greene

Gold-poppy, California poppy

5,000 - 5,100 ft. Apr - May. Winter-annual forb, rosette therophyte. Common on gravelly slopes and flats, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; west of monument;

Fort Bowie Nat. Historic Site at Butterfield stage station ruins. Bowie. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts. Throughout Arizona except the northeastern portion. Western Texas to southern Utah, southeastern California, and northern Sonora. Southwestern.

Exsicc.: CHIR [Reeves 2529]. FOBO [MHoy 397]. SWRS [Roth s.n.].

### **PEDALIACEAE (MARTYNIACEAE)**

#### **Unicorn-plant Family.**

A family of stout annual or perennial herbs. Sixteen genera and 55 species are chiefly distributed in the Old World tropics with a few native to the New World tropics. Six genera and 10 species occur in North America of which *Proboscidea* with 4 indigenous species is the most widespread and occurs from Louisiana to California.

#### ***Proboscidea altheaefolia* (Benth.) Dcne.**

*Martynia altheaefolia* Benth., *M. arenaria* Engelm., *Proboscidea arenaria* (Engelm.) Dcne.

Devil's claw

[1,100] - [3,300] ft. [Jul] - [Sep]. Perennial deciduous forb, spreading hemicryptophyte; microphyll, orthophyll. Uncommon in washes and gravelly flats. *Prosopis velutina*, *Opuntia fulgida*, *Foquieria splendens*, *Larrea tridentata*, *Bouteloua rothrockii*, *Isocoma tenuisecta*, *Hilaria mutica*.

Chiricahua Mts.: Pinery Canyon bajada. Also Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Santa Rita Mts., Sierra de los Ajos. San Bernardino Ranch (Cochise Co.). Southwest of Kingman, Mohave County, Harqua-Hala Plain, eastern Yuma County, Yuma, Yuma County, Graham, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and northern Mexico, to southeastern California. Sonoran. Exsicc.: ASU [Niles 6603].

#### ***Proboscidea parviflora* (Woot.) Woot. & Standl. ssp. *parviflora***

*Martynia parviflora* Woot., *Proboscidea*

*crassibracteata* Correll

Unicorn-plant, devil's-claw

[4,200] 4,700 - 5,400 ft. Jul - Sep. Summer-annual forb, spreading therophyte. Uncommon in washes and disturbed soil; usually in mesophytic microhabitats.

Chiricahua Mts.: Chiricahua Nat. Mon. in residential area, Stafford/Faraway Meadow; Fort Bowie Nat. Historic Site in South Canyon; Portal to Paradise road; beside Willcox road. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts., Dragoon Mts., Peloncillo Mts., Santa Rita Mts., Sierra de los Ajos. San Bernardino Ranch (Cochise Co.). Coconino, Greenlee (?), Graham, and Gila counties to Cochise and Pima counties. Western Texas to southern Nevada, Arizona, southern California, and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 8250, Reeves 1645, 3665, 4048, 4463]. SWRS [Cazier s.n.]. FOBO [MHoy 308]. ASU [Cazier 536; Lehto 3972].

### **PHYTOLACCACEAE—Pokeweed Family.**

A family of herbs, shrubs or trees (sometimes lianas). About 17 genera and 125 species, largely of the American tropics and subtropics. The family is of little economic importance.

#### ***Phytolacca americana* L.**

Pokeberry, scoke

5,400 ft. Aug. Perennial deciduous forb, sepose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Uncommon on rich mesic bottoms.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon. Also Huachuca Mts., Cochise County, near Patagonia (Santa Cruz County). Maine and Ontario to Florida, Texas, and Arizona. Temperate.

Exsicc.: CHIR [Clark 8569].

**PLANTAGINACEAE—Plantain Family.**

A family of herbs or, rarely, branched subshrubs. A family of 3 genera and about 200 species and *Plantago* contains all but 3 of these. Thirty species of *Plantago* are widespread in this country. The *Plantaginaceae* are of importance primarily as a source of *Psyllium* seeds (*Plantago psyllium*) whose mucilaginous seed coats have made them of reputed laxative value. A number of species are noxious lawn weeds.

**Plantago lanceolata L.**

*Plantago altissima* auct. non L., *P. lanceolata* var. *sphaerostachya* Mert. & Koch

Ribwort, buckhorn plantain

5,500 ft. [Apr] - [Sep]. Perennial deciduous forb, rhizome geophyte, mesophyll, orthophyll. Uncommon on dry uplands, lawns and meadows.

Chiricahua Mts.: Southwestern Research Station. Also Sierra Ancha, Canelo Hills. Apache, Navajo, Coconino, Yavapai, Gila, Pinal, Cochise, and Pima counties. Widely distributed in the United States; naturalized from Europe. Temperate, Introduced.

Exsicc.: SWRS [det. C. Mason].

**Plantago major L.**

Common plantain

5,400 - [8,800] ft. [May] Jun - Sep [Nov]. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll. Uncommon along stream banks and disturbed soil.

Chiricahua Mts.: Chiricahua Nat. Mon. at Silver Spur Springs and Residential Area; Southwestern Research Station; West Turkey Creek. Naturalized from Europe. Also Pinaleno Mts., Sierra de los Ajos, Apache, Navajo, and Coconino counties to Cochise, Santa Cruz, and Pima counties. Widely distributed in the United States; naturalized from Europe. Sonora, Mexico. Temperate, Introduced.

Exsicc.: CHIR [Clark 8269, Reeves 2862, 4544]. SWRS [Roth s.n.]. ARIZ [Blumer 1781].

**Plantago patagonica Jacq. var. *patagonica***

*Plantago patagonica* var. *breviscapa* (Shinners) Shinners, *P. patagonica* var. *gnaphaloides* (Nutt.) Gray, *P. patagonica* var. *oblonga* (Morris) Shinners, *P. patagonica* var. *spinulosa* (Dcne.) Gray, *P. picta* Morris, *P. purshii* R. & S., *P. purshii* var. *oblonga* (Morris) Shinners, *P. purshii* var. *picta* Pilger, *P. purshii* var. *spinulosa* (Dcne.) Shinners, *P. spinulosa* Dcne, *P. wyomingensis* Gandog.

Plantain, Indian-wheat, Pursh plantain

4,800 - 6,100 ft. Apr [Jun] - May [Aug]. Winter-annual forb, rosette therophyte. Uncommon on well-drained slopes and flats, damp soil in streambeds, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; Portal. Also Huachuca Mts., Rincon Mts., Pinaleno

Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Canada to Texas, Arizona, and Baja California. Sonora, Mexico. Western.

Exsicc.: CHIR [Clark 8913, Reeves 2583]. SWRS [Roth s.n.].

**PLATANACEAE—Plane Tree Family.**

A family of trees. The single genus (*Platanus*) is composed of about 8 species, indigenous to many regions of the northern hemisphere, exclusive of Africa. Four species occur in North America: two in the southwest, a third in the east and a fourth restricted to Mexico. The trees are mostly of ornamental value.

***Platanus wrightii* S. Wats.**

*Platanus racemosa* Nutt. var. *wrightii* Benson

Arizona sycamore, button-wood, plane-tree

[2,000] 4,700 - 7,220 ft. Apr - Jun. Broadleaf deciduous tree, mesophanerophyte; mesophyll, orthophyll. Common in riparian forests and well-watered flats. *Arbutus arizonica*, *Fraxinus pennsylvanica*, *Pinus engelmannii*, *P. leiophylla*, *Juglans major*, *Cupressus arizonica*, *Quercus hypoleucoides*, *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; Whitewater Draw; Portal to Paradise road; Price Canyon; John Long Canyon; Turkey Creek Canyon; Cottonwood Canyon; South Fork Cave Creek; Cave Creek; Whitetail Canyon; East Whitetail Creek; Indian Creek; Cub Canyon; Pinery Canyon; North Fork Pinery Canyon. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Rincon Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Southern parts of Coconino and Mohave counties of Greenlee, Cochise, Santa Cruz, and Pima counties. The Mogollon Escarpment coincides approximately with the northern limit of this species in Arizona. New Mexico, Arizona, and northern Mexico. Madrean.

The largest Chiricahua individual is on State Highway 181 which measures 26 ft. in circumference.

Exsicc.: CHIR [Clark 8248, Reeves 1635]. SWRS [SWRS 1959-248]. CHWA [Leithliter 448].

**POACEAE (GRAMINAE)—Grass Family.**

A family of annual or perennial herbs, or rarely woody plants (bamboos). Roots fibrous, rhizomes present or absent. This is the largest and most widely distributed family of vascular plants. Forms the vegetative climax over vast areas of low annual rainfall. There are between 450 and 525 genera and 168 genera with 1,220 species in the United States. This family is perhaps more valuable economically than any other.

***Aegopogon tenellus* (DC.) Trin.**

*Aegopogon tenellus* (DC.) Trin. var. *abortivus* (Fourn.) Beetle, *Lamarcia tenella* DC.

5,000 - 7,000 ft. Aug - Sep. Summer annual graminoid, semirosette therophyte. Open ground in the mountains.

Chiricahua Mts., Mule Mts. Cochise, Santa Cruz, and Pima counties. Southern Arizona to northern South America. Latin American.

Presence in Chiricahua Mts. from Kearn. et al. (1960) and in Mule Mts. from Kearn. et al. (1960) and Wentworth (1982).

***Agrostis exarata* Trin. var. *minor* Hook.**

*Agrostis exarata* ssp. *minor* (Hook.) C.L. Hitchc., A.

*exatrata* var. *purpurascens* Hult.

[4,000] - 6,400 [8,000] ft. [Jun] - [Sep]. Perennial graminoid, scapose or leafy-stemmed hemicycophyte; microphyll, orthophyll. Uncommon on wet soil by ponds and springs, riparian. *Pinus arizonica*, *Quercus hypoleucoides*, *Q. rugosa*, *Arctostaphylos pungens*, *Pseudotsuga menziesii*.

Chiricahua Mts.: East Turkey Creek along road to Onion Saddle. Also Rincon Mts., Sierra Ancha, Pinaleno Mts., Santa Catalina Mts., Santa Rita Mts., Baboquivari Mts., Huachuca Mts., Apache County to Coconino County, south to Cochise and Pima counties. Nebraska to Alberta and Alaska, south to Mexico. Northern, Temperate.

Exsicc.: SWRS [Wittmann 285]. ARIZ [McCormick et al. 59-747].

***Agrostis scabra* Willd.**

Bentgrass, ticklegrass

5,200 - 8,410 [9,500] ft. [May] Jun - Sep. Perennial graminoid, semirosette hemicycophyte; nanophyll, sclerophyll. Common in open woods, meadows, streamsides, and other wet places. *Rumex crispus*, *Equisetum laevigatum*, *Juncus saximontanus*, *Gnaphalium purpureum*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Hunt Canyon, North Bonita Canyon; below Herb Martyr Dam; Rustler Park; East Turkey Creek 5 mi. above Southwestern Research Station; Wilderness Area, Rucker Canyon; Centella Point; Cave Creek; Mormon Canyon. Also Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts., Huachuca Mts., Dragoon Mts., Santa Rita Mts., Rincon Mts. Apache, Navajo, Coconino, Yavapai, Graham, Cochise, and Pima counties; Newfoundland and Alaska, south to Florida, Texas, and California. Probably adventive in the southern states. Northern.

Forage grass.

Exsicc.: CHIR [Clark 8203, Reeves 2861, 3263, 3442, 3929]. SWRS [Cummins 57-20, Ordway 161, SWRS 1959-630]. CHWA [Leithliter 730]. ARIZ [Toolin 795, Fishbein 451, 484, Blumer 1374, McCormick et al. 59-630, Van Devender & Eber s.n.].

***Agrostis stolonifera* L.**

*Agrostis alba* var. *palustris* (Huds.) Pers., *Agrostis alba* L. var. *stolonifera* (L.) Sm., *A. maritima* Lam., *A. palustris* Huds. *A. stolonifera* var. *compacta* Hartm.

Redtop, creeping bentgrass

[5,200] 5,400 - 9,790 ft. Jun - Oct. Perennial graminoid, rhizome geophyte; microphyll, orthophyll. Uncommon on moist lower slopes, streamsides and ditches.

Chiricahua Mts.: below Herb Martyr Dam; Wilderness Area, along Greenhouse Trail, Southwestern Research Station southwest of the lab. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Animas Mts., Canello Hills. Yavapai, Gila, and Pinal counties. Introduced in Arizona. Newfoundland to Maryland and British Columbia, south to Arizona and central California; Eurasia. Temperate, Latin American.

Introduced from the Old World.

Exsicc.: Rincon [Bowers R250]. SWRS [Cummins 57-25, SWRS 1959-679]. CHWA [Leithliter 146, 778, 819].

***Aristida adscensionis* L.**

*Aristida adscensionis* var. *abortiva* Beetle, *A. adscensionis* var. *modesta* Hack., *A. fasciculata* Torr. Six-weeks threeawn

5,150 - 5,500 [6,000] ft. Aug - Sep [or whenever conditions

favorable]. Summer annual grass, semirosette therophyte; nanophyll, orthophyll. Common on sunny hillsides, talus slopes, and flats. *Pinus discolor*, *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon, Safford Saddle, Bonita Canyon; Fort Bowie Nat. Historic Site; Pinery Canyon; 4 mi. north of Portal on San Simon Road. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Southern Apache County to Mohave County, south to Mexico; southern California to Missouri, south to Texas, New Mexico, Arizona. A common weed in the American tropics and warmer parts of the Old World. Originally described from Adscension Island. Naturalized. Southwestern, Latin American.

Good forage when young but pointed hard seeds may damage cattle. One of the weeds that spread in early days from the New World to the Old.

Exsicc.: CHIR [Clark 8669, 9231, Dodd 27A, 35-37, Moir 500].

***Aristida arizonica* Vasey**

Arizona threeawn

[4,500] - 6,200 [8,000] ft. [May] - Oct (fruiting) [Sep]. Perennial graminoid, semirosette herb. Common on dry rocky uplands, plains, open woods, and along arroyos.

Chiricahua Mts.: Rucker Canyon. Also Sierra Ancha, Santa Catalina Mts., Mule Mts., Huachuca Mts., Animas Mts. Sierra Madre Occidental: between Colonia Juarez and Garcia, Navajo, Coconino, Graham, and Cochise counties. Colorado and western Texas to Arizona, and southward through Mexico. Southwestern.

Exsicc.: ARIZ [Gould & Haskell 4562].

***Aristida divaricata* Humb. & Bonpl. ex Willd.**

Poverty threeawn

4,900 [5,000] - 5,200 [7,000] ft. [Jun] Aug - Sep [Sep]. Perennial graminoid, semirosette hemicycophyte; nanophyll, sclerophyll. Uncommon on dry grassy hills and desert scrub flats; on disturbed ground and depleted soil.

Chiricahua Mts.: Chiricahua Nat. Mon.; Birt Roberds Ranch in San Simon Valley. Also Huachuca Mts., Santa Catalina Mts., Mule Mts., Sierra de los Ajos. Apache, Navajo, and Coconino counties to Greenlee, Cochise, Santa Cruz, and Pima counties. Kansas to southern California, south to Texas and Guatemala. Southwestern, Latin American.

Exsicc.: CHIR [Moir 435]. SWRS [SWRS 1958-699].

***Aristida harvardii* Vasey.**

*Aristida barbata* Fourn.

Havard threeawn

5,100 - 5,200 ft. [May] - Sep [Oct]. Perennial graminoid, semirosette hemicycophyte; nanophyll, orthophyll. Dry slopes, mesas, and washes. *Juniperus deppeana*, *Pinus discolor*, *Arctostaphylos pungens*.

Chiricahua Mts.: Chiricahua Nat. Mon. west of monument, residential area; Portal to Paradise road. Also Santa Catalina Mts., Mule Mts., Animas Mts. Navajo, Coconino, Yavapai, Cochise, and Pima counties. Western Texas to Arizona, south to southern Mexico. Madrean.

Panicles fragile at maturity, break away from the plant and roll before the wind.

Exsicc.: CHIR [Reeves 1698]. SWRS [Cummins 197-61].

***Aristida orcuttiana* Vasey**

*Aristida schiedeana* auct. non (J.A. Schultes) Kunth  
Beggartick grass

[4,000] 5,300 - 7,000 ft. Aug - Sep. Perennial graminoid, semirosette hemicryptophyte; nanophyll, sclerophyll. Common on alluvium and open oak woodlands, often on rock soil. *Pinus discolor*, *Juniperus deppeana*, *Garrya wrightii*, *Opuntia spinorior*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Picket Park, Sara Deming Canyon, Madrone Canyon; Hands Pass. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleño Mts., Animas Mts. Navajo, Yavapai, Graham, Gila Pinal, Cochise, Santa Cruz, and Pima counties. Texas to southern California and northwestern Mexico. Southwestern.

Exsicc.: CHIR [Clark 8458, Moir 432, 470, 551, Reeves 1625]. SWRS [1958-25].

### **Aristida pansa** Woot. & Standl.

Wooton threeawn

[1,000] - 4,600 [5,000] ft. [Jul] Aug - [Oct]. Perennial graminoid, semirosette herb; nanophyll, orthophyll. Uncommon on dry plains and open ground, dry uplands.

Chiricahua Mts. at Rustlersville (nr. Galeyville). Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Santa Rita Mts., Dos Cabezas Mts., Dragoon Mts. Coconino, Cochise, and Santa Cruz counties. Texas to Arizona, northern Mexico. Chihuahuan.

Exsicc.: ARIZ [Thornber s.n.].

### **Aristida purpurea** Nutt. var. **fendleriana**

(Steud.) Vasey

*Aristida fendleriana* Steud.

Fendler threeawn

[3,500] - 6,870 [7,000] ft. [May] Jul - [Aug]. Perennial graminoid, rhizome geophyte; nanophyll, orthophyll. Common in disturbed chaparral; dry plains and hills. Dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. at Massai Point. Also Sierra Ancha. Apache County to Mohave County, south to Cochise, Maricopa, and Pinal counties. North Dakota and Montana, south to Texas, Nevada, and southern California; Mexico. Western.

Exsicc.: CHIR [Reeves 3459].

### **Aristida purpurea** Nutt. var. **longiseta** (Steud.)

Vasey

*Aristida longiseta* Steud., *A. longiseta* var. *rariiflora*

A.S. Hitchc., *A. longiseta* var. *robusta* Merr., *A.*

*purpurea* var. *robusta* (Merr.) Piper

Red threeawn

[3,000] 4,900 - 5,300 [7,000] ft. [Apr] May - Sep [Oct]. Perennial graminoid, rosette herb; nanophyll, sclerophyll. Uncommon on alluvium. Plains and foothills. *Fraxinus*, *Juglans major*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; Fort Bowie Nat. Historic Site in Siphon Canyon; along Portal to Rodeo Road. Also Santa Catalina Mts., Mule Mts., Pinaleño Mts., Animas Mts. Apache County to Mohave County, south to Cochise and Pima counties. North Dakota and Iowa to Montana and British Columbia, south to Texas, Arizona and northern Mexico. Western.

Exsicc.: CHIR [Clark 8110]. FOBO [MHoy 165]. SWRS [Cummins 204-61].

### **Aristida purpurea** Nutt. var. **nealleyi** (Vasey)

Allred

*Aristida glauca* (Nees) Walp., *Aristida nealleyi* (Vasey) Vasey, *A. purpurea* Nutt. var. *glauca* (Nees)

A. & N. Holmgren, *A. reverchonii* Vasey, *A. stricta* Michx. var. *nealleyi* Vasey

[1,000] - 5,100 ft. [Mar] Jul - Sep. Perennial graminoid, semirosette hemicryptophyte. Uncommon on rocky limestone slopes, dry uplands, grassy flats, beaten ground, and road cuts.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at ruins; Paradise to Portal road. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts. Navajo, Coconino, Mohave, Yavapai, Cochise, Santa Cruz, Pima, and Yuma counties. Western Texas to Utah, Nevada, Arizona, and southern California, south to central Mexico. Southwestern.

Exsicc.: FOBO [MHoy 517]. SWRS [Cummins 57-39].

### **Aristida purpurea** Nutt. **purpurea**

*Aristida purpurea* var. *laxiflora* Merr.

5,000 ft. Perennial graminoid, semirosette herb. Uncommon on gravelly flats, rocky slopes, dry upper bajadas. Chiricahua Mts.: Fort Bowie Nat. Historic Site at ruins. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleño Mts. Mohave and Yavapai counties to Graham, Cochise, Santa Cruz, Pima, and Yuma counties. Arkansas and Kansas to Utah, Arizona, southern California, and northern California. Southwestern, Plains.

Exsicc.: FOBO [MHoy 18].

### **Aristida ternipes** Cav. var. **hamulosa** (Hewr.)

Trent

*Aristida hamulosa* Henr.

Spidergrass

[2,500] 4,900 - 5,200 [6,000] ft. Apr - Sep [Oct]. Perennial graminoid, semirosette hemicryptophyte; nanophyll, sclerophyll. Common in grassland; rocky hills and dry plateaus, disturbed ground.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at Pass Tank ruins; Birt Roberds Ranch in San Simon Valley. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleño Mts., Animas Mts., Sierra Ancha, Sierra de los Ajos. Mohave, Yavapai, Graham, Gila, Pinal, Cochise, Santa Cruz, Pima, and Yuma counties. Texas, New Mexico, and Arizona to northern South America; Bahamas, Cuba. Madrean, Latin American.

Exsicc.: CHIR [Moir 509, Reeves 4459]. FOBO [MHoy 4, 374].

### **Avena fatua** L.

*Avena fatua* var. *glabrata* Peterm., *A. fatua* var. *vilis* (Wallr.) Hausskn.

Wild oats

[3,299] - 8,200 ft. [May] Jul - Aug. Annual graminoid, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Rare in washes and low-lying spots, often on disturbed sites, dry uplands, waste places.

Chiricahua Mts.: Barfoot Park. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts. Apache, Coconino, and Mohave counties to Cochise and Pima counties. Maine to Pennsylvania, Missouri, South Dakota, New Mexico, Arizona, and California; introduced from Europe. Temperate, Introduced.

Exsicc.: ARIZ [Blumer 1574].

### **Blepharoneuron tricholepis** (Torr.) Nash

*Vilfa tricholepis* Torr.

Pine dropseed

[2,500] 6,000 - 9,300 [10,000] ft. Jul - Sep [Oct]. Perennial

graminoid, rosette hemicryptophyte; nanophyll, orthophyll. Common in rocky woodland openings, dry meadows; dry ravines and arroyos at lower elevations. *Pseudotsuga menziesii*, *Abies concolor*, *Pinus arizonica*, *Muhlenbergia rigens*, *Panicum obtusum*.

Chiricahua Mts.: Chiricahua Nat. Mon. on north face of Sugarloaf Mtn.; Greenhouse Trail; Rustler Park; Barfoot Park; Centella Point; West Turkey Creek at Sycamore Campground. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Mt. Graham, Dos Cabezas Mts., Mule Mts., Canello Hills, Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Santa Rita Mts., Sierra de los Ajos. Apache County to Mohave County, south to Cochise and Pima counties. Colorado to Utah, south to Texas, Arizona, and Mexico. Southwestern.

Rominger & Laurnezi, 1986.

Exsicc.: CHIR [Clark 8392, Moir 467, Reeves 1313, 1376]. SWRS [Ordway 159]. ARIZ [Harrison & Porter 3044, Hevly 1064; Darrow et al. 1478; Gould & Haskell 3352; Yatskivych 80-649; Fishbein 485, 486, 431; Clark s.n.; Reeder 6883, 6899, 8767, 8768; Toolin 2218; Kearney & Peebles 9933; Procter 118; Blumer 1375, 138, 3394; Gould & Hudson 3760].

### **Bothriochloa barbinodis** (Lag.) Herter var. **barbinodis**

*Andropogon barbinodis* Lag.

Cane beargrass

[1,000] 5,000 - 6,500 ft. May - Sep [Oct]. Perennial graminoid, semirosette hemicryptophyte; nanophyll, sclerophyll. Common in grassland, dry washes, roadsides, and canyon slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon, East Whitetail, Rhylolite Canyon; Fort Bowie Nat. Historic Site at trailer, ruins; Portal to Paradise road. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts., Canello Hills, Sierra de los Ajos. Navajo and Coconino counties, south to Greenlee, Graham, Cochise, Santa Cruz, and Pima counties. Oklahoma and Texas to California and Mexico. Southwestern.

Exsicc.: CHIR [Clark 8508, Reeves 1539, 3452, 3776, 4212, 4347]. FOBO [MHoy 405]. SWRS [Cummins 198-61].

### **Bouteloua aristidoides** (Kunth) Griseb.

Needle grama

4,900 - 5,200 [5,500] ft. [Jun] Aug - Sep [Oct]. Summer annual grass, scapose or leafy-stemmed therophyte; nanophyll, sclerophyll. Uncommon on sunny dry slopes, streambeds, and disturbed soil.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in Siphon Canyon. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Greenlee to western Coconino and Mohave counties, south into Mexico. Texas to southern California and northern Mexico; Argentina. Southwestern, Latin American.

Exsicc.: CHIR [Dodd 10, Reeves 1649A, 1680B]. FOBO [MHoy 539].

### **Bouteloua barbata** Lag.

*Bouteloua arenosa* Vasey, *Chondrosum exile* Fourn., *C. microstachyum* Fourn., *C. polystachyum* Benth., *C. subscorpioides* C. Mueller

Six-weeks grama

[1,000] 4,800 - 5,100 [5,500] ft. May [Jul] - Sep [Oct]. Summer annual grass, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon on grassland, gravelly flats, often on disturbed ground. *Prosopis glandulosa*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; south of cemetery; Troller Ranch, San Simon Valley. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha,

Santa Catalina Mts., Animas Mts. Apache County to Mohave County, south to Cochise, Pima, and Yuma counties. Texas to southern Utah, Arizona, southeastern California and Mexico; Argentina. Southwestern, Latin American.

Exsicc.: CHIR [Reeves 1644A]. FOBO [MHoy 184]. SWRS [SWRS 1958-533].

### **Bouteloua chondrosioides** (Kunth) Benth. ex S. Wats.

*Chondrosum humboldtianum* Kunth, *Dinebra chondrosioides* Kunth

Spruce-top grama

[2,000] 5,000 - [5,000] ft. Aug - [Oct]. Perennial graminoid, rosette hemicryptophyte; nanophyll, sclerophyll. Uncommon on rocky hills and well-drained flats.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at ruins. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Canello Hills. Cochise, Santa Cruz, and Pima counties. Western Texas, southern Arizona, and Mexico; Costa Rica and Honduras. Southwestern, Latin American.

Exsicc.: FOBO [MHoy 34].

### **Bouteloua curtipendula** (Michx.) Torr.

Sideoats grama

[1,300] 5,000 - 7,220 [9,800] ft. [Apr] Jul - Sep [Oct]. Perennial graminoid, semirosette hemicryptophyte; nanophyll, orthophyll. Common on sunny slopes and ridges and shallow drainages, on well-drained soils. *Quercus emoryi*, *Pinus discolor*.

Chiricahua Mts.: CHIR 1 mi. down from Sugarloaf turnoff, Hunt Canyon, Rock Canyon, slopes along southern boundary; Fort Bowie Nat. Historic Site at ruins; Portal to Paradise road; Wilderness Area. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Mt. Graham, Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Canello Hills, Sierra de los Ajos. Throughout Arizona. Maine and Ontario to Montana, south to Maryland, Alabama, Texas, Arizona, and southern California; Mexico to El Salvador; Columbia to Argentina. Temperate, Latin American.

Exsicc.: CHIR [Clark 8462, 9213, Reeves 1419, 1581, 1684, 3228, 3727, 4387]. FOBO [MHoy 8]. SWRS [SWRS 1959-717]. CHWA [Leithliter 603, 638].

### **Bouteloua eludens** Griffiths

[4,300] - [5,100] ft. [Aug] Sep - [Nov]. Perennial graminoid, semirosette hemicryptophyte; nanophyll, orthophyll. Common on sunny rocky slopes and open woodland, tolerates limestone. *Bouteloua curtipendula*, *B. chondrostioides*, *B. repens*, *Agave schottii*.

Chiricahua Mts.: Swissheil Mts. Also Huachuca Mts., Santa Rita Mts., Santa Catalina Mts., Rincon Mts., Sierrita Mts., Whetstone Mts., Pajarito Mts., Atascosa Mts., Mustang Mts., Canelo Hills, Patagonia Mts.

Exsicc.: ARIZ [Reeder 7936].

### **Bouteloua eriopoda** (Torr.) Torr.

*Chondrosum eriopodum* Torr.

Black grama

[3,000] 4,900 - 5,200 [5,500] ft. [Jul] Aug - Sep [Oct]. Perennial graminoid, scapose or leafy-stemmed hemicryptophyte; nanophyll, sclerophyll. Uncommon on grassland and oak woods, rocky slopes, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at ruins; Birt Roberds Ranch in San Simon Valley. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts.,

Pinaleno Mts., Animas Mts. Apache County to Mohave County, south to Cochise and Pima counties. Colorado and Texas to southern Utah, Arizona and Mexico. Southwestern.

Exsicc.: CHIR [Moir 488, Reeves 4200]. FOBO [MHoy 15]. SWRS [SWRS 1958-697].

### **Bouteloua gracilis** (Willd. ex Kunth) Lag. ex Griffiths

*Bouteloua gracilis* var. *stricta* (Vasey) A.S. Hitchc., *B. oligostachya* (Nutt.) Torr. ex Gray, *Chondrosom gracile* Willd. ex Kunth., *C. oligostachyum* (Nutt.) Torr.

Blue grama

[1,000] 5,000 - 6,400 [rarely 8,000] ft. [Jul] Aug - Sep [Oct]. Perennial graminoid, semirosette hemicryptophyte; nanophyll, orthophyll. Common on grassland, gentle slopes and flats, road cuts; north-facing slopes, dry uplands. *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Silver Spur Meadow; Fort Bowie Nat. Historic Site at ruins; East Turkey Creek near junction of Paradise - Onion Saddle road. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts., Canelo Hills. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Wisconsin to Manitoba and Alberta, south to Missouri, Texas, Arizona, southern California, and Mexico. Southwestern, Plains.

Exsicc.: CHIR [Dodd 41, 42, Reeves 1409, 1685, 1699, 4177]. SWRS [SWRS 1960-378].

### **Bouteloua hirsuta** Lag. var. *glandulosa* (Cerv.) Gould

*Bouteloua glandulosa* (Cerv.) Swall.

Hairy grama

[1,000] 5,100 - 5,700 [6,000] ft. Apr - Sep [Oct]. Perennial graminoid, rosette hemicryptophyte; nanophyll, orthophyll. Common on grassland and woodland, dry gravelly slopes, dry uplands. *Pinus engelmannii*, *P. arizonica*, *Pseudotsuga menziesii*, *Quercus hypoleucoides*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Sara Deming Canyon, Jesse James Canyon Natural Area; Fort Bowie Nat. Historic Site; Pass Tank; John Hands Dam. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Apache County to Mohave County, south to Cochise, Santa Cruz and Pima counties. Wisconsin and South Dakota to Texas, Arizona, southern California, and Mexico. Southwestern, Plains.

Exsicc.: CHIR [Clark 8371, Dodd 43, Moir 494, Reeves 1566, 1630, 4386]. FOBO [MHoy 367]. SWRS [SWRS 1959-799].

### **Bouteloua radicans** (Fourn.) Griffiths

*Atheropogon radicosus* Fourn.

Purple grama

[3,500] 5,200 - 7,250 ft. Aug - Sep [Oct]. Perennial graminoid, rosette hemicryptophyte. Common in grassland and grassland/shrub on rocky or gravelly slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Pickett Canyon, Bonita Canyon, Rhyolite Canyon; Tex Canyon. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Apache, Greenlee, Pinal, Cochise, Santa Cruz, and Pima counties. New Mexico to southern California and Mexico. Southwestern.

Exsicc.: CHIR [Moir 541, Reeves 1432, 1697, 1771, 4080]. SWRS [SWRS 1959-823]. ASU [McGill & Lehto 20324].

### **Bouteloua repens** (Kunth) Scribn. & Merr.

*Bouteloua filiformis* (Fourn.) Griffiths, *B.*

*heterostega* (Trin.) Griffiths, *Dinebra repens* Kunth  
Slender grama

[1,000] 4,600 - 5,400 [5,600] ft. [Jul] Aug - [Oct]. Perennial graminoid, rosette hemicryptophyte; nanophyll, orthophyll. Uncommon on sunny well-drained slopes, and cracks in rocks.

Chiricahua Mts.: Chiricahua Nat. Mon. at mouth of Rhyolite Canyon; Fort Bowie Nat. Historic Site on Apache Pass Road; Birt Robards Ranch in San Simon Valley. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts. Mohave, Greenlee, Graham, Pinal, Cochise, Santa Cruz, and Pima counties. Texas to Arizona, south to Guatemala; Panama, Columbia and Venezuela. Southwestern, Latin American.

Exsicc.: CHIR [Clark 8577]. FOBO [MHoy 275]. SWRS [SWRS 1958-508].

### **Bouteloua rothrockii** Vasey

*Bouteloua barbata* Lag. var. *rothrockii* (Vasey)

Gould

Rothrock grama

[4,200] - 6,700 ft. Jul - Sep. Perennial graminoid, scapose or leafy-stemmed hemicryptophyte; nanophyll, sclerophyll. Uncommon in chaparral, well-drained slopes and flats. Dry uplands. *Eriogonum polycladon*, *Prosopis velutina*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Massai Point, Rock Canyon. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts. Mohave and Yavapai counties to Graham, Cochise, Santa Cruz, Pima and Yuma counties. Arizona, southern California and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 8384, 9222].

### **Brachiaria arizonica** (Scribn. & Merr.) S.T. Blake

*Panicum arizonicum* Scribn. & Merr.

Arizona panicum

[1,000] - 5,200 [5,500] ft. [Jul] Aug - Sep [Oct]. Summer annual grass, scapose or leafy-stemmed therophyll; nanophyll, orthophyll. Uncommon on sunny gravelly slopes, often in ephemeral seeps, moist ground, a weed in waste places. *Prosopis glandulosa*, *Bouteloua rothrockii*.

Chiricahua Mts.: Chiricahua Nat. Mon. on south boundary; 4 mi. south of Portal. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Greenlee, Gila, and Mohave counties to Cochise, Santa Cruz, Pima, and Yuma counties. Texas to southern California and Mexico. Southwestern.

Exsicc.: CHIR [Reeves 4104, 4132, 4178A]. SWRS [Cummins 206-6].

### **Bromus anomalus** Rupr.

*Bromopsis anomalis* (Rupr. ex Fourn.) Holub, *B.*

*porteri* (Coul.) Holub, *Bromus porteri* (Coul.) Nash  
Nodding brome

[2,000] 5,400 - 9,790 [10,000] ft. Jul - Sep. Perennial graminoid, semirosette hemicryptophyte; microphyll, orthophyll. Common in dry meadows and lower slopes at high elevations; at lower elevations in oak woodlands in deep canyons, and moist soil near springs. *Cupressus arizonica*, *Quercus emoryi*, *Q. arizonica*, *Q. hypoleucoides*, *Pinus engelmannii*, *P. strobus*, *P. leiophylla*, *Platanus wrightii*, *Juniperus deppeana*, *Abies concolor*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Newton Canyon,

near Organ Pipe Formation; Rustler Park; Wilderness Area, Round Park; Centella Point. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Baboquivari Peak, Patagonia Mts., Pajarito Mts., Pinaleno Mts., Santa Rita Mts. Apache, Coconino, Yavapai, Greenlee, Graham, Cochise, Pima, and Santa Cruz counties. Saskatchewan and Idaho to western Texas, Arizona, California, Mexico. Western.

Exsicc.: CHIR [Clark 9243, Reeves 4348, 4447B, 4509]. SWRS [Ordway 160]. CHWA [Leithliter 203, 566, 741]. ARIZ [Reeder 7705].

### **Bromus arizonicus** (Shear) Steb.

[4,500] - 9,370 ft. Aug. Winter annual grass, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon on gravelly slopes, rocky outcrops, and streambeds.

Chiricahua Mts.: Wilderness Area; Monte Vista Peak. Also Rincon Mts., Pinaleno Mts. Almost throughout Arizona. Arizona, California, and Baja California. Sonoran.

Exsicc.: CHWA [Leithliter 287].

### **Bromus carinatus** Hook. & Arn.

*Bromus carinatus* var. *californicus* (Nutt. ex Buckl.) Shear, *B. carinatus* var. *hookerianus* (Thurb.) Shear, *Ceratochloa carinata* (Hook. & Arn.) Tutin California brome

[4,500] - 9,790 ft. [Mar] - Sep [Oct]. Scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon in moist meadow, damp soil of streambeds, near ponds, cool moist slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Silver Spur Meadow; Southwestern Research Station; Wilderness Area, Monte Vista Peak; Centella Point. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Canelo Hills. Apache County to Coconino County, south to Cochise and Pima counties. Montana to British Columbia, south to New Mexico, Arizona, California, and northern Mexico. Western.

Exsicc.: CHIR [Reeves 1548, 4548]. SWRS [SWRS 1960-190]. CHWA [Leithliter 289, 605 737, 767].

### **Bromus ciliatus** L.

*Bromopsis ciliatis* (L.) Holub, *Bromus canadensis*

Michx., *B. ciliatus* var. *genuinus* Fern.

Fringed brome

[5,625] 6,300 - 9,000 [11,000] ft. [Jul] Aug - Sep [Oct]. Perennial graminoid, semirosette hemicryptophyte; microphyll, orthophyll. Uncommon on cool north-facing slopes, canyons; moist woods and rocky slopes; more often in open habitats at higher elevations than at lower. *Platanus wrightii*, *Quercus arizonica*, *Pinus engelmannii*, *P. arizonica*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Greenhouse Trail; Chiricahua Nat. Mon. in upper Rhyolite Canyon, north face of Sugarloaf Mtn.; Long Park; near junction of Onion Saddle Road and Portal to Paradise road; Centella Point. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Apache and Coconino counties to Cochise and Pima counties. Labrador to Alaska, south to Tennessee, Iowa, western Texas, Arizona, and southern California. California. Western.

Rominger and Laurnezi (1986).

Exsicc.: CHIR [Clark 8456, 8559, Reeves 4228]. SWRS [SWRS 1959-749, Walker s.n.]. NMC [Moir 368]. Repos. Unk. [Blumer 1368].

### **Bromus frondosus** (Shear) Woot. & Standl.

### **Bromopsis frondosis** (Shear) Holub

#### Weeping bromegrass

[5,000] - 9,300 [9,500] ft. Jul - Sep. Perennial graminoid, semirosette hemicryptophyte. Uncommon on cool moist slopes, dry meadows, rocky hillsides and pine woods.

Chiricahua Mts.: Wilderness Area, Round Park. Also Sierra Ancha, Mule Mts., Animas Mts. Coconino, Greenlee, Maricopa, Cochise, and Pima counties. Utah, New Mexico, and Arizona. Southwestern.

Exsicc.: CHWA [Leithliter 537].

### **Bromus hordeaceus** L. ssp. **hordeaceus**

#### *Bromus mollis* auct. non L.

#### Soft chess

5,400 ft. Jul. Summer annual graminoid herb, semirosette therophyte; nanophyll, sclerophyll. Uncommon in meadows, waste places and fields.

Chiricahua Mts.: Chiricahua Nat. Mon. Coconino, Gila, Pinal, Pima, Cochise counties. Alien introduced from Europe and found throughout the U.S. Temperate, Introduced.

Exsicc.: CHIR [Reeves 3280].

### **Bromus japonicus** Thunb. ex Murr.

*Bromus japonicus* var. *orrectus* Hack., *B. patulus* Mert. & Koch

Jun. Summer annual grass, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Dry uplands, fields and waste places.

Chiricahua Mts.: Southwestern Research Station. Also Sierra Ancha. Apache, Navajo, Coconino, Gila, Cochise, and Pima counties. Throughout the United States; introduced from the Old World. Temperate, Introduced.

Exsicc.: SWRS [SWRS 1959-767].

### **Bromus polyanthus** Scribn.

*Bromus marginatus* Nees ex Steud. var. *seminudus*

Shear, *B. paniculatus* (Shear) Rydb., *Ceratochloa polyantha* (Scribn.) Tzvelev

[5,000] - 8,200 [8700] ft. [Jul] - Sep. Dry meadows.

*Pseudotsuga menziesii*, *Abies concolor*.

Chiricahua Mts.: Barfoot Park. Also Huachuca Mts., Santa Catalina Mts.

Exsicc.: ARIZ [Blumer 29, 130, 149]. Repos. Unk. [Blumer 1367].

### **Bromus tectorum** L.

#### Downy brome, cheatgrass brome

5,000 - [7,400] ft. Winter annual grass, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon on disturbed ground. Alien species. Dry uplands, waste places.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on roadside east of trailer. Also Rincon Mts., Sierra Ancha, Animas Mts. Navajo, Coconino, and Yavapai counties. Throughout the United States except the southeast; introduced from Europe. Temperate, Introduced.

Exsicc.: FOBO [MHoy 406].

### **Cenchrus carolinianus** Walt.

*Cenchrus incertus* M.A. Curtis, *C. parviceps*

Shinners, *C. pauciflorus* Benth.

Field sandbur

[0] 5,000 - 5,100 [5,500] ft. Jun [Jul] - [Sep].  
Summer-annual grass, semirosette therophyte; nanophyll,  
orthophyll. Uncommon on grassland, sandy ground, roadsides,  
waste places.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat.  
Historic Site on road east of trailer; Cottonwood Canyon. Also  
Huachuca Mts., Rincon Mts., Pinaleno Mts., Animas Mts. Navajo  
and Coconino counties, south to Cochise, Santa Cruz, and Pima  
counties. Maine and Ontario to Washington, south through  
Mexico and the West Indies to Argentina. Temperate, Latin  
American.

Forage when young but the burrs are barbed, difficult to  
extract, and noxious to both man and beast.

Exsicc.: CHIR [Reeves 2929].

### **Chloris virgata** Sw.

#### Feather fingergrass

3,880 - 5,400 ft. Aug - Sep. Summer annual grass, scapose  
or leafy-stemmed therophyte; micropyll, orthophyll. Uncommon  
in grassland. Alien ruderal species from old world colonizing  
waste spaces and disturbed ground. Prefers damp soil but also  
found on dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. at mouth of Rhyolite  
Canyon, mouth of Pickett Canyon. Fort Bowie Nat. Historic Site:  
ruins; San Simon Cienega. Also Huachuca Mts., Rincon Mts.,  
Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts.,  
Sierra de los Ajos. Navajo, Coconino, and Mohave counties to  
Greenlee, Cochise, Santa Cruz, Pima, and Yuma counties.  
Nebraska to Texas, West to Nevada, Arizona, and southern  
California; tropical America and the Old World. Southwestern,  
Latin American. Introduced.

Exsicc.: Clark 8668, Dodd 21-23, Reeves 1643, 4494A,  
MHoy 20.

### **Cynodon dactylon** (L.) Pers. var. **dactylon**

#### *Capriola dactylon* (L.) Kuntze

#### Bermuda grass

[1,000] 4,800 - 5,400 ft. Jul - [Sep]. Perennial graminoid,  
rhizome geophyte; nanophyll, orthophyll. Uncommon to locally  
common. Disturbed mesic areas. Does not tolerate shade or  
frequent cultivation. Not drought resistant. Invasive, and resistant  
to eradication.

Chiricahua Mts.: Chiricahua Nat. Mon. in Silver Spur  
Meadow; Fort Bowie Nat. Historic Site in upper Syphon Canyon;  
Southwestern Research Station. Also Huachuca Mts., Rincon  
Mts., Santa Catalina Mts., Mule Mts., Pinaleno  
Mts., Sierra de los Ajos. Throughout state. New Hampshire to  
Michigan, south to Florida, Arizona, and southern California;  
Sonora, Mexico. Alien to America. Temperate, Introduced.

Widely planted for lawns and pasture. Bulk of the world's  
seed supply comes from Yuma area. Planting in Arizona  
prohibited because pollen causes hay fever.

Exsicc.: CHIR [Reeves 3283, 3463].

### **Dactylis glomerata** L. ssp. **glomerata**

*Dactylis glomerata* var. *ciliata* Peterm., *D. glomerata*  
var. *detonsa* Fries, *D. glomerata* var. *vivipara* Parl.

5,400 - [8,800] ft. [Jul] - [Aug]. Perennial graminoid,  
rhizome geophyte; mesophyll, orthophyll. Common on lower  
slopes, fields, meadows, and waste places.

Chiricahua Mts.: Southwestern Research Station. Also  
Pinaleno Mts., Sierra Ancha. Navajo, Coconino, Graham, and Gila  
counties. Newfoundland to Alaska, south to Florida, Arizona, and  
California; introduced from Eurasia. Holarctic, Introduced.

Exsicc.: SWRS [SWRS 1958-471].

### **Danthonia californica** Boland

*Danthonia americana* Scribn., *D. californica* var.  
*americana* (Scribn.) Hitchc., *D. californica* var.  
*palousensis* St. John, *D. californica* var. *piperi* St.  
John

[5,300] - [9,000] ft. Perennial graminoid, semirosette  
hemicyclopedia; leptophyll, orthophyll. Uncommon on damp soil  
near seeps and springs.

Chiricahua Mts.: Round Park. Also Rincon Mts., Pinaleno  
Mts. Graham County. Montana to British Columbia, south to  
Colorado, Arizona, and California. Western.

Chiricahua distribution fide Russell (1982).

### **Deschampsia caespitosa** (L.) Beauv.

8,200 - [10,000] ft. [Jun] - [Sep]. Perennial graminoid,  
semirosette hemicyclopedia, nanophyll, orthophyll. Wet  
meadows.

Chiricahua Mts.: Barfoot Park. Also Pinaleno Mts. Apache,  
Coconino, and Cochise counties. Greenland to Alaska, south to  
North Carolina, Illinois, North Dakota, New Mexico, Arizona and  
California; southern Argentina and Chile; also old world.  
Holarctic.

Forage. Collected at Barfoot Park, fide Russell (1982).

### **Dichanthelium acuminatum** (Sw.) Gould var. **acuminatum**

*Panicum acuminatum* Sw., *P. auburne* Ashe, *P.*  
*chrysosiphidifolium* Nash

[4,000] - 6,050 [6,500] ft. Jul. Perennial graminoid,  
semirosette hemicyclopedia. Uncommon in canyons, lower  
slopes, open *Cupressus arizonica*, *Juglans major*, *Platanus*  
*wrightii*, *Juniperus deppeana*, *Quercus emoryi*, *Q. arizonica*, *Pinus*  
*leiophylla*.

Chiricahua Mts.: Rucker Canyon at Cyprus Grove  
Campground. ts. Also Rincon Mts., Sierra Ancha, Santa Catalina  
Mts., Swisshelm and Huachuca Mts. Grand Canyon (Coconino  
County), Gila, Cochise, and Pima counties. Nova Scotia to  
Montana, south to Florida and Texas; also westward in a few  
scattered localities. Temperate.

Exsicc.: ARIZ [A.C. Sanders 2856].

### **Dichanthelium oligosanthes** (J.A. Schultes)

Gould var. **scribnerianum** (Nash) Gould

*Panicum helleri* Nash, *P. oligosanthes* Shult. var.

*helleri* (Nash) Fern., *P. oligosanthes* var.

*scribnerianum* (Nash) Fern., *P. scoparium* S. Wats.

ex Nash non Lam., *P. scribnerianum* Nash

[3,600] - 6,000 [6,100] ft. [Jun] Jul - [Sep]. Perennial  
graminoid, semirosette hemicyclopedia. Uncommon among rocks  
and damp sand in mesic canyon bottoms. *Pinus engelmannii*, *P.*  
*leiophylla*, *Quercus hypoleucoides*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Surprise Canyon,  
Lost Canyon. Also Rincon Mts., Santa Catalina Mts., Pinaleno  
Mts. Apache and Coconino counties, south to Cochise, Santa  
Cruz, and Pima counties. Maine to British Columbia, south to  
Maryland, Tennessee, Texas, Arizona, and northern California.  
Temperate.

Exsicc.: CHIR [Reeves 3259].

### **Digitaria californica** (Benth.) Henr.

***Trichachene californica* (Benth.) Chase**

**Cotton-top**

[1,000] - 5,000 [6,000] ft. [Mar] - Oct. Perennial graminoid, scapose or leafy-stemmed hemicycophyte. Common on dry rocky slopes, mesas and rocky hills in open ground.

Chiricahua Mts.: Fort Bowie Nat. Historic Site ruins. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Sierra Ancha, Mule Mts., Animas Mts. Southern Navajo County, Grand Canyon (Coconino County), and Mohave County, to Cochise, Santa Cruz, Pima, and Yuma counties. Texas to Colorado, Arizona, and Mexico. Chihuahuan.

Furnishes a considerable quantity of palatable forage for a short period following spring or summer rain.

Exsicc.: FOBO [MHoy 10].

***Digitaria cognatum* (J.A. Schultes) Pilger**

***Leptoloma cognatum* (Shult.) Chase**

**Fall withchgrass**

[3,300] 4,700 - 5,100 [5,500] ft. Apr - May [Sep]. Perennial graminoid, scapose or leafy-stemmed hemicycophyte.

Uncommon on dry uplands, rocky slopes and gravelly plains.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill east of trailer. San Simon Valley. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts. Cochise, Santa Cruz, and Pima counties. New Hampshire to Minnesota, south to Florida, Texas, southern Arizona, and northern Mexico. Temperate.

Exsicc.: FOBO [MHoy 152]. SWRS [SWRS 1959-48].

***Digitaria sanguinalis* (L.) Scop.**

***Panicum sanguinale* L., *Syntherisma sanguinalis* (L.) Dulac**

**Crabgrass**

4,900 - 6,200 ft. Aug. Summer annual grass, spreading therophyte. Uncommon in sun or partial shade, damp soil in drainages, disturbed ground.

Chiricahua Mts.: Chiricahua Nat. Mon. in Whitetail Canyon; Fort Bowie Nat. Historic Site in South Canyon; Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Havasu Canyon (Coconino County) and Greenlee, Gila, Maricopa, Pinal, Cochise, Santa Cruz, and Pima counties. Sonora, Mexico. Temperate, Introduced.

Exsicc.: CHIR [Clark 8710]. FOBO [MHoy 292]. SWRS [SWRS 1958-467].

***Echinochloa colona* (L.) Link**

***Panicum colonum* L.**

**Jungle-rice**

4,900 - 5,400 [5,500] ft. [May] Jul - Sep [Oct]. Summer annual grass, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon on disturbed soil, damp soil in streambeds and pockets on outcrops, as well as moist, weedy places.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; South Canyon. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Animas Mts. Yavapai, Graham, Pinal, Maricopa, Cochise, Santa Cruz, Pima, and Yuma counties. Virginia to Missouri, southward and southwestward to Florida, Arizona, and southeastern California; tropical regions of both hemispheres; introduced in America. Temperate, Introduced.

Exsicc.: CHIR [Reeves 4492].

***Echinochloa crus-galli* (L.) Beauv. var. *crusgalli***

***Echinochloa pungens* (Poir.) Rydb. var. *coarctata***  
Fern. & Grisc., ***Panicum crus-galli* L.**

**Barnyard grass**

[150] 4,900 - 6,100 [7,000] ft. Jul - Sep. Summer annual graminoid, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon on moist ground along ditches and in waste places. *Pinus engelmannii*, *P. leiophylla*, *P. discolor*, *Quercus arizonica*, *Q. hypoleucoides*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Garfield Peak Springs; Fort Bowie Nat. Historic Site in Siphon Canyon; Ash Spring. Also Whetstone Mts., Pinaleno Mts., Animas Mts., Santa Catalina Mts., Santa Rita Mts., Huachuca Mts., Pajarito Mts., Patagonia Mts. Apache County to Coconino County, south to the southern border. New Brunswick to Washington, south to Florida, Arizona, California, and northern Mexico; temperate and subtropical regions of both hemispheres. Holarctic.

Exsicc.: CHIR [Reeves 1479]. ARIZ [Barr 63-325].

***Echinochloa muricata* (Beauv.) Fern. var. *microstachya* Wieg.**

*E. crusgalli* (L.) Beauv. var. *mitis* (Pursh) Peterm., *E. microstachya* (Wieg.) Rydb., *E. muricata* var. *occidentalis* Wieg., *E. occidentalis* (Wieg.) Rydb., *E. pungens* (Poir.) Rydb. var. *microstachya* (Wieg.) Fern. & Grisc., *E. pungens* var. *multiflora* (Wieg.) Fern. & Grisc.

[2,400] - 5,500 [7,500] ft. [Jul] - Oct. Annual graminoid, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon. Wet.

Chiricahua Mts.: West Turkey Creek. Navajo to Coconino counties south to Yuma and Cochise counties.

Exsicc.: ARIZ [Blumer 1782].

***Elymus arizonicus* (Scribn. & J.G. Sm.) Gould**

*Agropyron arizonicum* Scribn. & J.G. Sm., *A. spicatum* (Pursh) Scribn. & J.G. Sm. var. *arizonicum* (Scribn. & J.G. Sm.) M.E. Jones, *Elytrigia arizonica* (Scribn. & J.G. Sm.) Dewey, *Pseudoroegneria arizonica* (Scribn. & Merr.) A. Löve

**Arizona wheatgrass**

[5,000] 7,000 - 9,680 ft. Jul - Oct. Perennial graminoid, semirosette hemicycophyte; nanophyll, sclerophyll. Uncommon on open, sometimes rocky slopes at high elevation; mesic slopes and deep canyons at lower elevations. *Pinus engelmannii*, *P. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. on north side of Sugarloaf Mtn., upper Jesse James Canyon; Wilderness Area; Barfoot Park; Rustler Park; Greenhouse Trail below Cima Park; Long Park; Rucker Canyon; Mormon Canyon; Onion Saddle. Also Rincon Mts., Santa Catalina Mts., Huachuca Mts., Santa Rita Mts., Baboquivari Mts., Pinaleno Mts., Canelo Hills, Dragoon Mts., Animas Mts., Sierra de los Ajos. Graham, Cochise, Santa Cruz, and Pima counties; northern California to western Texas, Chihuahua, Sonora, Mexico. Southwestern.

Exsicc.: CHIR [Clark 8390, Reeves 3978, 4280]. CHWA [Leithliter 287, 861]. ARIZ [Reeder 7704, Van Devender et al. 89-312, McCormick et al. 59-768, 58-329, Blumer pr.26, 1438, 1467, Procter 17, N203, 462, Gould & Haskell 4563].

***Elymus canadensis* L. var. *canadensis***

*Elymus brachystachys* Scribn. & Ball, *E. canadensis* var. *brachystachys* (Scribn. & Ball) Farw., *E. canadensis* var. *hirsutus* (Farw.) Dorn, *E. canadensis* var. *robustus* (Scribn. & J.G. Sm.) Mackenzie &

Bush, *E. crescentus* Wheeler, *E. philadelphicus* L., *E. philadelphicus* var. *hirsutus* Farw., *E. robustus* Scribn. & J.G. Sm.

**Canada wild rye**

[2,500] - [7,000] ft. [Jul] - [Oct]. Perennial graminoid, scapose or leafy-stemmed herb. Uncommon on mesic lower slopes.

Chiricahua Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Huachuca Mts., Sierra Ancha. Apache, Navajo, and Coconino counties, south to Cochise, and Pima counties. Quebec to Alaska, south to North Carolina, Mississippi, Texas, Arizona, and California. Temperate.

Exsicc.: ARIZ [Blumer U.223, U.224].

**Elymus elymoides** (Raf.) Sezey

*Elymus elymoides* var. *brevifolius* (Sm.) Dorn, *E. longifolius* (Sm.) Gould, *E. sitanion* Shult., *Sitanion elymoides* Raf., *S. hystrix* (Nutt.) Sm., *S. hystrix* var. *brevifolium* (Sm.) C.L. Hitchc., *S. hystrix* var. *californicum* (Sm.) C.L. Hitchc., *S. longifolium* Sm. Bottlebrush squirreltail

[2,000] 5,000 - 7,300 [11,500] ft. [Mar] Jun - Aug [Sep]. Perennial graminoid, semirosette hemicryptophyte. Common in dry meadows, dry pine woodland openings on shallow or sometimes disturbed soils. *Quercus emoryi*, *Pinus discolor*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Silver Spur Meadow; Fort Bowie Nat. Historic Site; ruins; near bridge below Pugsley's. Also Huachuca Mts., Rincon Mts., Animas Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Canelo Hills, Sierra de los Ajos. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. South Dakota to British Columbia, south to Missouri, Texas, Arizona, and Mexico. Western.

Exsicc.: CHIR [Clark 8112, Reeves 2797, 2874, 3970]. FOBO [MHoy 17]. SWRS [SWRS 1959-17].

**Elymus trachycaulus** (Link) Gould ex Shinners

*Agropyron trachycaulum* (Link) Malte ex H.F. Lewis [5,000] 7,000 - 9,000 [12,000] ft. [May] Aug - Oct. Perennial graminoid, semirosette hemicryptophyte; nanophyll, orthophyll. Uncommon in wet meadows and open woods.

*Arenaria confusa*, *Carex*, *Coniza schiedeana*, *Senecio wootonii*.

Chiricahua Mts.: Centella Point; Barfoot Park. Also Santa Rita Mts., Sierra Ancha, Pinaleno Mts. Coconino County to Apache County and south to Cochise County. Newfoundland to Alaska, south to West Virginia, Missouri, Arizona, and California. Northern, Temperate.

Exsicc.: ARIZ [Fishbein & Reeder 446, Blumer 185, 1422]. SWRS [Ordway s.n.]

**Elyonurus barbicularis** Hack.

*Elyonurus barbicularis parviflorus* Scribn.

[4,000] - 5,700 [6,000] ft. [Jul] Aug - Sep [Oct]. Perennial graminoid, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon on grassland with oaks, rocky well-drained soil, rocky slopes and canyons. *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Jesse James Canyon Natural Area; Tex Canyon. Also Huachuca Mts., Rincon Mts., Mule Mts. Mohave, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Chihuahuan.

Exsicc.: CHIR [Reeves 1572]. SWRS [SWRS 1959-821].

**Enneapogon desvauxii** Beauv.

**Pappophorum wrightii** S. Wats.

[3,000] 5,100 - 5,200 [6,500] ft. [Jul] Sep - Oct. Perennial graminoid, scapose or leafy-stemmed hemicryptophyte. Uncommon on grassland, well-drained flats and slopes, dry wash, dry uplands, rocky hills and plains.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill north of overlook; 1 mi. north of Portal. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts. Navajo County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Texas to Arizona and Oaxaca; Peru to Argentina. Southwestern, Latin American.

Exsicc.: CHIR [Moir 504]. FOBO [MHoy 21]. SWRS [Cummins 196-61].

**Eragrostis ciliaris** (All.) Lut. ex Janchen

*Eragrostis major* Host, *E. megastachya* (Koel.) Link, *Poa ciliaris* All.

**Stinkgrass**

[4,600] 5,000 - 6,900 ft. [May] Aug - Oct. Summer annual grass, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Common in grasslands, dry uplands, cultivated ground, damp disturbed soil in trails and streambeds, and waste places. *Pinus discolor*, *Juniperus deppeana*, *Garrya wrightii*, *Nolina microcarpa*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Stafford Cabin; Fort Bowie Nat. Historic Site at ruins. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Coconino County to Mohave County, south to Graham, Santa Cruz, Pima and Yuma counties. Throughout the United States except at higher altitudes, southward to Argentina; introduced from Europe. Temperate, Introduced.

Exsicc.: CHIR [Dodd 27, Moir 546, Reeves 1644, 1680A, 1735, 4489]. FOBO [MHoy 32].

**Eragrostis intermedia** Hitchc.

*Eragrostis lugens* of authors, in part, non Nees, *E. lugens* Nees

**Plains lovegrass**

[3,500] 5,000 - [6,000] 6,500 ft. Jun - Sep. Perennial graminoid, rosette hemicryptophyte. Common on xeric rocky hills, grassy plains and wet canyons at lower elevations. *Quercus emoryi* and *Q. arizonica*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in wash southeast of trailer; near Paradise; Chiricahua Nat. Mon. in Bonita Canyon. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Greenlee, Gila, and Yavapai counties to Cochise, Santa Cruz, and Pima counties. Missouri to Louisiana and Arizona; Mexico to Costa Rica. Southwestern, Latin American.

Exsicc.: FOBO [MHoy 518]. SWRS [SWRS 1958-17]. CHIR [Clark 8111, Moir 471, 486, 496, Reeves 1377, 4131, 4207].

**Eragrostis lehmanniana** Nees

**Lehman lovegrass**

5,000 ft. Aug - Oct. Perennial graminoid. Uncommon on gravelly slopes and flats, roadsides.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at ruins. Also Huachuca Mts., Rincon Mts., Mule Mts., Pinaleno Mts., Canelo Hills, Santa Rita Mts. Cochise County, Tucson, Pima County. Introduced from South Africa by the Soil Conservation Service. Southwestern, Introduced.

Invasive of grasslands, fire tolerant.

Exsicc.: FOBO [MHoy 29].

### **Eragrostis lugens** Nees

5,600 ft. May. Perennial graminoid, semirosette hemicryptophyte; leptophyll, orthophyll. Part sun, gravelly slopes. *Quercus emoryi*, *Q. arizonica*. Chiricahua Mts.: Chiricahua Nat. Mon. at mouth of Little Jesse James Canyon. Exsicc.: CHIR [Dole 105].

### **Eragrostis mexicana** (Hornem.) Link ssp. **mexicana**

#### Mexican lovegrass

[4,000] 5,400 - 6,000 [8,500] ft. Aug - Oct. Summer annual grass, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Uncommon in open oak woodland, riparian woodland, occasionally in disturbed areas, cool moist slopes, fields and waste places.

Chiricahua Mts.: Chiricahua Nat. Mon. on sideslopes of Bonita Canyon; Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Coconino and Mohave counties, south to Cochise, Santa Cruz, and Pima counties. Oklahoma, Texas to Arizona, and southward through Mexico. Madrean.

Exsicc.: CHIR [Clark 8653, Dodd 14-15, Harden 1, Moir 537, 553, 555, Reeves 1434, 1577, 1736, 1903, 4485]. SWRS [Ordway 178].

### **Eragrostis pectinacea** (Michx.) Nees var. **pectinacea**

*Eragrostis caroliniana* (Spreng.) Scribn., *E. diffusa* Buckl., *E. purshii* Hort. ex Schrad., *Poa pectinacea* Michx.

#### Carolina lovegrass

[1,000] 5,400 - 7,000 [8,000] ft. [Jul] Aug - Oct. Summer annual grass, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Common in rocky places in chaparral and disturbed sites, damp soil in streambeds, open ground and waste places.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Rincon Mts., Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Throughout Arizona. Maine to North Dakota, south to Florida, Texas to Nevada, southern California, and northern Mexico. Temperate, Western.

Exsicc.: CHIR [Clark 9229, Reeves 1737, 4350, 4488]. FOBO [MHoy 428].

### **Eragrostis pectinacea** (Nees ex Steud. var. **miserrima** (Fourn.) Reeder

*Eragrostis arida* Hitchc., *Eragrostis tephrosanthos* J.A. Schultes

#### Desert lovegrass, gulf lovegrass

[1,000] 5,400 - [5,500] 6,100 ft. Jul - Sep [Oct]. Summer annual, semirosette therophyte; leptophyll, orthophyll. Uncommon on grassland and disturbed soil, dry soil, rocky ground, and waste places.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in South Canyon; Southwestern Research Station. Also Animas Mts. Pinal, Cochise, Santa Cruz, and Pima counties. Missouri (where probably introduced) and Texas to Arizona. Southwestern.

Exsicc.: CHIR [Lehto 3339, Moir 479, Reeves 1276, Reeves 4478A]. SWRS [Ordway 155].

### **Eriochloa lemmonii** Vasey & Scribn.

#### Southwestern cupgrass

[2,500] 4,800 - [5,000] 6,000 ft. [Jun] Aug - [Oct]. Summer annual grass, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Uncommon in grassland and canyon woods, damp disturbed ground.

Chiricahua Mts.: Chiricahua Nat. Mon. in East Whitetail Canyon, Stafford Cabin; Fort Bowie Nat. Historic Site at ruins; junction of Portal and Silver Creek roads. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Cochise, Santa Cruz, Pima, Yavapai, Graham, Gila, Maricopa, and Pinal counties. Texas, New Mexico, Arizona, to central Mexico. Chihuahuan.

Exsicc.: CHIR [Dodd 24-26, Reeves 4447D, 4491]. SWRS [SWRS 1958-530, McCormick 58-545].

### **Erioneuron grandiflorum** (Vasey) Tateoka

*Erioneuron avenaceum* (Kunth) Tateoka var. *grandiflorum* (Vasey) Gould, *Tridens grandiflorus* (Vasey) Woot. & Standl.

[3,000] - 4,800 [5,500] ft. [Apr] - Aug [Oct]. Perennial graminoid, semirosette herb. Uncommon on rocky limestone slopes, plains and rocky hills.

Chiricahua Mts.: Limestone Mtn., Troller Ranch. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts. Greenlee, Cochise, and Pima counties. Western Texas to Arizona and northern Mexico. Chihuahuan.

Exsicc.: SWRS [SWRS 1958-525].

### **Erioneuron pulchellum** (Kunth) Tateoka

*Dasyochloa pulchella* (Kunth) Willd. ex Rydb., *Triodia pulchella* Kunth, *Tridens pulchellus* (Kunth) Hitchc.

#### Fluffgrass

[3,000] 5,000 - 5,400 [5,500] ft. [Mar] Jul - Aug [Oct]. Perennial graminoid, scapose or leafy-stemmed hemicryptophyte. Uncommon in full sun on rocky hills, sometimes on disturbed sites. *Salsola iberica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in housing area; Fort Bowie Nat. Historic Site at ruins; 6 mi. east of Portal. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Throughout Arizona. Utah and Nevada to western Texas, Arizona, and southern California. Western.

Exsicc.: CHIR [Clark 9195, Reeves 2600, 3479, 4179, 4493]. FOBO [MHoy 13]. SWRS [Ordway n.s.].

### **Festuca arizonica** Vasey

#### Arizona fescue

[2,500] 7,870 - 9,790 ft. [Jun] Jul - Sep. Perennial graminoid, rosette hemicryptophyte. Common in forest openings and dry meadows, becomes confined to drainages at lower elevations.

Chiricahua Mts.: Wilderness Area. Also Pinaleno Mts., Santa Catalina Mts. Apache, Coconino, Yavapai, Greenlee, Graham, and Pima counties. Colorado, Nevada, New Mexico, and Arizona. Southwestern.

Exsicc.: CHWA [Leithliter 817].

### **Festuca ?ovina** L.

#### Sheep fescue

[7,000] - 8,380 [12,500] ft. Jul - [Sep]. Perennial graminoid,

rosette hemicryptophyte. Uncommon along streamsides, open woods, and rocky slopes.

Chiricahua Mts.: Wilderness area, Greenhouse Trail. Also Santa Catalina Mts. Apache and Coconino counties. Alaska to Nebraska, New Mexico, Arizona, and California, introduced eastward; circumpolar. Holarctic.

Exsicc.: CHWA [Leithliter 138].

### **Festuca pratensis** Huds.

*Festuca elatior* L., *F. shortii* Kunth ex Wood

Meadow fescue, English bluegrass

5,400 ft. Jul. Perennial graminoid, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon in residential areas, yards, meadows and waste places.

Chiricahua Mts.: Chiricahua Nat. Mon. Apache, Navajo and Cochise counties. Introduced in the cooler regions of North America; native of Eurasia. Holarctic.

Exsicc.: CHIR [Reeves 3462].

### **Festuca sororia** Piper

[7,500] 8,200 - 9,200 [11,000] ft. Aug - Sep. Perennial graminoid, semirosette hemicryptophyte. Open woods and forest openings, mesic slopes; deep canyons at lower elevations.

Chiricahua Mts.: Centella Point; northwest side Buena Vista Peak; below Cima Park; Mormon Canyon. Also Santa Catalina Mts., Pinaleno Mts., Huachuca Mts. Coconino, Graham, Cochise, and Pima counties. Colorado, Utah, New Mexico, and Arizona. Rocky Mountain.

Exsicc.: ARIZ [Fishbein 487, Van Devender 85-196, s.n.].

### **Glyceria borealis** (Nash) Batchelder

*Panicularia borealis* Nash

[7,000] - 8,200 [9,000] ft. Aug. Perennial graminoid, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Very wet or aquatic sites.

Chiricahua Mts: Barfoot Park. Also Huachuca Mts. Apache, Coconino, Cochise, and Pima counties. Newfoundland to Alaska, southward to Massachusetts, New Mexico, Arizona and California. Reported collected by J.C. Blumer in Barfoot Park by Russell (1982).

### **Glyceria elata** (Nash ex Rydb.) M.E. Jones

Tall managrass

5,000 - 8,860 [9,000] ft. Jul - Sep. Perennial graminoid, scapose or leafy-stemmed hemicryptophyte. Uncommon on wet soil by streams, springs, and pools, wet meadows and moist woods.

Chiricahua Mts.: below Herb Martyr Dam. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Lukachukai Mts., White Mts. Apache County, Oak Creek Canyon (Coconino County), Graham, Cochise, and Pima counties. Montana to British Columbia, south in the mountains to New Mexico, Arizona, and southern California. Western.

Exsicc.: SWRS [Cummins 57-18]. CHWA [Leithliter 137].

### **Glyceria striata** (Lam.) Hitchc.

Fowl managrass

[5,000] - 7,600 [9,000] ft. Jun - [Aug]. Perennial graminoid, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon. Riparian.

Chiricahua Mts.: base of Winn Falls. Also Sierra Ancha, White Mts., Pinaleno Mts. Apache and Navajo counties, Coconino County, Gila County and Cochise County. Newfoundland to British Columbia, southward to Florida, Arizona, and northern

California. Temperate.

Exsicc.: SWRS [Roth s.n.].

### **Hackelochloa granularis** (L.) Kuntze

*Cenchrus granularis* L., *Rytillix granularis* (L.) Skeels

5,400 ft. Aug - Sep [Oct]. Summer annual grass, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Uncommon on grassland/scrub, sandy plains and waste places. Chiricahua Mts.: Chiricahua Nat. Mon. on sideslopes of lower Bonita Canyon. Cochise, Santa Cruz, and Pima counties. Georgia and Florida to Louisiana, New Mexico, and Arizona; tropics of both hemispheres, introduced in America. Temperate, Introduced.

Exsicc.: CHIR [Dodd 34, Reeves 1696].

### **Heteropogon contortus** (L.) Beauv. ex Roem.

& J.A. Schultes

*Andropogon contortus* L.

Tanglehead

[1,000] 5,100 - 6,100 ft. [Occasionally Jan] Jun - Sep [Oct] [Occasionally Apr]. Perennial graminoid, semirosette hemicryptophyte. Uncommon in woodlands, alluvium, dry gravelly and rock slopes, sandy plains and canyons.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill northeast of overlook; Greenhouse Canyon Trail; Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Sierra de los Ajos. Mohave, Yavapai, Pinal, Cochise, Santa Cruz, Pima, and Yuma counties. Texas to Arizona; warmer regions of both hemispheres. Southwestern, Holarctic.

Exsicc.: CHIR [Moir 489]. SWRS [SWRS 1958-32, Elliott s.n.].

### **Hilaria belangeri** (Steud.) Nash var. *belangeri*

*Anthephora belangeri* Steud.

Curly mesquite

[1,500] 4,900 - 5,600 [6,000] ft. [Mar] Apr - Sep [Oct]. Perennial graminoid, semirosette hemicryptophyte; microphyll, orthophyll. Common on grassland/scrub, gravelly well-drained slopes, along arroyos. *Pinus leiophylla*, *P. discolor*, *P. engelmannii*, *Quercus emoryi*, *Q. arizonica*, *Cupressus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. at mouth of Rhyolite Canyon, Pickett Canyon; Fort Bowie Nat. Historic Site at Pass Tank; Whitetail Canyon near the Nippers. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Greenlee County to Yavapai and Coconino (?) counties, south to Cochise, Santa Cruz, and Pima counties. Texas to Arizona, southeastern California, and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 9194, Dodd 38, Moir 499, Reeves 4077, 4099]. SWRS [SWRS 1959-766].

### **Hilaria mutica** (Buckl.) Benth.

Tobosa grass

[2,000] - 5,100 [6,000] ft. May - Jul [Oct]. Perennial graminoid. Uncommon on dry mesas and hills.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in wash east of trailer; Willow Tanks. Also Huachuca Mts., Pinaleno Mts., Mule Mts., Animas Mts. Greenlee County to Mohave County, south to Cochise, Santa Cruz, Pima, and Yuma counties. Texas to Arizona and northern Mexico. Chihuahuan.

Exsicc.: Fort Bowie Nat. Historic Site [MHoy 396].

### **Hordeum brachyantherum** Nevski

*Critesion brachyantherum* (Nevski) Barkworth & Dewey, *Hordeum boreale* Scribn. & J.G. Sm., *H. jubatum* L. var. *boreale* (Scribn. & J.G. Sm.) Boivin, *H. nodosum* auctt. non L., *H. nodosum* var. *boreale* (Scribn. & J.G. Sm.) Hitchc.

8,200 [10,000] ft. [Jun] - [Oct]. Perennial graminoid, semirosette hemicryptophyte; microphyll, orthophyll. Open meadows.

Chiricahua Mts.: Barfoot Park. Reported by Russell (1982) as collected by J.C. Blumer in Barfoot Park (Repos. unk.).

### **Hordeum murinum** L. ssp. **leporinum** (Link)

Arcang.

*Hordeum leporinum* Link, *H. murinum* Kern. & Peeb., in part, non L.

Mouse barley

5,000 - 5,400 ft. Feb - Apr [Jun]. Winter annual grass, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Common on disturbed ground, roadsides, and washes. *Salsola iberica*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at dump; Southwestern Research Station near lab; 5 mi. southwest of Portal Barfoot Park. Also Huachuca Mts., Rincon Mts. Alien species. Coconino and Cochise counties. Massachusetts to Georgia; British Columbia to western Texas, Arizona, and California; introduced from Europe. Temperate, Introduced.

Exsicc.: FOBO [MHoy 101]. SWRS [Elliott s.n.]. Repos. unk. [Blumer 1587].

### **Koeleria macrantha** (Ledeb.) J.A. Schultes

*Koeleria cristata* (L.) Pers. *K. cristata* var. *longifolia*

Vasey ex Burtt-Davy, *K. cristata cristata* var.

*pinetorum* Abrams, *K. gracilis* Pers., *K. nitida* Nutt.,

*K. pyramidata* auct. non (Lam.) Beauv.

Mountain junegrass, prairie junegrass

5,000 - 9,790 ft. May - Oct. Perennial graminoid, rosette hemicryptophyte; leptophyll, orthophyll. Common on gravelly and rocky slopes, dry meadows, moist drainages at lower elevations.

*Pseudotsuga menziesii*, *Pinus arizonica*, *P. engelmannii*, *Quercus hypoleucoides*, *Senecio macdougalii*, *S. wootonii*, *Conyzia schiediana*, *Arenaria confusa*, *Carex*. Chiricahua Mts:

Chiricahua Nat. Mon. in East Whitetail Canyon, north side of

Sugarloaf Mtn., mouth of Rhyolite Canyon; Fort Bowie Nat.

Historic Site in upper South Canyon, Apache Pass; Rucker

Canyon; Wilderness Area; Centella Point; Barfoot Park;

Greenhouse Trail; Long Park; Onion Saddle; West Turkey Creek

near ranger station; upper Cave Creek. Also Rincon Mts., Pinaleno

Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts.,

Dos Cabezas Mts., Rincon Mts., Baboquivari Mts., Quinlin Mts.,

Santa Rita Mts., Huachuca Mts., Sierra de los Ajos. Apache

County to Mohave and Yavapai counties, south to Cochise and

Pima counties. Ontario to British Columbia, south to Delaware,

Missouri, Louisiana, Arizona, California, and Mexico. Temperate.

Exsicc.: CHIR [Clark 8391, 9226, Reeves 3970, 4430, 4509A]. FOBO [MHoy 174]. SWRS [SWRS 1959-778]. CHWA [Leithliter 204, 213, 288, 422, 536, 561, 632, 649]. ARIZ [SWRS 59-828, Reeder 7633, 8832, Fishbein 442, 488, Darrow s.n., Blumer 1342, Taylor s.n., Goodding 154-47, Anderson, et al. 1367, Procter 994].

### **Leptochloa dubia** (Kunth) Nees

*Diplachne dubia* (Kunth) Scribn.

Green spangletop

[3,000] 5,000 - 5,400 [6,500] ft. [Jul] Aug - Sep [Oct].

Perennial graminoid, semirosette hemicryptophyte. Uncommon on sunny flats and rocky or gravelly slopes, shallow drainages and roadsides at lower elevations; often on disturbed ground. *Pinus discolor*, *Quercus emoryi*, *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon. in residential area; Fort Bowie Nat. Historic Site at ruins. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Yavapai, Graham, Gila, Maricopa, Pinal, Cochise, Santa Cruz, and Pima counties. Oklahoma to Arizona, Mexico, and southern Florida; Argentina. Latin American.

Exsicc.: CHIR [Dodd 17-20, Reeves 4484]. FOBO [MHoy 483]. SWRS [Anderson s.n.]

### **Lolium perenne** L. ssp. **multiflorum** (Lam.)

Husnot,

*L. perenne* ssp. *perenne*

5,300 ft. Jul. Perennial graminoid, semirosette hemicryptophyte. meadows, lawns, and waste places.

Chiricahua Mts.: Southwestern Research Station south of lab. Also Santa Catalina Mts. Coconino, Pinal, Cochise, Santa Cruz, and Pima counties. Newfoundland to Alaska, south to Virginia, Arizona, and California. Holarctic, Introduced.

Exsicc.: SWRS [SWRS 1960-280].

### **Lycurus setosus** (Nutt.) C. Reeder

*Pleopogon setosus* Nutt.

Wolftail, Texas Timothy

[4,000] 4,975 - 5,650 [6,500] ft. [May] Aug - Oct. Perennial graminoid, semirosette hemicryptophyte. Common on rocky sunny slopes, flats, and shady mesoriparian canyons. *Alloysia*, *Pinus discolor*, *Quercus emoryi*, *Juniperus deppeana*, *Garrya wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Jesse James Canyon Natural Area, sideslopes of upper Rhyolite Canyon, sideslopes of Madrone Canyon; Fort Bowie Nat. Historic Site at Northwest Overlook; Tex Canyon. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Rincon Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Apache County to Coconino County, south to Cochise, Santa Cruz, and Pima counties. Colorado and Utah to Texas, Arizona, and Mexico; Ecuador to Argentina. Southwestern, Latin American.

Exsicc.: CHIR [Clark 8609, 8739, Dodd 16, Lehto 3342, Moir 490, Reeves 1582, 1616, 4462]. FOBO [MHoy 301]. SWRS [Cummins 57-153].

### **Melica porteri** Scribn. var. **laxa** Boyle

Porter melic

[2,500] 6,700 - 7,200 [8,000] ft. Jul - Aug. Perennial graminoid, rhizome geophyte. Rare along streams, swales, and lower slopes.

Chiricahua Mts.: East Turkey Creek; Wilderness Area, Winn Falls. Also Sierra Ancha, Santa Catalina Mts., Pinaleno Mts. Cochise and Pima counties. Southwestern.

Exsicc.: SWRS [SWRS 1960-415]. CHWA [Leithliter 392].

### **Muhlenbergia arenaceae** (Buckl.) Hitchc.

Bush muhly, ear muhly

4,700 - 5,000 ft. Aug - Oct. Perennial graminoid, rhizome geophyte; nanophyll, orthophyll. Disturbed, dry mesas.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at ruins; Kollmar Ranch. Also Baboquivari Mts. Cochise County, Nogales

(Santa Cruz County), and Pima County. Texas to southern Arizona and Sonora. Madrean.  
Exsicc.: FOBO [MHoy 2]. SWRS [SWRS 1958-498].

### **Muhlenbergia arenicola** Buckl.

#### Sand muhly

[4,000] - 5,000 [7,000] ft. [Aug] Sep - Oct. Perennial graminoid, rosette rhizome geophyte. Often forms "fairy rings". Dry mesas and open ground. *Salsola kali*, *Nolina microcarpa*, *Ericameria laricifolia*, *Lycium pallidum*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at ruins; 1 mi. north of Portal. Also Mule Mts., Animas Mts. Yavapai, Mohave, Cochise, Pima, and Santa Cruz counties. Western Kansas and Colorado to Arizona and northern Mexico. Chihuahuan, Madrean.  
Exsicc.: FOBO [MHoy 14].

### **Muhlenbergia arizonica** Scribn.

#### Arizona muhly

[3,000] - 5,400 [5,500] ft. Aug - Oct. Perennial graminoid, rhizome geophyte; leptophyll, orthophyll. Uncommon on south-facing sunny dry rocky slope.

Chiricahua Mts.: Chiricahua Nat. Mon. at Bonita - Faraway Hills. Also Huachuca Mts., Rincon Mts., Mule Mts. Cochise, Pima, and Santa Cruz counties. Arizona and northwestern Mexico. Apachian.

Exsicc.: CHIR [Reeves 2274].

### **Muhlenbergia asperifolia** (Nees & Meyen ex Trin.) Parodi

*Sporobolus asperifolius* (Nees & Meyen) Nees  
Scratchgrass, alkali muhly

5,400 ft. [May] Aug - Sep [Oct]. Perennial graminoid, rhizome geophyte; nanophyll, orthophyll. Grassy meadow, dry hills or moist ground. *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon. at mouth of Bonita Canyon, Silver Spur Meadow. Also Animas Mts., Canelo Hills. Apache County to Coconino County, south to Pima County. Wisconsin to British Columbia, south to Mexico, southern South America. Western, Latin American.

Exsicc.: CHIR [Reeves 1398].

### **Muhlenbergia emersleyi** Vasey

#### Bullgrass

[4,300] 5,000 - 6,900 ft. Jul - Sep [Oct]. Perennial graminoid, rosette hemicryptophyte; microphyll, orthophyll. Common in grassy openings in oak woodland and chaparral, riparian woodland among rocks in streambeds at lower elevations. *Quercus emoryi*, *Q. arizonica*, *Q. hypoleuca*, *Arbutus arizonic*a.

Chiricahua Mts.: Chiricahua Nat. Mon. along trail from Massai Pt., Jesse James Canyon, upper Hunt Canyon; Fort Bowie Nat. Historic Site on hillside, east side Siphon Canyon. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Southern Apache County to Yavapai County, south to Cochise, Santa Cruz, and Pima counties. Texas to Arizona and Mexico. Madrean.

Exsicc.: CHIR [Clark 8457, Moir 465, 466, 510, 520, 540, 557]. FOBO [MHoy 56]. SWRS [SWRS 1958-366].

### **Muhlenbergia filiformis** (Thurb.) Rydb.

*Muhlenbergia filiformis* var. *fortis* E.H. Kelso, *M. idahoensis* St. John, *M. simplex* (Scribn.) Rydb.  
Pull-up muhly

8,100 ft. Aug. Summer annual grass, scapose or leafy-stemmed therophyte; leptophyll, orthophyll. Meadows and wet places.

Chiricahua Mts.: Barfoot Park. Apache, Coconino and Cochise counties. South Dakota and British Columbia, south to Kansas, New Mexico, Arizona, and California. Western.

Exsicc.: SWRS [McCormick 1959-95].

### **Muhlenbergia fragilis** Swall.

[3,700] 5,000 - 6,000 ft. Aug - Oct. Summer annual grass, semirosette therophyte; microphyll, orthophyll. Common in shade of trees, along mesotriparian drainages, dry, gravelly slopes and soil pockets in outcrops. *Quercus emoryi*, *Mimosa dysocarpa*, *Agave schottii*, *Fouquieria splendens*, *Pinus discolor*, *Juniperus deppeana*, *Calliandra eriophylla*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Jesse James Natural Area, Rhyolite Canyon; Paradise; Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Santa Rita Mts., Baboquivari Mts., Galiuro Mts. Apache, Coconino, Yavapai, Gila (?), Santa Cruz, and Pima Counties. Western Texas to Arizona and Central Mexico. Madrean.

Exsicc.: CHIR [Clark 8746, Moir 473, 532, 552, 567, Reeves 1573, 1719]. ASU [Bingham 2564; Getz et al. 18872].

### **Muhlenbergia glauca** (Nees) B.D. Jackson

#### *Muhlenbergia lemonii* Scribn.

[4,000] - 6,500 [8,400] ft. Sep - [Oct]. Perennial graminoid, rhizome geophyte, nanophyll, orthophyll. Dry rocky slopes, in forest or woodland shade. *Pinus arizonica*, *P. engelmannii*, *P. leiophylla*, *Quercus hypoleuca*, *P. arizonica*, *Muhlenbergia longiligula*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Pickett Park. Also Huachuca Mts., Animas Mts., Mule Mts., Dragoon Mts., Dos Cabezas Mts., Pajarito Mts., Animas Mts., Sierra Madre Occidental, Sierra Madre Oriental. Cochise and Santa Cruz counties. Western Texas to California and Mexico in Coahuila, Chihuahua, Durango, San Luis Potosi, Guanajuato, Jalisco. Madrean.

Exsicc.: NMC [Goodding M-321]. ARIZ [Keller 867, Moir 424].

### **Muhlenbergia longiligula** Hitchc.

#### Longtongue muhly

5,400 - 8,530 [9,000] ft. Jul - Oct. Perennial graminoid, semirosette hemicryptophyte; microphyll, orthophyll. Common along streambeds and rocky slopes in pine forest, oak-pine woodland, dry uplands, canyons. *Pinus arizonica*, *P. leiophylla*, *P. discolor*, *Juniperus deppeana*, *Pseudotsuga menziesii*, *Quercus hypoleuca*, *Quercus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Pickett Park, Bonita Canyon; Greenhouse Trail; East Turkey Creek, Rustler Park near Onion Saddle; Wilderness Area, Cave Creek. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Apache, Navajo, and Coconino counties to Cochise, Santa Cruz, and Pima counties. Sonora, Mexico. Apachian.

Exsicc.: CHIR [Moir 419, 426, 511, 517, Reeves 1376, 1720, 3753, 4254, 4511]. SWRS [Cummins 57-84; Bueman s.n.]. CHWA [Leithliter 315, 642, 733]. ASU [Moir 58, 59, 64; Cazier 996; Goodding 304-62].

### **Muhlenbergia montana** (Nutt.) Hitchc.

#### Mountain muhly

[5,000] - 9,790 ft. Jun - Oct. Perennial graminoid, rosette

hemicycophyte. Uncommon in forest openings on south-facing rocky slopes, more sheltered habitats at lower elevations.

Chiricahua Mts.: Long Park, Wilderness Area. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Apache, Coconino, Yavapai, Graham, Gila, Cochise, and Santa Cruz counties. Montana and central California to western Texas, Arizona, and southern Mexico. Southwestern, Rocky Mountain.

Exsicc.: SWRS [SWRS 1959-779]. CHWA [Leithlter 37, 547].

### **Muhlenbergia pauciflora** Buckl.

New Mexican muhly

[4,000] 7,600 - [8,000] 8,600 ft. Aug - Sep [Oct]. Perennial graminoid, scapose or leafy-stemmed hemicycophyte. Uncommon in narrow canyons, mesic rocky slopes, cracks in rocks. *Arctostaphylos pungens*, *Quercus emoryi*, *Pinus discolor*.

Chiricahua Mts.: Pinery Canyon, 0.5 mi. below campground; Rustler Park; trail between Rustler and Barfoot parks; Onion Saddle. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Dragoon Mts., Whetstone Mts., Pinaleno Mts., Animas Mts. Navajo, Coconino, Yavapai, Graham, Cochise, Santa Cruz, and Pima counties. Western Texas to Colorado, Arizona, and northern Mexico. Madrean.

Exsicc.: ARIZ [W.A. Silvers 3436; Goooding & Goooding 168-47, 471-47, 469-47 164-47; Darrow, Phillips, Pultz 1245; Vasek & Clarke 660917-62; Hagopian & Bagley FCM 221].

### **Muhlenbergia polycaulis** Scribn.

Cliff muhly

[4,000] - 6,500 ft. Jul - Aug. Perennial graminoid, scapose or leafy-stemmed hemicycophyte. Uncommon along canyon sides, streams, rock ledges, rocky slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; South Fork Cave Creek. Also Santa Catalina Mts., Dragoon Mts., Huachuca Mts., Santa Rita Mts., Baboquivari Mts., Animas Mts. Cochise County, Santa Cruz County, and Pima County. Texas, southern Arizona, and Mexico. Madrean.

Exsicc.: CHIR [Clark 8464, 8511]. SWRS [Cummins 57-146].

### **Muhlenbergia porteri** Scribn. ex Beal

Bush muhly

[2,000] 4,300 - 5,000 [5,500] ft. [Aug] - Oct. Perennial graminoid, scapose or leafy-stemmed hemicycophyte. Common along trails, disturbed ground and rocky slopes and gravelly flats, dry slopes, mesas. *Prosopis glandulosa*, *Bouteloua curtipendula*, *Salsola iberica*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at ruins; Bagwell property. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts. Navajo County to Mohave County, south to Cochise, Pima, and Yuma counties. Colorado and Nevada to western Texas, Arizona, California, and northern Mexico. Southwestern.

Has high fidelity for mesquite at Fort Bowie Nat. Historic Site.

Exsicc.: FOBO [MHoy 9]. SWRS [SWRS 1958-384].

### **Muhlenbergia ramulosa** (Kunth) Swallen

*Muhlenbergia wolfii* (Vasey) Rydb., *Sporobolus ramulosus* sensu auctt. non (Kunth) Kunth

[5,400] 8,150 - 8,400 ft. Aug - Sep. Summer annual grass, scapose or leafy-stemmed therophyte. Rock slides. *Senecio macdougalii*, *S. wootonii*, *Conyzia schiedeana*, *Arenaria confusa*,

*Carex vallicola rusbyi*.

Chiricahua Mts.: Barfoot Park; Centella Point; Rustler Park. Also Santa Catalina Mts., Pinaleno Mts., Santa Rita Mts., Rincon Mts., Huachuca Mts., Sierra Madre Occidental. Southern Apache (or northern Greenlee), Coconino, and Pima counties. Colorado, New Mexico, Arizona, and Chihuahua. Madrean.

Exsicc.: SWRS [Cummins 57-200]. ARIZ [Blumer 155, 1393, Fishbein 489, Darrow et al. 1237, Reeder 6904].

### **Muhlenbergia repens** (Presl) Hitchc.

*Muhlenbergia abata* Johnst.

Aparejo grass, creeping muhly

5,000. [Apr] Oct - [Sep]. Perennial graminoid, rhizome geophyte; nanophyll, orthophyll. Dry, open, rocky or sandy ground. *Salsola iberica*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at ruins. Apache, Coconino, Yavapai, Cochise, Santa Cruz, and Pima counties. Texas to Arizona and Mexico. Madrean.

Exsicc.: FOBO [MHoy 56].

### **Muhlenbergia rigens** (Benth.) Hitchc.

*Epicampes rigens* Benth., *Muhlenbergia marshii* I.M. Johnston, *M. mundula* I.M. Johnston

Deer grass

[2,500] - 5,400 [8,000] ft. [Jul] - Sep [Oct]. Perennial graminoid, semirosette hemicycophyte. Uncommon on open slopes, lower slopes, and forest openings; in forests and along canyon streambeds at lower elevations.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Apache and Coconino counties to Cochise, Santa Cruz, and Pima counties. Texas to southern California and northern Mexico. Southwestern.

Exsicc.: SWRS [Ordway 152].

### **Muhlenbergia rigida** (Kunth) Trin.

Purple muhly

[5,000] - 6,000 ft. Feb - Oct. Summer annual graminoid, semirosette therophyte. Uncommon on chaparral, rocky slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; south slope of Silver Peak. Also Huachuca Mts., Mule Mts., Animas Mts. Greenlee, Cochise, Santa Cruz, and Pima counties. Texas, New Mexico, Arizona, and Mexico. Chihuahuian.

Exsicc.: CHIR [Moir 418]. SWRS [Elliott s.n.].

### **Muhlenbergia sinuosa** Swall.

[4,000] 6,100 - 8,200 ft. Aug - Oct. Summer annual grass, semirosette therophyte; nanophyll, orthophyll. Uncommon in open conifer-oak woodland, cool moist slopes and mesic draws; sometimes on disturbed areas. *Pinus engelmannii*, *P. leiophylla*, *Quercus hypoleucoides*, *Q. rugosa*, *Platanus wrightii*, *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Rustler Park; between Paradise and Portal; Cave Creek; Rucker Canyon; West Turkey Creek near Sycamore Campground; Onion Saddle. Also Rincon Mts., Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Dragoon Mts., Canelo Hills, Patagonia Mts., Baboquivari Mts., Santa Rita Mts., Huachuca Mts., Sierra de Ajos, Sonora. Apache, Navajo, Coconino, Yavapai, Gila, and Pima counties. Montana to Washington, south to northern Mexico in the Sierra Madre Occidental. Western.

Exsicc.: CHIR [Moir 421, Reeves 1307]. SWRS [Orway 163]. ARIZ [Reeder 6876, 6893, 6902, 6927, 8950, Harrison et al.

6140, Keller 863, Goodding 4927, Darrow et al. 1340, Gould & Haskell 4588, Peterson & Annable 4013].

### **Muhlenbergia tenuifolia** (Kunth) Trin.

*Muhlenbergia monticola* Buckl.

Mesa muhly

[3,300] 5,400 - 7,200 [8,000] ft. Aug - Sep. Perennial graminoid, rhizome geophyte; leptophyll, orthophyll. Uncommon in meadows, rock ledges, dry uplands, rocky hills and canyons.

Chiricahua Mts.: Chiricahua Nat. Mon. in Whitetail Canyon; Barfoot Park road at turnoff, along Cave Creek. Also Huachuca Mts., Rincon Mts., Peloncillo Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Havasu Canyon, Coconino County and Pinal, Cochise, Santa Cruz, and Pima counties. Texas to Arizona and central Mexico. Madrean.

Exsicc.: CHIR [Clark 8712, Reeves 1539B]. SWRS [Day s.n., Cummins 208-61, 57-203].

### **Muhlenbergia virescens** (Kunth) Trin.

Screwleaf muhly

[5,000] 5,200 - 9,510 ft. Apr - Jul. Perennial graminoid, rhizome geophyte; leptophyll, orthophyll. Common on rocky open slopes, grasslands, and old burns; along drainages at lower elevations. *Pinus arizonica*, *P. engelmannii*, *P. strobus*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Chiricahua Nat. Mon. along west boundary half way up Erickson Ridge; southeast slope of Long Canyon; Onion Saddle; Chiricahua Saddle; Wilderness Area; Pole Bridge Canyon. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Animas Mts., Huachuca Mts., Santa Rita Mts. Coconino, Gila, Cochise, and Pima counties. New Mexico and Arizona to central Mexico. Madrean.

Exsicc.: CHIR [Reeves 2600A]. SWRS [SWRS 1960-144, Cummins 57-12, Roth s.n.]. CHWA [Leithlitter 9, 27]. NMC [Soreng-Spellenberg 773; Goodding M-314; Moir 658; Nash 122; Darrow s.n.].

### **Muhlenbergia wrightii** Vasey ex Coult.

Spike muhly

5,900 [8,500] ft. [Jul] Sep - [Oct]. Perennial graminoid, rhizome geophyte; nanophyll, orthophyll. Uncommon in oak woods, plains and open slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in Whitetail Canyon. Apache, Coconino, Yavapai, and Pima counties. Colorado and Utah to northern Mexico. Southwestern.

Exsicc.: CHIR [Moir 461].

### **Panicum antidotale** Retz.

Blue panic

8,400 ft. Aug. Perennial graminoid, rhizome geophyte; mesophyll, orthophyll. Open pine forest, roadsides.

Chiricahua Mts.: Barfoot Park. Introduced from the Old World tropics by the United States Soil Conservation Service and well established at roadsides. Introduced.

Exsicc.: SWRS [Cummins 57-165].

### **Panicum bulbosum** Kunth

*Panicum bulbosum minus* Vasey, *P. plenum* Hitchc & Chase

Bulb panicum

[4,500] 5,200 - 8,500 ft. Jul - Sep [Oct]. Perennial graminoid, bulb geophyte; mesophyll, orthophyll. Uncommon in

riparian woods and canyon sides on talus. *Pinus engelmannii*, *Quercus hypoleucoides*, *Q. rugosa*, *Cupressus arizonica*, *Platanus wrightii*, *Juglans major*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon between Organ Pipe and junction of Natural Bridges Trail; 1/4 mile above Licklog Tank in Horseshoe Canyon; Wilderness Area, Greenhouse Canyon, Barfoot Park; Cave Creek. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Huachuca Mts., Sierra de los Ajos. Apache, Navajo, and Coconino counties to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Mexico. Madrean.

Exsicc.: CHIR [Clark 8461, 8507, 8653, Dodd 11, Moir 514, Reeves 1387A, 4032, 4148]. SWRS [SWRS 1960-366, Ordway 38]. CHWA [Leithlitter 321]. Repos Unk. [Blumer 1341].

### **Panicum capillare** L. var. **occidentale** Rydb.

*Panicum barbipulvinatum* Nash, *P. capillare* ssp. *barbipulvinatum* (Nash) Tzvelev, *P. capillare* var. *barbipulvinatum* (Nash) R.L. McGregor, *P. capillare* var. *brevifolium* Vasey ex Rydb. & Shear, *P. capillare* var. *occidentale* Rydb.

Witchgrass, old-witch grass

[2,000] 5,100 - 6,000 [7,000] ft. [Jul] - Aug [Oct]. Summer annual grass, scapose or leafy-stemmed therophyte; mesophyll, orthophyll. Uncommon along streambeds, gravelly slopes, swales and lower slopes, moist, open ground.

Chiricahua Mts.: Chiricahua Nat. Mon. in Whitetail Canyon; Fort Bowie Nat. Historic Site at Apache Pass Summit; San Bernardino Valley. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Pinaleno Mts. Apache, Navajo, and Coconino counties, south to Cochise, Pima, and Yuma counties. Prince Edward Island to British Columbia, south to New Jersey, Missouri, Texas, Arizona, and California. Temperate.

Exsicc.: CHIR [Reeves 4388]. FOBO [MHoy 268]. SWRS [SWRS 1958-706].

### **Panicum hallii** Vasey

Hall's panicum

[3,500] 5,000 - 6,000 [7,000] ft. [Jun] Aug - Sep [Oct]. Perennial graminoid, semirosette hemicryptophyte. Uncommon in grassy openings in chaparral, rocky limestone slopes, dry prairies and rocky hills; often in mesic ravines at lower elevations.

Chiricahua Mts.: Chiricahua Nat. Mon. in Whitetail Canyon; Fort Bowie Nat. Historic Site at ruins. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts. Coconino, Yavapai, Greenlee, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Texas to Arizona and Mexico. Southwestern.

Exsicc.: CHIR [Reeves 3830]. FOBO [MHoy 25]. Rincon [Bowers Reeves 1286]. SWRS [1958-496].

### **Panicum hirticaule** Presl

*Panicum capillare* L. var. *hirticaule* (Presl) Gould  
Witchgrass

[1,000] 5,150 - 7,280 [7,500] ft. [Jun] Jul - Sep. Summer annual grass, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon on north slopes and damp soil in streambeds and ephemeral seeps, swales and lower slopes, dry, open ground, waste places. *Prosopis glandulosa*, *Quercus arizonica*, *Q. hypoleucoides*, *Pinus engelmannii*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Sarah Deming Canyon, Stafford Saddle; 4 mi. east of Portal; Wilderness Area, Cave Creek. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Throughout

Arizona. Arkansas and western Texas to southern California; Mexico and the West Indies to Argentina. Southwestern, Latin American.

Exsicc.: CHIR [Clark 8605, Dodd 39-40, Moir 506, 542, Reeves 1680A, 4200]. SWRS [Cummins 200-61, 207-61]. CHWA [Leithliter 457].

### **Panicum miliaceum L.**

Broomcorn millet, hog millet, proso

5,500 ft. Aug. Summer annual graminoid, scapose or leafy-stemmed therophyte; mesophyll, orthophyll. Uncommon in open oak-pine woods, at roadsides and in waste ground. *Quercus emoryi*, *Q. arizonica*, *Pinus discolor*.

Chiricahua Mts.: Chiricahua Nat. Mon. on north slope Garfield Peak. Cochise County, Pima County. Here and there in the United States, not naturalized; introduced from the Old World. Temperate, Introduced.

Exsicc.: CHIR [Reeves 1240].

### **Panicum obtusum Kunth**

Vine mesquite

[1,000] 4,200 - 6,000 ft. [May] Jul - Sep [Oct]. Perennial graminoid, semirosette hemicryptophyte; nanophyll, orthophyll. Uncommon in canyons, washes and mesic slopes. *Quercus arizonica*, *Salix gooddingii*.

Chiricahua Mts.: Chiricahua Nat. Mon. in East Whitetail Canyon, Silver Spur Meadow, Pickett Canyon; Fort Bowie Nat. Historic Site at ruins; grassland west of Chiricahua Nat. Mon.; Straight Line Road at Willow Tank. Also Huachuca Mts., Sierra Ancha, Pinaleno Mts., Animas Mts., Canelo Hills. Throughout Arizona. Missouri to Colorado, south to Texas, Arizona, and central Mexico. Southwestern.

Exsicc.: CHIR [Clark 8295, Moir 451, Reeves 4109, 4351]. FOBO [MHoy 26]. SWRS [SWRS 1958-308].

### **Paspalum distichum L.**

*Digitaria paspaloides* Michx., *Paspalum distichum* var. *indutum* Shinners, *P. paspaloides* (Michx.) Scribn.

5,400 ft. Aug [Jun] - [Sep]. Perennial graminoid, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Moist ground along streams and ditches.

Chiricahua Mts.: Southwestern Research Station near lab. Also Animas Mts., Sierra de los Ajos. Navajo County to Mohave County, south to Cochise, Santa Cruz, Pima, and Yuma counties. New Jersey to Florida, west to California and northwest to Idaho and Washington; Mexico and the West Indies to Argentina and Chile; seacoasts of the Eastern Hemisphere. Temperate.

Exsicc.: SWRS [SWRS 1959-678].

### **Paspalum setaceum Michx.**

*Paspalum bushii* Nash, *P. ciliatifolium* Michx., *P. ciliatifolium* var. *muehlenbergii* (Nash) Fern., *P. ciliatifolium* Michx. var. *stramineum* (Nash) Fern., *P. debile* Michx., *P. longepedunculatum* Le Conte, *P. muehlenbergii* Nash, *P. propinquum* Nash, *P. psammophilum* Nash, *P. pubescens* Muhl. ex Willd., *P. rigidifolium* Nash, *P. setaceum* var. *calvescens* Fern., *P. setaceum* var. *ciliatifolium* (Michx.) Vasey, *P. setaceum* var. *longepedunculatum* (Le Conte) Wood, *P. setaceum* var. *muhlenbergii* (Nash) D.

Banks, *P. setaceum* var. *psammophilum* (Nash) D.

Banks, *P. setaceum* var. *stramineum* (Nash) D.

Banks, *P. setaceum* var. *supinum* (Bosc ex Poir.)

Trin., *P. setaceum* var. *vilosissimum* (Nash) D.

Banks, *P. stramineum* Nash, *P. supinum* Bosc ex Poir.

[4,975] - 6,800 ft. [Jun] - [Sep] Oct. Perennial graminoid, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon in sunny disturbed habitat, sandy soil in mesoriparian habitats. *Platanus wrightii*, *Pinus engelmannii*, *P. leiophylla*, *Quercus hypoleucoides*, *Q. rugosa*, *Juniperus deppeana*.

Chiricahua Mts.: West Turkey Creek at Sycamore Campground. Also Huachuca Mts., Rincon Mts., Santa Rita Mts., Patagonia Mts., Pajarito Mts. Cochise and Santa Cruz counties. Indiana to Minnesota, south to Texas, Arizona, and northwestern Mexico. Western.

Exsicc.: ARIZ [Reeder 7615].

### **Phleum pratense L. ssp. *pratense***

Common Timothy

[7,400] - 2,195 [9,600]. [Jul] - Aug [Oct]. Perennial graminoid, rhizome geophyte; microphyll, orthophyll. Uncommon near permanent springs and steamed pools, swales and lower slopes, moist soil.

Chiricahua Mts.: Wilderness Area, Winn Falls. Also Rincon Mts., Pinaleno Mts., Sierra Ancha. Alien species. Apache County to Coconino County, south to Graham and Pima counties. Escaped from cultivation throughout the United States; introduced from the Old World. Temperate.

Exsicc.: CHWA [Leithliter 604].

### **Piptochaetium fimbriatum (Kunth) Hitchc.**

*Piptochaetium fimbriatum* var. *confine* I.M.

Johnston, *Stipa fimbriata* Kunth

Pinyon rice grass

[4,000] 5,400 - 7,000 ft. Jul - Oct. Perennial graminoid, rosette hemicryptophyte; nanophyll, orthophyll. Common in canyons and open woods, tolerates shade well. Often on alluvial soils. *Pinus leiophylla*, *P. discolor*, *Juniperus deppeana*, *Quercus hypoleucoides*, *Q. arizonica*, *Q. emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; Cave Creek, Stewart Campground; Portal to Onion Saddle road. Also Huachuca Mts., Animas Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Canelo Hills, Sierra de los Ajos. In Arizona in Greenlee, Graham, Cochise, Santa Cruz, and Pima counties. Western Texas, Arizona, and Mexico. Madrean.

Exsicc.: CHIR [Clark 8459, Moir 433, Reeves 1226, 1406, 1588]. SWRS [Cummins 57-29].

### **Piptochaetium pringlei (Beal) Parodi**

*Stipa pringlei* Scribn.

Pringle needlegrass

[5,000] - 9,590 ft. [Jun] Aug - Oct. Perennial graminoid, rosette hemicryptophyte. Uncommon on dry gravelly slopes and clearings in pine forests and oak woodlands; sunny drainages at lower elevations.

Chiricahua Mts.: Chiricahua Nat. Mon.; South Fork Cave Creek, Wilderness Area. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Apache, Coconino, Graham, Gila, Cochise, and Pima counties. Texas to Arizona and Chihuahua. Madrean.

Exsicc.: CHIR [Moir 468]. SWRS [Ordway 172]. CHWA [Leithliter 539, 550, 813].

**Poa annua** L.

*Poa annua* var. *aquatica* Asch., *P. annua* var. *reptans* Hausskn.

Annual bluegrass

[500] - 5,000 [9,800] ft. Apr [Jun] - [Jul]. Winter annual grass, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon on damp soil in seeps and streambeds, open ground, lawns, and waste places.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at Apache Spring. Also Rincon Mts., Pinaleno Mts. Coconino, Yavapai, Graham, Gila, Maricopa, Pinal, Cochise, Pima, and Yuma counties. Newfoundland to Alaska, south to Florida, Arizona, and California; also in tropical America at higher altitudes; introduced from Europe. Temperate, Latin American, Introduced.

Exsicc.: FOBO [MHoy 383].

**Poa bigelovii** Vasey & Scribn.

[1,000] - 5,400 ft. Winter annual grass, scapose or leafy-stemmed therophyte. Common on gravelly slopes under shrubs and trees, dry uplands, open ground.

Chiricahua Mts.: Cave Creek Canyon. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Apache, Coconino, and Mohave counties to Cochise and Pima counties. Oklahoma and western Texas to Nevada, Arizona, southern California, and northern Mexico. Southwestern, Plains. Exsicc.: SWRS [SWRS 1959-21].

**Poa fendleriana** (Steud.) Vasey ssp.**fendleriana**

*Poa cusickii* Vasey, *P. cusickii* ssp. *epilis* (Scribn.) W.A. Weber, *P. cusickii* ssp. *pallida* Soreng, *P. cusickii* ssp. *pubens* Keck, *P. cusickii* ssp. *purpurascens* (Vasey) Soreng, *P. cusickii* var. *epilis* (Scribn.) C.L. Hitchc., *P. cusickii* var. *purpurascens* (Vasey) C.L. Hitchc. *P. epilis* Scribn., *P. fendleriana* ssp. *longiligula* (Scribn. and Williams) Soreng, *P. fendleriana* var. *longiligula* (Scribn. and Williams) Gould, *P. fendleriana* var. *wyomingensis* T.A. Williams, *P. longiligula* Scribn. and Williams, *P. nematophylla* Rydb.

Muttongrass, fendler bluegrass

[3,500] 5,200 - 9,790 [10,500] ft. Mar - Sep. Perennial graminoid, semirosette hemicyclopedia; nanophyll, orthophyll. Common in grassland and riparian woods, cool moist slopes, dry meadows, rocky outcrops, rocky slopes and open woods. *Pseudotstuga menziesii*, *Pinus arizonica*, *P. strobus*, *P. discolor*, *Juniperus deppeana*, *Quercus hypoleucoides*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Silver Spur Meadow; above Rustler Park; Wilderness Area; Cave Creek; Herb Martyr Dam; Centrella Point. Also Huachuca Mts., Rincon Mts., Santa Rita Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Whetstone Mts., Dragoon Mts., Animas Mts., Patagonia Mts. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. South Dakota to Idaho, south to western Texas, Arizona, and southern California. Western.

Exsicc.: CHIR [Reeves 2438, 2515, 2619]. SWRS [SWRS 1959-842], CHWA [Leithliter 5, 19, 23, 213, 333, 548]. ARIZ [McLaughlin 1069, Barr 62-183; Garton 16700, 16994, 16999].

**Poa pratensis** L.

*Poa agassizensis* Boivin & D. Löve, *P. alpigena* (Fries ex Blytt) Lindm. f., *P. alpigena* var. *colpodea* (Fries ex Blytt) Schol., *P. angustifolia* L., *P. pratensis* ssp. *agassizensis* (Boivin & D. Löve)

Taylor & MacBr., *P. pratensis* ssp. *alpigena* (Fries ex Blytt) Hiitonen, *P. pratensis* ssp. *angustifolia* (L.) Lej., *P. pratensis* ssp. *colpodea* (Fries ex Blytt) Tzvelev, *P. pratensis* var. *angustifolia* (L.) Gaudin, *P. pratensis* var. *apligena* Fries ex Blytt, *P. pratensis* var. *colpodea* (Fries ex Blytt) Soreng, *P. pratensis* var. *domestica* Laestad., *P. pratensis* var. *gelida* (Roemer & J.A. Schultes) Böcher, *P. pratensis* var. *iantha* Wahlnb., *P. pratensis* var. *vivipara* (Malmgr.) Boivin

Kentucky blue grass

5,400 - 8,400 ft. Jun - Jul. Perennial graminoid, rosette hemicyclopedia. Uncommon on wet soil of springs, swales and lower slopes, moist meadows and open woods.

Chiricahua Mts.: Cave Creek near Southwestern Research Station; Rustler Park. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Canelo Hills. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Canada and throughout the United States; introduced from Europe. Holarctic, Introduced.

Exsicc.: SWRS [SWRS 1959-795, 1960-19].

**Polypogon interruptus** Kunth

*Polypogon lutosus* sensu auctt. non (Poir.) Hitchc.

5,400 - [7,500] ft. [May] Aug - [Sep]. Perennial graminoid, scapose or leafy-stemmed hemicyclopedia; microphyll, orthophyll. Along ditches and streams.

Chiricahua Mts.: Southwestern Research Station near lab. Apache, Navajo, Coconino, Santa Cruz, and Pima counties. British Columbia to California, east to Louisiana; Mexico to Argentina. Temperate, Latin American.

Exsicc.: SWRS [SWRS 1959-675].

**Polypogon monspeliensis** (L.) Desf.

*Alopecurus monspeliensis* L.

Rabbitfoot grass

5,800 - [8,000] ft. [Apr] Jul - Aug [Oct]. Summer annual therophyte, semirosette therophyte; nanophyll, orthophyll. Uncommon on seasonally wet stream beds, seeps and springs, swales and lower slopes, waste places and along ditches. *Quercus rugosa*, *Q. arizonica*, *Pinus engelmannii*, *Cupressus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon, East Whitetail Canyon; Herb Martyr Dam. Also Rincon Mts., Pinaleno Mts., Sierra Ancha. Throughout Arizona. New Brunswick to Alaska, south to Virginia, mostly near the coast, and common in the Western states from Washington to Nebraska, south to Texas, Arizona, and California; introduced from Europe. Western, Introduced.

Exsicc.: CHIR [Clark 8338, Reeves 4360]. SWRS [Ordway 149].

**Polypogon viridis** Gouan & Breistr.

*Agrostis semiverticillata* (Forsk.) C. Christens.,

*Agrostis verticillata* Vill., *Polypogon semiverticillatus* (Forsk.) Hylander

### Water bentgrass

5,300 - 6,000 [6,500] ft. [May] Jun - Sep [Oct]. Rhizome geophyte; nanophyll, orthophyll. Uncommon in alluvium and wet places, riparian. *Pinus engelmannii*, *P. leiophylla*, *Quercus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Pickett Canyon, Silver Spur Canyon; Fort Bowie Nat. Historic Site in upper South Canyon; Herb Martyr area. Also Rincon Mts., Sierra Ancha, Canello Hills, Sierra de los Ajos. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Washington, Oregon, California to Colorado, south to Argentina. Introduced into warmer parts of the western hemisphere. Temperate, Introduced.

Exsicc.: CHIR [Clark 8294, Reeves 2860, 3825, 4431, 4554, MHoy 175]. SWRS [SWRS 1959-807].

### **Pseudoroegneria spicatus** (Pursh) A. Löve ssp. **spicata**

*Agropyron spicatum* Pursh, *A. spicatum* var. *pubescens* Elmer, *A. vaseyi* Scribn. & J.G. Sm., *Elymus spicatus* (Pursh) Gould, *Elytrigia spicata* (Pursh) Dewey, *Roegneria spicata* (Pursh) Beetle Blue bunch wheatgrass

[4,500] - 8,200 ft. [Jun] - Sep [Oct]. Rocky slopes, plains, and dry, open woods.

Chiricahua Mts.: Barfoot Park turnoff, Barfoot Park. Also Huachuca Mts., Santa Catalina Mts., Patagonia Mts., Pinaleno Mts. Mohave County, Cochise County, Santa Cruz County. Michigan to Alaska, south to New Mexico, Arizona, and California. Temperate.

Exsicc.: SWRS [Cummins 57-207].

### **Schizachyrium cirratum** (Hack.) Woot. & Standl.

*Andropogon cirratus* Hack.

[2,000] - 5,650 [7,500] ft. [Aug] - Oct. Perennial graminoid, scapose or leafy-stemmed hemicyclophtye; microphyll, orthophyll. Canyons and sunny xeric rocky south-facing slopes. *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Jesse James Canyon Natural Area. Also Huachuca Mts., Mule Mts., Pinaleno Mts., Animas Mts. Coconino, Yavapai, Greenlee, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona, southern California, and northern Mexico. Southwestern.

Exsicc.: CHIR [Reeves 1598].

### **Schizachyrium sanguineum** (Retz.) Alston var. *hirtiflorum* (Nees) Hatch

*Andropogon domingensis* (Spreng. ex Schultes) F.T. Hubbard non Steud., *A. hirtiflorus* (Nees) Kunth, *A. hirtiflorum* var. *feensis* (Fourn.) Hack.,

*Schizachyrium domingensis* (Spreng. ex Schultes) Nash, *S. feensis* (Fourn.) A. Camus, *S. hirtiflorum* Nees

[4,000] - [7,400] ft. [Jun] - [Oct]. Perennial graminoid, scapose or leafy-stemmed hemicyclophtye; nanophyll, orthophyll. Canyons and rocky slopes. *Juglans major*, *Quercus emoryi*, *Q. arizonica*, *Q. hypoleucoes*, *Nolina microcarpa*, *Pinus arizonica*, *P. leiophylla*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; Cave Creek at Idlewild Campground. Also Huachuca Mts., Pinaleno Mts., Animas Mts., Santa Rita Mts., Mule Mts., Dragoon

Mts., Galiuro Mts., Santa Catalina Mts., Patagonia Mts., Atascosa Mts., Baboquivari Mts., Rincon Mts., Pajarito Mts. Coconino, Graham, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Mexico. Madrean.

Exsicc.: ASU [Pinkava, et al. 14929, 15179; Simbwa-Bunya s.n.; Kiel, 9882]. ARIZ [Gould 5308; Reichenbacher 1535; Chiricahua Veg. Team 59-714].

### **Setaria grisebachii** Fourn.

[2,000] - 5,500 [6,000] ft. [Jun] - Sep [Oct]. Perennial graminoid, scapose or leafy-stemmed hemicyclophtye; microphyll, orthophyll. Stony ground, tolerates limestone. *Pinus discolor*, *Juniperus deppeana*, *Garrya wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon. along west boundary of monument, Silver Spur Meadow; Cedar Gulch near Paradise. Also Huachuca Mts., Pinaleno Mts., Animas Mts. Navajo and Coconino counties, south to Cochise, Santa Cruz, and Pima counties. Texas to Arizona and Mexico. Southwestern.

Exsicc.: CHIR [Reeves 1662, Reeves 4550]. NMC [Blumer 1660, 1724].

### **Setaria leucopila** (Scribn. & Merr.) K. Schum.

*Chaetochloa leucopila* Scribn. & Merr.

[2,000] - 4,200 [6,000] ft. [May] Aug - [Oct]. Perennial graminoid, semirosette hemicyclophtye; nanophyll, orthophyll. Tolerates limestone, disturbed soil. *Parthenium incanum*, *Condalia spathulata*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Swisshelm Mts. Also Baboquivari Mts., Santa Rita Mts., Tumacacori Mts. Apache, Coconino, Greenlee, Yavapai, Cochise, Santa Cruz and Pima Counties. Texas to Colorado, Arizona, and Mexico. Southwestern.

Exsicc.: ARIZ [Reeder 6947, 8268].

### **Setaria macrostachya** Kunth

Plains bristlegrass

[2,000] 5,000 - 5,500 [7,000] ft. [May] Aug - Sep [Oct]. Perennial graminoid, scapose or leafy-stemmed hemicyclophtye. Uncommon on grassland, slopes, streambeds and woodlands, swales and lower slopes, dry, rocky soil. *Quercus emoryi*, *Juniperus deppeana*, *Arctostaphylos pungens*, *Garrya wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at ruins; 1 mi. north of Portal along Paradise Road. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Navajo and Coconino counties, south to Cochise, Santa Cruz, Pima, and Yuma counties. Texas to Colorado, Arizona, and Mexico. Southwestern.

Exsicc.: CHIR [Reeves 4022, 4078]. FOBO [MHoy 11]. SWRS [Cummins 199-61].

### **Setaria viridis** (L.) Beauv.

Green bristlegrass

[2,000] 5,000 - 6,000 [8,000] ft. Aug. Perennial graminoid, scapose or leafy-stemmed hemicyclophtye; nanophyll, orthophyll. Uncommon on alluvium, disturbed soil, fields and open woods.

Chiricahua Mts.: Chiricahua Nat. Mon. in Whitetail Canyon; Southwestern Research Station. Apache, Coconino, Pinal, Cochise, Pima, and Yuma counties. Temperate regions of both hemispheres; introduced from Europe. Holarctic, Latin American, Introduced.

Exsicc.: CHIR [Clark 8709, Reeves 4416]. SWRS [Wittmann 263].

**Sorghastrum nutans** (L.) Nash

*Andropogon nutans* L., *Sorghastrum avenaceum* (Michx.) Nash

Indian grass, rice grass

5,400 ft. Sep. Perennial graminoid, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Common in meadows.

Chiricahua Mts.: Chiricahua Nat. Mon. in Silver Spur Meadow. Quebec and Maine to Manitoba and North Dakota, south to Florida and Arizona; Mexico. Temperate.

Exsicc.: CHIR [Reeves 4549].

**Sorghum halepense** (L.) Pers.

*Holcus halapensis* L.

Johnson grass

[3,000] - 5,400 [6,000] ft. [Apr] Aug - Sep [Nov]. Perennial graminoid, semirosette hemicryptophyte; microphyll, orthophyll. Uncommon in meadows, disturbed areas and seasonally wet areas in oak woods, waste places, fields, and along irrigation ditches. *Juglans major*, *Platanus wrightii*, *Prunus serotina*, *Quercus emoryi*, *Q. arizonica*, *Q. rugosa*, *Cupressus arizonica*, *Salix gooddingii*.

Chiricahua Mts: Chiricahua Nat. Mon.; Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Throughout Arizona. Massachusetts to Wyoming, south to Florida, Texas, Arizona, and southern California; Mexico and the West Indies to Argentina and Chile; naturalized from the Old World. Temperate, Introduced.

Invasive in disturbed grassland.

Exsicc.: CHIR [Reeves 1526, 4169, 4461]. SWRS [SWRS 1958-815].

**Sphenopholis intermedia** (Rydb.) Rydb.

*Sphenopholis obtusata* (Michx.) Scribn. var. *major* (Torr.) K.S. Erdman, *S. intermedia* var. *pilosa* Dore, *S. longiflora* (Vasey) Hitchc.

Slender wedge grass

5,400 - 6,000 ft. [May] Jun - Aug. Uncommon on moist soil near streams or pools and meadows, mostly in shade.

Chiricahua Mts.: South Fork Cave Creek, East Turkey Creek (5 mi. above Southwestern Research Station). Also Huachuca Mts., Rincon Mts. Apache, Navajo, Coconino, Yavapai, Pinal County, Cochise and Pima counties. Newfoundland and Maine to British Columbia, south to Florida, Arizona, California, and Mexico. Temperate.

Exsicc.: CHIR [Reeves 2879]. SWRS [Cummins 57-148, SWRS 1959-625].

**Sphenopholis obtusata** (Michx.) Scribn.

*Aira obtusata* Michx, *Sphenopholis obtusata* var. *lobata* (Trin.) Scribn., *S. obtusata* var. *pubensens* (Scribn. & Merr.) Scribn.

5,400 ft. [May] Jun - [Jul]. Perennial graminoid, rhizome geophyte; nanophyll, orthophyll. Moist ground and open woods.

Chiricahua Mts.: Chiricahua Nat. Mon. in Silver Spur Meadow. Also Pinaleno Mts. Apache, Navajo, Coconino, Yavapai, Pinal, Cochise, and Pima counties. Maine to British Columbia, south to Florida, Arizona, California, and Mexico. Temperate.

Exsicc.: CHIR [Reeves 2879].

**Sporobolus airoides** (Torr.) Torr.

*Agrostis airoides* Torr.

Alkali sacaton

[1,000] 3,880 - 5,200 [5,500] ft. [Jun] Aug - Aug [Oct]. Perennial graminoid, rosette hemicryptophyte. Common on dry, often in saline soils, grassland, sandy, open ground. *Atriplex canescens*, *Verbesina encilioides*, *Tamarix pentandra*.

Chiricahua Mts.: Chiricahua Nat. Mon. in lower Pinery Canyon; Fort Bowie Nat. Historic Site; Parade ground; San Simon Cienega; Portal to Paradise road. San Bernardino Valley 16 mi. northeast of Douglas. San Simon Valley. Also Huachuca Mts., Santa Catalina Mts., Rincon Mts., Mule Mts., Pinaleno Mts., Animas Mts., Canelo Hills. Navajo and Apache to Coconino counties, Cochise, Santa Cruz, and Pima counties. South Dakota to eastern Washington, south to Texas, Arizona, southern California and central Mexico. Western.

Exsicc.: CHIR [Clark 9234]. SWRS [SWRS 1959-704]. ARIZ [L.J. Toolin 820, 821, R.H. Forbes 1638, J.W. Toumey s.n.].

**Sporobolus contractus** Hitchc.

*Sporobolus cryptandrus* (Torr.) Gray var. *strictus* Scribn.

Spike drop-seed

[1,500] 4,200 - 5,000 [6,000] ft. Aug - Oct. Perennial graminoid, scapose or leafy-stemmed hemicryptophyte. Uncommon on gravelly flats and floodplains, dry uplands, dry mesas, bluffs, and sandhills.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; ruins. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Colorado to Nevada, south to western Texas, Arizona, southeastern California, and northern Mexico. Southwestern.

Exsicc.: FOBO [MHoy 22]. SWRS [SWRS 1958-606].

**Sporobolus cryptandrus** (Torr.) Gray

*Agrostis cryptandra* Torr., *Sporobolus cryptandrus* ssp. *fusicola* (Hook.) M.E. Jones & Fassett, *S. cryptandrus* var. *fusicola* (Hook.) Pohl, *C. cryptandrus* var. *occidentalis* Jones & Fassett Sand dropseed

[150] 4,200 - 7050 ft. [Apr] Jul - Oct. Perennial graminoid, semirosette herb. Uncommon on dry open ground, sandy ground, and rocky slopes, dry uplands.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at ruins; San Simon Valley along Portal to Rodeo road; Wilderness Area. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Apache to Mojave counties, south to Cochise, Santa Cruz, Pima, and Yuma counties. Maine and and Ontario to Alberta and Washington, south to North Carolina, Indiana, Louisiana, Arizona, and Mexico. Temperate.

Exsicc.: CHWA [Leithliter 661, 835].

**Sporobolus pyramidatus** (Lam.) Hitchc.

*Agrostis pyramidata* Lam., *Sporobolus argutus* (Nees) Kunth, *S. patens* auct. non Swall., *S. pulvinatus* Swall.

Summer annual grass, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Open ground.

Chiricahua Mts.: Southwestern Research Station on hillside across from lab. Willcox, Cochise County. Apachian.

Exsicc.: SWRS [Cummins s.n.].

***Stipa eminens* Cav.**

[3,500] - 4,500 [5,500] ft. [Jun] Jul - [Oct]. Perennial graminoid, semirosette herb. Rare on rocky intermediate slopes, hills, tolerates limestone.

Chiricahua Mts.: along Paradise Road 4 mi. north of Portal. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts. Graham, Cochise, Pima counties. Texas to Arizona and central Mexico. Chihuahuayan.

Exsicc.: SWRS [Cummins 57-38].

***Stipa neomexicana* (Thurb. ex Coul.) Scribn.**

New Mexican feathergrass

[3,500] - 5,100 [7,000] ft. May - [Aug]. Perennial graminoid, semirosette herb. Uncommon on rocky limestone slopes, dry uplands, sandy or rocky hills and plains.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill north of overlook. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts. Apache County to Mohave County, south to Cochise and Pima counties. Western Texas and Colorado to Utah and Arizona. Southwestern.

Exsicc.: FOBO [MHoy 386].

***Trachypogon secundus* (Presl) Scribn.**

*Heteropogon secundus* Presl

[1,000] - [6,000] ft. Aug [Sep] - [Oct]. Perennial graminoid, semirosette hemicyclopedia. Uncommon on rocky hills, grassy slopes, along arroyos in sun or part shade. *Quercus emoryi* and *Q. arizonica*.

Chiricahua Mts.: Tex Canyon. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts. Mohave, Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Southern Texas, New Mexico, and Arizona, south to Panama. Southwestern, Latin American.

Wentworth (1982) lists as *T. montufari* (Kunth) Nees K&P and Lehr state that *T. montufari* is not a U.S. species.

Exsicc.: SWRS [Cummins 57-155].

***Tragus berteronianus* J.A. Schultes**

*Nazia aliena* sensu aucti. non (Spreng.) Scribn.

[5,500] ft. Sep - Sep [Oct]. Summer annual grass, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Dry, open ground.

Chiricahua Mts.: Chiricahua Nat. Mon.; Pinery Canyon; Fort Bowie Nat. Historic Site; San Simon Road 4 mi. north of Portal. Also Pinaleno Mts., Animas Mts. Navajo, Mohave, Graham, Pinal, Cochise, Santa Cruz, and Pima counties. Texas to Arizona, south to Argentina; warmer parts of the Old World. Southwestern, Latin American.

Exsicc.: CHIR [Goodding & Goodding 468]. SWRS [Cummins 57-187].

***Tridens muticus* (Torr.) Nash var. ***muticus*****

*Triodia mutica* (Torr.) Scribn.

Slim tridens

[1,000] - 5,150 [5,500] ft. [Apr] - [Oct]. Perennial graminoid, semirosette hemicyclopedia. Uncommon on dry plains, gravelly slopes, and rocky hills. *Salsola iberica*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at ruins; Silver Creek along Paradise Road. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts. Navajo, Coconino, and Mojave counties to Cochise, Santa Cruz, Pima and Yuma counties. Southern Colorado and Texas to southeastern California. Southwestern.

Exsicc.: FOBO [MHoy 24]. SWRS [SWRS 1958-665].

***Vulpia octoflora* (Walt.) Rydb. var. ***octoflora*****

*Festuca octoflora* Walt., *F. octoflora* var. *aristulata* Torr. ex Dewey

Six-weeks fescue

[4,000] 5,000 - 5,400 [6,500] ft. [Mar] Apr - [Apr] May. Winter annual grass, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Common on grassland, gravelly slopes, damp soil in streambeds and soil pockets on outcrops, dry uplands, an indicator of disturbance. *Isocoma acredenia*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill east of trailer. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Throughout Arizona. Southern Canada, throughout the United States, and Baja California. Temperate.

Exsicc.: CHIR [Reeves 2567, 2598, 2635]. SWRS [Hoy s.n.].

**POLEMONIACEAE—Phlox Family.**

A family of annual to perennial herbs, rarely shrubs, small trees, or twining vines. About 13 genera and 265 species in North America, with the majority in the western United States. A few species are important ornamentals.

***Allophylum gilioides* (Benth.) A. & V. Grant  
*gilioides***

*Gilia gilioides* (Benth.) Greene

[3,000] - 4,900 [5,000] ft. [Mar] Apr - [May]. Winter annual forb, scapose or leafy-stemmed therophyte; nopal, orthophyll. Uncommon on damp soil in streambeds, swales and lower slopes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in Siphon Canyon. Also Rincon Mts., Sierra Ancha. Gila and Yavapai counties to Pima County. Nevada and Oregon to Arizona and California. Western.

Exsicc.: FOBO [MHoy 355].

***Eriastrum diffusum* (Gray) Mason.**

*Eriastrum diffusum* ssp. *jonesii* Mason

[1,000] 4,600 - 5,000 [5,500] ft. [Mar] May - Jul. Winter-annual forb, scapose or leafy-stemmed therophyte.

Common on well-drained soils, dry uplands, plains and mesas.

Chiricahua Mts.: Fort Bowie Nat. Historic Site south of cemetery. Also Huachuca Mts., Rincon Mts., San Simon Valley, Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Northern Coconino and Mohave counties to Graham, Cochise, Santa Cruz, and Pima counties. Western Texas to southern Utah and Nevada, California, and northwestern Mexico. Southwestern.

Exsicc.: FOBO [MHoy 169]. SWRS [SWRS s.n., Pough s.n.].

***Gilia mexicana* A. & V. Grant**

5,200 - 5,400 ft. Mar - Apr. Winter annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Common in grassland and grassland/scrub.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts., Animas Mts., Santa Rita Mts. Pima, Cochise, and Pinal counties. Arizona, east to New Mexico, and south to Chihuahua, Mexico. Madrean.

Exsicc.: CHIR [Fish 40, Reeves 2505, 2589].

***Gilia ophthalmoides* Brand**

4,800 - 5,000 ft. Apr. Winter annual forb, scapose or leafy-

stemmed therophyte; nanophyll, orthophyll. In sandy places in the pinon belt in desert mountains.

Chiricahua Mts.: FOBO near parking lot. Also Dragoon Mts., Pinaleno Mts.

Grant, Alva and Verne Grant, 1956, Genetic and taxonomic studies in *Gilia* VIII, the cobwebby *Gilias*, Alico 3:203-287.  
Exsicc.: FOBO [MHoy 94]. SWRS [Walker s.n.]

### ***Gilia rigidula* Benth. ssp. *acerosa* Wherry**

*Gilia acerosa* (Gray) Britt., *G. rigidula* var. *acerosa* Gray, *Giliastrum rigidula* (Benth.) ssp. *acerosa* (Gray) W.A. Weber

[4,500] 5,000 - [6,500] ft. [Apr] May - [Sep]. Narrowleaf dicot shrub, chamaephyte suffrutescent low shrub. Dry plains and mesas.

Chiricahua Mts.: Harris Mountain. Also Santa Catalina Mts., Mule Mts., Animas Mts., Canelo Hills. Apache, Navajo, Cochise, and Santa Cruz counties. Kansas and Colorado to Arizona and Mexico. Plains.

Exsicc.: SWRS [Walker s.n.]

### ***Gilia sinuata* Dougl. ex Benth.**

*Gilia inconspicua* (Sm.) Sweet var. *sinuata* (Dougl. ex Benth.) Gray

[4,800] - 5,200 [7,000] ft. [Feb] - [Jun]. Winter-annual forb, semirosette therophyte. Common on dry well-drained slopes, dry uplands, usually in open, sandy places.

Chiricahua Mts.: FOBO; Portal Ranger Station. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Almost throughout the state. Wyoming to eastern Washington, south to western Texas, Arizona, southern California, and northern Mexico. Western.

Exsicc.: SWRS [Roth s.n.]

### ***Ipomopsis longiflora* (Torr.) V. Grant ssp. *longiflora***

*Gilia longiflora* (Torr.) G. Don

[1,000] - 5,000 [8,000] ft. Mar - Oct. Summer annual forb. Uncommon on well-drained sandy or gravelly flats, dry plains and mesas, often on limestone soils.

Chiricahua Mts.: east of Portal, Fort Bowie Nat. Historic Site near parking lot; Paradise Road. Also Huachuca Mts., Mule Mts., Animas Mts., Rincon Mts., Santa Rita Mts. Almost throughout the state. Colorado and western Texas to Arizona and Chihuahua. Southwestern.

Grant (1956).

Exsicc.: SWRS [Cazier s.n.]. FOBO [MHoy 92].

### ***Ipomopsis macombii* (Torr. ex Gray) V. Grant**

*Gilia calothrysa* I.M. Johnston, *G. macombii* Torr. ex Gray, *G. pringlei* auct. non Gray

[4,000] 5,400 - 8,860 ft. Jul - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Locally common in forest or woodland openings, stony slopes and openings in pine forests.

Chiricahua Mts.: Chiricahua Nat. Mon.; Bonita Park, Lower Bonita Canyon, Sugarloaf parking lot, Pickett Park, Faraway Ranch, between Rustler Park and Long Park, near junction Onion Saddle Road - Paradise Road; Barfoot Park; Wilderness Area. Also Animas Mts., Sierra de los Ajos. Cochise and Santa Cruz counties. Southern Arizona and northern Mexico. Apachian.

Grant (1956).

Exsicc.: CHIR [Borell 18, Lehto 3325a, Reeves 1005, 4512, 4528]. SWRS [Welch s.n., Whitman 177]. CHWA [Leithliter 314, 505]. ARIZ [Blumer 1443].

### ***Ipomopsis multiflora* (Nutt.) V. Grant.**

*Gilia multiflora* Nutt.

[4,000] - 6,450 [9,000] ft. Jul - Oct. Evergreen perennial forb, scapose or leafy-stemmed proto-chamaephyte. Common on dry slopes and flats, dry uplands.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Pinery Canyon. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Apache County to Mojave County, south to Cochise and Pima counties. New Mexico to southern Nevada and Arizona. Southwestern.

Medicinal use by Indians reported. Grant (1956).

Exsicc.: SWRS [s.c. s.n.]

### ***Linanthus aureus* (Nutt.) Greene**

*Gilia aurea* Nutt., *G. ashtonae* A. Nels.

[2,000] - 5,000 [6,800] ft. [Mar] Apr - [Jun]. Winter-annual forb, scapose or leafy-stemmed therophyte. Uncommon on well-drained soil, dry uplands, dry plains and mesas.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in cemetery. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Almost throughout the state. Western Texas to southern Nevada and southeastern California. Southwestern.

Exsicc.: FOBO [MHoy 356].

### ***Phlox austromontana* Coville ssp. *austromontana***

*Phlox austromontana* ssp. *vera* Wherry, *P. austromontana* var. *lutescens* Welsh

[4,900] 5,100 - 5,400 [8,000] ft. Apr. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; leptophyll, orthophyll. Rare on limestone derived soil, rocky slopes.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Paradise. Also Rincon Mts., Pinaleno Mts. Coconino, Yavapai, and Mohave counties. Idaho and Oregon to northwestern New Mexico, Arizona, California, and Mexico. Western.

Exsicc.: Rincon [Bowers Reeves 1001, 1088]. SWRS [Walker s.n.]

### ***Phlox gracilis* (Hook.) Greene ssp. *gracilis***

*Microsteris gracilis* Hook., *Gilia gracilis* Hook.

[3,000] 5,000 - 5,500 [7,000] ft. [Feb] Mar - Apr [May]. Winter-annual forb, scapose or leafy-stemmed therophyte. Uncommon on damp soil of ephemeral seeps and streambeds and mesic slopes; sunny exposures, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Apache County to Mohave County, south to Santa Cruz and Pima counties. Montana to Alaska, south to New Mexico, Arizona, and Baja California; South America. Western, Latin American.

Exsicc.: CHIR [Reeves 2599, 2639]. SWRS [MHoy s.n.]

### ***Phlox nana* Nutt. ssp. *glabella* (Gray) Brand**

*Phlox nelsonii* Brand

5,000 - 5,650 [6,000] ft. Apr - Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; leptophyll, orthophyll. Mesoparrian canyons. *Pinus engelmannii*, *Pseudotsuga menziesii*, *Cupressus arizonica*, *Quercus hypoleucoides*, *Q. arizonica*, *Q. rugosa*.

Chiricahua Mts.: Rucker Canyon, Tex Canyon, South Fork Cave Creek. Cochise County. Western Texas, New Mexico,

southeastern Arizona, and Chihuahua. Madrean.

This plant, described as new to science, was collected by J.C. Lemmon and wife at Rucker Canyon (no. 415) circa 1881.

Exsicc.: SWRS [Walker s.n., SWRS 1959-818A]. ASU [Landrum 6053, Nash 189].

**Phlox stansburyi** (Torr.) Heller ssp. **stansburyi**  
*Phlox longifolia* Nutt. var. *stansburyi* (Torr.) Gray, *P. stansburyi* ssp. *eustansburyi* Brand, *P. stansburyi* var. *brevifolia* (Gray) E. Nels.

[4,000] - 5,400 [6,500] ft. Apr. Perennial deciduous forb, scapose or leafy-stemmed protocamaephyte; leptophyll, orthophyll. Dry soil. Sagebrush.

Chiricahua Mts.: near Paradise cemetary. Navajo County to Mohave County, Cochise County. Utah, Nevada, New Mexico, northern Arizona, and eastern California. Southwestern.

Exsicc.: SWRS [Walker s.n.].

**Phlox triovulata** Thurb.

*Phlox nana* Nutt. ssp. *gabella* (Gray) Brand

4,900 - 5,300 [6,000] ft. Apr - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. In chaparral.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill east side Cut Off Canyon; Rucker Canyon; Tex Canyon. Cochise County. Western Texas, New Mexico, southeastern Arizona, and Chihuahua. Chihuahuayan.

Exsicc.: FOBO [MHoy 116]. ASU [Cazier 861, 920].

**Polemonium foliosissimum** Gray var. **flavum**  
(Greene) Anway

*Polemonium filicinum* Greene, *P. flavum* Greene

7,500 - 8,400 [9,500] ft. [Jul] Aug - [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon on rich moist soil in mesic drainages of coniferous forests.

Chiricahua Mts.: East Turkey Creek; Wilderness Area, Saulsbury Canyon. Also Pinaleño Mts., Huachuca Mts. Apache, Coconino, Graham, Greenlee, and Cochise counties. Southwestern New Mexico and eastern Arizona. Apachian.

Exsicc.: SWRS [Walker s.n.]. CHWA [Leithliter 412].

**Polemonium pauciflorum** S. Wats. ssp.

**hinckleyi** (Standl.) Wherry

*Polemonium hinckleyi* (Standl.)

Jacobs-ladder

6,800 - 8,510 [9,500] ft. [Jun] Jul - Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Rare in mesic drainages, along brooks. Scree slopes below cliffs.

Chiricahua Mts.: East Turkey Creek; Wilderness Area, Saulsbury Canyon, Chaperon Canyon; Rock Creek, Centrelia Point; Pine Canyon; along Crest Trail. Cochise County. Southeastern Arizona and northern Mexico. Madrean.

Exsicc.: SWRS [Walker s.n.]. CHWA [Leithliter 514]. ARIZ [Blumer 1626].

**POLYGALACEAE—Milkwort Family.**

A family of herbs, shrubs, or small trees, sometimes climbing or twining. About 10 genera and 700 species, widely distributed, except in New Zealand and arctic regions of Asia and North

America. The family is of little economic value, save for a few species used as ornamentals.

**Monnina wrightii** Gray

[4,000] 5,400 - 7,000 [7,500] ft. Aug - Sep [Oct]. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon on gravelly openings and in damp soil of streambeds, sometimes on limestone. *Ceanothus*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station; Paradise. Also Rincon Mts., Pinaleño Mts., Santa Catalina Mts. Southern Apache (or Navajo), Yavapai, Greenlee, Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 8741, Moir 565, Reeves 1482]. SWRS [Todsen s.n.]. ARIZ [Blumer 1659].

### **Polygala alba** Nutt.

*Polygala alba* Nutt. var. *suspecta* S. Wats.

Milk-wort

[5,000] 5,200 - 6,000 [7,500] ft. [May] Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common on gravelly slopes and moist streambed soil.

Chiricahua Mts.: Chiricahua Nat. Mon. at Cave Creek. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Canelo Hills. Apache County to Coconino County, south to Cochise, Santa Cruz, and Pima counties. South Dakota to Washington, south to southern Mexico. Western.

Exsicc.: CHIR [Clark 8386, Reeves 1455, 3749, 4144]. SWRS [Roth s.n.].

### **Polygala barbeyana** Chod.

*Polygala longa* Blake, *P. racemosa* Blake, *P. reducta* Blake

Milk-wort

[3,000] 5,000 - 6,000. May - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon on rocky slopes, sometimes of limestone. *Fraxinus pennsylvanica*, *Juglans major*, *Celtis reticulata*, *Vitis arizonica*, *Chilopsis linearis*, *Fouquieria splendens*, *Parthenium incanum*, *Dalea formosa*, *Aristida fendleriana*, *Bouteloua curtipendula*, *Lycurus phleoides*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site south of overlook, South Canyon; Portal. Also Rincon Mts., Mule Mts., Animas Mts. Cochise, Santa Cruz and Pima counties. Western Texas to southern Arizona and northern Mexico. Chihuahuan.

Exsicc.: FOBO [MHoy 130, 304]. SWRS [Walker s.n.]

### **Polygala hemipterocarpa** Gray

Milk-wort

[4,000] 5,250 - 6,500 [7,000] ft. [May] Jun - Sep. Perennial deciduous forb. Common in openings in woodland and chaparral, grassy or stony slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. 5.5 mi. northwest of Southwestern Research Station; Paradise Road. Also Mule Mts., Animas Mts. Cochise, Santa Cruz, and Pima counties. Texas to southern Arizona and Mexico. Chihuahuan.

Perhaps intergrades with *Polygala scoparioides* Chodat.

Exsicc.: CHIR [Clark 8423, 8943, Moir 428, 491, Reeves 1260, 4411]. SWRS [Welch s.n.].

### **Polygala lindheimeri** Gray var. *parvifolia*

Wheelock

*Polygala tweedyi* Britt. ex Wheelock

5,000 ft. Jun - Sep. Perennial deciduous forb. Limestone ledges. Chiricahua Mts. Also Dos Cabezas Mts., Huachuca Mts., Santa Rita Mts., Mule Mts. Oklahoma and western Texas to southern Arizona and southern California. Chihuahuan, Plains.

### **Polygala macradenia** Gray

[1,500] - [4,500] ft. [Apr] - [Jul]. Narrowleaf dicot shrub, chamaephyte suffrutescent low shrub. Uncommon on dry, rocky slopes. Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Rincon Mts., 1xnta Catalina Mts., Mule Mts. Gila, Maricopa, Pinal, Cochise, Santa Cruz, Pima, and Yuma counties. Western Texas to southern Arizona and northern Mexico. Chihuahuan.

Exsicc.: FOBO [MHoy, s.n.].

### **Polygala obscura** Benth.

*Polygala orthotricha* Blake

Milk-wort

[3,500] 5,200 - 6,200 ft. Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Common on sunny well-drained slopes and flats, also among boulders and along roadsides. *Quercus emoryi*, *Q. gisea*, *Pinus discolor*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station; Licklog Tank, East Turkey Creek; John Hands Campground. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Sierra Ancha, Pinaleño Mts., Animas Mts., Mule Mts., Pajarito Mts., Winchester Mts., Rincon Mts., Whetstone Mts., Santa Rita Mts., Baboquivari Mts., Canelo Hills. Southern Navajo, Greenlee, Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Sonora, Mexico. Western Texas to Arizona and Mexico. Chihuahuan, Apachian.

Arizona's most common and widely distributed species in this genus.

Exsicc.: CHIR [Clark 8334, Moir 513, 548, Reeves 1271, 1482, 1592, 3052, 3268, 3771, 3801, 4154, 4221, 4378, Lehto 2285]. SWRS [Ordway 129]. ARIZ [McCormick 336, Barr 64-415, Kaister 49-130, Moir 513, Blumer 1337].

### **Polygala scoparioides** Chod.

[3,500] - 5,000 ft. [Mar] May - [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon on rocky slopes, often on limestone.

Chiricahua Mts. Also Rincon Mts., Santa Catalina Mts., Mule Mts. Yavapai, Gila, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Chihuahuan.

Exsicc.: SWRS [s.c. s.n.].

## **POLYGONACEAE—Knotweed Family.**

A family of herbs, shrubs, or rarely trees, sometimes twining; stems often with swollen nodes. About 32 genera and 800 species, mostly of temperate distribution and primarily of the northern hemisphere. There are 14 genera in the U. S. and they are restricted to the far west. The family is not important economically save for buckwheat (*Fagopyrum*) and rhubarb (*Rheum*). The remainder are mostly ornamentals or noxious weeds.

### **Eriogonum abertianum** Torr. var. *abertianum*

*Eriogonum abertianum* var. *gillespiei* Fosberg, *E.*

*abertianum* var. *neomexicanum* Gandog., *E.*

*abertianum* var. *villosum* Fosberg

Buckwheat

[1,500] 4,700 ft. - 7,000 [8,000] ft. Mar - Sep. Summer-annual forb, semirosette therophyte; nanophyll, orthophyll. Common on well-drained slopes; in sun, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at parking lot, Apache Pass; Portal; Pinery Canyon; San Simone bajada east of 2 mi. east of Portal; near Timber Mtn.; Rock Creek; White-tail Canyon; Rustler Park; Cave Creek; Southwest Research Station. Also Huachuca Mts., Rincon Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sulphur Spring Valley, Coyote Mts., Santa Rita Mts., Baboquivari Mts., Dragoon Mts., Pajarito Mts., Winchester Mts. Coconino and Yavapai counties to Greenlee, Graham, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Chihuahua. Madrean.

Exsicc.: CHIR [Borell 27, Clark 8360, Reeves 2756, 4066]. FOBO [MHoy 272]. SWRS [Roth s.n.]. ARIZ [Blumer 84, 1334, 2247, Lemmon 273, 473, 475, 482, McCormick 245, 293, 452, 478, Garton 16749, Stroudberg 327, Clark 8363, Gooodding 374].

### **Eriogonum alatum** Torr.

Buckwheat, winged erigonum

[5,500 - [9,500] ft. [Jul] Sep - Sep. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon on grassland/scrub, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. just outside monument boundary near Jesse James Natural Area. Also Sierra Ancha, Apache County to Cochise County, westward to Coconino, Yavapai, and Gila counties. Nebraska to Texas, Utah, and Arizona. Southwestern.

Exsicc.: CHIR [Reeves 1720]. ARIZ [Blumer 2161].

### **Eriogonum deflexum** Torr. var. **deflexum**

Reveal

*Eriogonum clutei* Rydb., *E. deflexum* var. *turbinatum* (Small) Reveal, *E. turbinatum* Small

Skeleton weed

[4,000] 4,900 ft. Jun - [most of the year]. Summer-annual forb, rosette therophyte. Common on well-drained flats and in washes. Chiricahua Mts.: Fort Bowie Nat. Historic Site at Siphon Canyon cattle tank. Also Rincon Mts., Santa Catalina Mts. Coconino and Mohave counties, south to western Cochise, Pima and Yuma counties. Utah to Arizona and Baja California. Southwestern.

Exsicc.: FOBO [MHoy 229].

### **Eriogonum jamesii** Benth. var. **undulatum**

(Benth.) Stokes

*Eriogonum undulatum* Benth.

Buckwheat, antelope sage

[5,000] 5,800 - 9,790 ft. Jul - Oct. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon on rocky sandstone slopes, base of rhyolite cliffs and grassland/scrub, cool moist slopes, among rocks in pine and oak woods.

Chiricahua Mts.: Chiricahua Nat. Mon. in Upper East Whitetail and Lower Pickett Canyons; Fort Bowie Nat. Historic Site; San Mateo Point, Centrelia Point. Also Pinaleno Mts., Sierra Ancha, Animas Mts., Sierra de los Ajos. Navajo and Gila counties to Cochise and Pima counties. Kansas to Colorado, south to Texas and Arizona. Southwestern.

Roots are used medicinally by Indians.

Exsicc.: CHIR [Clark 8706, Reeves 4075, 4419]. SWRS [Roth s.n.]. CHWA [Leithliter 132, 194, 391, 403, 470, 559, 712, 848]. ARIZ [Blumer 1460].

### **Eriogonum pharnaceoides** Torr. var.

**pharneceoides**

[3,400] 6,000 - 6,500 [7,000] ft. [Jul] Aug - Sep [Oct]. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon on damp soil in streambeds, dry uplands, in pine woods, roadsides.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon; West Turkey Creek, El Coronado Ranch. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Dragoon Mts. Apache, Navajo, and Coconino counties, south to Cochise and Pima counties. Utah, New Mexico, and Arizona. Southwestern.

Exsicc.: ARIZ [Blumer 2163; Van Devender & Eiber s.n.; J.G. Lemmon 3047; O.M. Clark 8501].

### **Eriogonum polycladon** Benth.

*Eriogonum densum* Greene, *E. vimineum* Dougl. ex

Benth. var. *densum* (Greene) S. Stokes

Buckwheat, sorrel erigonum

[2,500] - 6,900 ft. [Jun] Aug - Oct [Nov]. Summer-annual forb, semirosette therophyte. Uncommon in disturbed soil and washes, at roadsides. *Prosopis velutina*, *Salvia lemonii*, *Hieracium carneum*, *Graptostetalum rusbyi*.

Chiricahua Mts.: Chiricahua Nat. Mon.: Echo Parking Lot. Fort Bowie Nat. Historic Site. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts. Coconino and Mohave counties to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [Reeves 1738]. ASU [Parfitt 4631].

### **Eriogonum trichopes** Torr. var. **trichopes**

*E. trichopes* ssp. *minus* (Benth.) S. Stokes

[3,200] - 4,300 ft. Jul - [almost throughout the year]. Summer-annual forb, scapose or leafy-stemmed therophyte. Uncommon on well-drained flats.

Chiricahua Mts.: Portal - Rodeo road. Also Rincon Mts., Santa Catalina Mts. Mohave County to Graham, Cochise, Pima and Yuma counties. Colorado and Utah to Arizona, California, and northwestern Mexico. Southwestern.

Exsicc.: SWRS [SWRS 1958-238, Roth s.n.].

### **Eriogonum wrightii** Torr. ex Benth. var. **wrightii**

*Eriogonum wrightii* ssp. *glomerulum* S. Stokes  
Buckwheat

[3,000] 5,100 - 6,850 [7,000] ft. [Jun] Aug - Oct. Suffrutescent shrub, suffrutescent chamaephyte. Common on well-drained sunny slopes, grasslands, along drainages.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill northeast of Overlook; 3 mi. south of Onion Saddle. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Almost throughout Arizona. Colorado to Texas, Arizona, California, and northern Mexico. Southwestern.

Exsicc.: CHIR [Fish 25, Reeves 1328, 1671, 1900]. FOBO [MHoy 48]. SWRS [Ordway s.n., MHoy s.n.].

### **Polygonum aviculare** L.

*Polygonum aviculare* var. *vegetum* Ledeb., *P. heterophyllum* Lindl., *P. monspeliense* Pers.  
Knotweed, smartweed

[7,000] - 5,400 [9,500] ft. Apr [Jun] - Sep [Oct]. Summer annual. Uncommon in yards and disturbed places. An indicator of overgrazing.

Chiricahua Mts.: Chiricahua Nat. Mon. in Residential Area; Southwestern Research Station. Also Rincon Mts., Pinaleno Mts., Animas Mts., Canelo Hills. Alien species. Navajo and Coconino counties to Cochise and Pima counties. Widely distributed in North America; naturalized from Europe. Temperate, Introduced.

Exsicc.: CHIR [Reeves 4475]. SWRS [Ordway 130].

### **Polygonum convolvulus** L.

Black bindweed, corn-bind

[2,500] 5,000 - [8,000] 8,200 ft. May - Aug. Uncommon on cool moist slopes.

Chiricahua Mts.: near Portal; Rustler Park; Barfoot Park. Also Sierra Ancha, Pinaleno Mts., Huachuca Mts. Apache, Navajo, and Coconino counties to Cochise and Pima counties. Widely distributed in the United States; naturalized from Eurasia.

Temperate, Introduced.

The only climbing plant of this family in Arizona.

Exsicc.: ARIZ [Barr 64-486, Mason et al. 2863, Blumer 1583].

### **Polygonum douglasii** Greene ssp. **johnstonii** (Munz) Hickman

*Polygonum douglasii* var. *johnstonii* Munz, *P. sawatchense* Small, *P. triandrum* Coolidge, *P. utahense* Brenckle & Cottam

5,900 [5,900] ft. - 6,300 [9,500] ft. Jun - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon on damp soil near springs and gravelly flats, often on disturbed sites.

Chiricahua Mts.: Chiricahua Nat. Mon. in East Whitetail Canyon; junction of Onion Saddle Road and Paradise Road. Also Rincon Mts., Sierra Ancha, Pinaleño Mts. Apache to Mohave counties south to Cochise and Pima counties. Saskatchewan to British Columbia, south to New Mexico, Arizona, and California. Western.

Exsicc.: CHIR [Reeves 4424]. SWRS [Walker s.n.].

### **Polygonum lapathifolium** L. var. **lapathifolium**

*Persicaria incarnata* (Ell.) Small, *P. lapathifolium* (L.) S.F. Gray, *P. tomentosa* (Schrank) Bickn., *Polygonum incarnatum* Ell., *P. lapathifolium* var. *pallidum* (With.) Fries, *P. lapathifolium* var. *nodosum* (Pers.) Small, *P. lapathifolium* var. *ovatum* A. Braun, *P. lanthanifolium* var. *prostratum* Wimm., *P. nodosum* Pers., *P. pensylvanicum* (L.) Small ssp. *oneillii* (Brenckle) Hultén, *P. scabrum* Moench, *P. tomentosum* Schrank

[1,000] - 5,500 [6,000] ft. Apr - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Mesoriparian canyon bottoms. *Acacia constricta*, *A. neovernicosa*, *Prosopis velutina*, *Quercus emoryi*.

Chiricahua Mts.: West Turkey Creek. Also Santa Catalina Mts., Pinaleño Mts., Animas Mts., Huachuca Mts., Canelo Hills. San Bernardino Ranch (Cochise Co.), Navajo and Coconino counties to Cochise and Pima counties. Throughout most of North America; probably introduced from Europe. Holarctic, Introduced.

Exsicc.: NMC [Blumer 1777].

### **Rumex acetosella** L.

Sheep sorrel

[5,500] - 8,400 [9,000] ft. Jul. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon on damp soil in streambeds and by springs and pools, swales and lower slopes. Chiricahua Mts: Barfoot Park. Also Rincon Mts., Pinaleño Mts., Sierra Ancha. Apache, Navajo, Coconino, Graham, Gila, Cochise, and Pima counties. Naturalized almost throughout temperate North America; native or Eurasia. Introduced species. Temperate, Introduced.

An common and troublesome weed of fields and pastures in some parts of the United States. The herbage is very sour in taste, containing much oxalic acid.

Exsicc.: SWRS [1958-255].

### **Rumex aquaticus** L. var. **fenestratus** (Greene)

Dorn

*Rumex aquaticus* ssp. *fenestratus* (Greene)

Hultén, *R. fenestratus* Greene, *R. occidentalis* S. Wats., *R. occidentalis* var. *fenestratus* (Greene) Lepage, *R. occidentalis* var. *labradoricus* (Rech. f.) Lepage, *R. occidentalis* var. *procerus* (Greene) J.T. Howell

8,200 [10,000] ft. Oct. Deciduous perennial forb, rhizome geophyte; mesophyll, orthophyll.

Chiricahua Mts.: Barfoot Park Colorado, North Dakota, Montana. Blumer specimen sterile but lateral leaf veins less strictly angles to midvein than *R. orthoneurus*. This specimen is typical of troublesome material that is close to *R. orthoneurus*.

Exsicc.: NMC [Blumer 1449].

### **Rumex crispus** L.

Curly-leaf dock

[3,700] 5,000 - 5,800 ft. May - Aug. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll. Uncommon on alluvium in canyons, swales and lower slopes.

Chiricahua Mts.: Cave Creek Canyon at ranger station, Bonita Wash; Fort Bowie Nat. Historic Site at Apache Pass Mine. Also Rincon Mts., Sierra Ancha, Animas Mts., Sierra de los Ajos. Apache and Coconino counties, south at least to the Arizona border. Sonora, Mexico. Naturalized in most of temperate North America; alien species, native of Eurasia. Temperate, Introduced.

The plant is reputed to have medicinal value and is sometimes used as a potherb. Rechinger (1937).

Exsicc.: CHIR [Clark 8260, Reeves 4366]. SWRS [Roth s.n.]. FOBO [MHoy 465]. ARIZ [Blumer 1895].

### **Rumex hymenosepalus** Torr.

*Rumex hymenosepalus* var. *euhymenosepalus* Rech. f., *R. hymenosepalus* var. *salinus* (A. Nels.) Rech. f. Canaire, wild-rhubarb

[3,300] 4,700 - 7,000 ft. Mar - Apr. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll. Uncommon on disturbed soil, roadsides, and washes, swales and lower slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. on grassland west of monument; Fort Bowie Nat. Historic Site, Siphon Canyon; Birt Robards ranch in San Simon Valley. Also Rincon Mts., Sierra Ancha, Animas Mts. Navajo, Coconino, and Mohave counties, south to Graham, Santa Cruz, and Pima counties. Wyoming to Utah, western Texas, Arizona, northern Mexico, and California. Western.

The high tannin content has aroused interest in the plant but attempts to cultivate it have not been economically successful. The petioles may be used as rhubarb. Indians and Mexican use the leaves for greens. The Hopi and Tohono O'odham use the roots for treating colds and sore throat, and a dye was made from them by the Navajo. Variety intended not specified. Rechinger (1937).

Exsicc.: CHIR [Reeves 1747, 2290, 2579]. SWRS [SWRS 1959-44]. FOBO [MHoy 86].

### **Rumex obtusifolius** L.

*Acetosa oblongifolia* (L.) A. & D. Löve, *Rumex obtusifolius* ssp. *agrestis* (Fries) Danser, *R. obtusifolius* var. *sylvestris* (Wallr.) W.D.J. Koch Bitter dock

[1,500] - 8,200 ft. [Jul] - Aug. Perennial deciduous forb, semirosette hemicryptophyte; microphyll, orthophyll. Along streams and open ravines; lower slopes and meadows.

Chiricahua Mts.: Barfoot Park. Also Santa Catalina Mts., Huachuca Mts. Cochise County, Pima County. Extensively naturalized in North America. Introduced from Europe. Holarctic, Introduced.

Exsicc.: NMC [Blumer 1576].

### **Rumex orthoneurus** Rech. f.

7,800 - 8,400 ft. Jul - Oct. Deciduous perennial forb, rhizome geophyte; mesophyll, orthophyll. Rare (USFWS listed category 1). Springs, swales and lower slopes. *Pinus arizonica*, *P. arizonica*, *P. engelmannii*, *Pseudotsuga menziesii*.

Chiricahua Mts.; Rustler Park, Barfoot Park (transplanted by USFS into a number of springs and seeps along the Crest Trail). Also Sierra Ancha, Pinaleno Mts., Sierra de los Ajos. Sonora, Mexico. Apachian.

Type collected at Rustler Park in the Chiricahua Mts. by J.C. Blumer. Rechinger, Jr. (1937). Tom Deeken (USFS, Sierra Vista District) is working on preservation of this species.

Exsicc.: SWRS [Wittmann 58, Ordway s.n.]. ARIZ [Blumer 1449 (type)]. NMC [Gierisch 3832].

An common weed in the east but not common in the west.

Exsicc.: CHIR [Clark 8622, Reeves 1232, 1287, 4385]. SWRS [Roth s.n.]. FOBO [MHoy 310].

### **Portulaca pilosa** L.

*Portulaca cyanosperma* Engl., *P. mundula* I.M. Johnston

[1,500] 5,150 - 5,400 [7,000] ft. Aug - [Sep]. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Common in grassland and grassland/scrub.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts., Navajo and Coconino counties to Cochise, Santa Cruz, and Pima counties. Missouri and Kansas to Texas, New Mexico, Arizona, and northern Mexico. Southwestern.

Exsicc.: CHIR [Moir 441, Reeves 3197, 3271, 4017].

## **POTULACACEAE—Purslane Family.**

A family of annual or perennial herbs or suffrutescent shrubs with 19 genera and more than 500 species. The Pacific coast states constitute one center of distribution for the family and the Andes are another. Some species are edible, however the family is of small economic importance overall.

### **Calandrinia ciliata** (Ruiz & Pavon) DC.

*Calandrinia ciliata* var. *menziesii* (Hook.) J.F. Macbr.

[1,500] - 5,100 ft. [Feb] Mar - Apr. Winter-annual forb, spreading therophyte. Uncommon on well-drained flats and ephemeral seeps, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. west of monument; Halfmoon Canyon. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts. Graham, Gila, Maricopa, Pinal, Santa Cruz, and Pima counties. British Columbia to Baja California and Arizona; South America. Western, Latin American.

Exsicc.: CHIR [Reeves 2292]. SWRS [Mouat s.n.].

### **Portulaca halimoides** L.

*Portulaca parvula* Gray

[3,300] 4,700 - 5,250 ft. Aug - Sep. Uncommon on sandy alluvium and grassland.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Pickett Canyon; Fort Bowie Nat. Historic Site, South Canyon; 2 mi. northeast of Portal. Also Rincon Mts., Pinaleno Mts. Cochise County, Graham County. Oklahoma, western Texas, southeastern Arizona, and northern Mexico. Temperate.

Exsicc.: CHIR [Reeves 4000]. FOBO [MHoy 318]. SWRS [s.c. s.n.].

### **Portulaca oleracea** L. ssp. *oleracea*

*Portulaca neglecta* Mackenzie & Bush, *P. retusa* Engelm.

Common purslane, pusley

[1,500] 5,250 - 6,200 [8,500] ft. Jul - Aug. Summer annual. Common on open, gravelly soil in canyons and open woodland, dry slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station; Fort Bowie Nat. Historic Site on hill east of South Canyon. Also Huachuca Mts., Sierra Ancha, Pinaleno Mts., Rincon Mts., Amimas Mts. Coconino, Yavapai, Greenlee, and Santa Cruz counties. Widely distributed in both the eastern and western hemispheres. Holarctic.

### **Portulaca suffrutescens** Engelm.

[3,000] 5,000 - 5,500 ft. Jul - Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common on dry gravelly flats, slopes, and on talus.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at Apache Pass summit. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Greenlee County to Yavapai County, south to Cochise, Santa Cruz and Pima Counties. Arkansas and Texas to Arizona and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 8427, 8543, Moir 441, Reeves 3197, 4038, 4181]. FOBO [MHoy 259].

### **Portulaca umbraticola** Kunth

*Portulaca coronata* Small, *P. lanceolata* Engelm. non Haw.

[2,500] 5,150 - 5,400 [6,000] ft. Aug - [Sep]. Summer-annual forb, scapose or leafy-stemmed therophyte. Common on dry soil, full sunlight or part shade, on dry mesas, benches, and plains.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Huachuca Mts., Sierra Ancha, Santa Catalina Mts., Rincon Mts., Animas Mts., Canelo Hills. Greenlee, Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Mexico. Southwestern.

### **Talinum aurantiacum** Engelm.

*Talinum angustissimum* (Gray) Woot. & Standl., *T. aurantiacum* var. *angustissimum* Gray

[4,000] 5,000 - 5,400 [6,600] ft. Jul - Aug [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common on damp soil of streambeds and also dry gravelly slopes and disturbed ground. *Pinus discolor*, *Juniperus deppeana*, *Cercocarpus montanus*, *Nolina microcarpa*, *Bouteloua curtipendula*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at parking lot; Chiricahua Nat. Mon.; northeast slope Nippers. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Santa Rita Mts., Canelo Hills, Sierra de los Ajos. Greenlee, Graham, Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Eastern Texas to southern Arizona and northern Mexico. Chihuahuan.

Indians cooked and ate the roots, which often become very large and more or less woody.

Exsicc.: CHIR [Clark 8504, Marble s.n., Reeves 3454, 3513, 4114, Sipes s.n.]. FOBO [MHoy 271]. SWRS [SWRS 1959-763]. ARIZ [McCormick 301, Barr 64-408].

### **Talinum paniculatum** (Jacq.) Gaertn.

[3,500] - [5,500] ft. Jul - Sep. Perennial deciduous forb. Uncommon on well-drained soils. Rich soils among rocks in partial shade.

Chiricahua Mts.: San Simon Valley. Also Rincon Mts., Mule Mts., Canelo Hills. Greenlee County to Cochise, Santa Cruz, and Pima counties. Florida to Arizona, south to tropical America. Latin American.

Exsicc.: SWRS [Walker s.n.]

### **Talinum parviflorum** Nutt. ex Torr. & Gray

*Talinum gooddingii* P. Wils., *T. Appalachianum* W. Wolf

[4,700] 5,000 - 7,000 [7,500] ft. Jul - Aug. Perennial deciduous forb. Uncommon on well-drained soils, soil pockets and crevices, boulders and bedrock, cool moist slopes. Pines and sagebrush.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at summit of Apache Pass; Chiricahua Nat. Mon. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Mule Mts., Animas Mts. Showlow (Navajo County), Gila County, Huachuca Mts. (Cochise County). Minnesota and North Dakota to Arkansas, New Mexico, and Arizona. Plains.

Exsicc.: CHIR [Clark 8447, Reeves 3492, 4037]. FOBO [MHoy 270].

## **PRIMULACEAE—Primrose Family.**

A family of annual or perennial herbs, rarely suffrutescent. About 28 general and nearly 800 species, widely distributed, occurring continents but most abundant in north temperate regions. Economically the family is only important for ornamentals.

### **Anagallis arvensis** L.

Scarlet-pimpernell, poorman's weatherglass

5,000 - 5,400 ft. [Apr] May - Jul. Summer annual forb, spreading therophyte; nanophyll, orthophyll. Local.

Chiricahua Mts.: Chiricahua Nat. Mon. at west end of meadow. Pinal, Pima, Cochise, Maricopa counties. Escaped field and garden weed from the Old World. Temperate, Introduced.

The flowers close quickly at the approach of storms, hence the English name "poorman's weatherglass."

Exsicc.: CHIR [Clark 8258, Reeves 2523, 2876, 3277].

### **Androsace occidentalis** Pursh

*Androsace arizonica* (Gray) Derganc, *A. occidentalis* var. *arizonica* (Gray) St. John, *A. occidentalis* var. *simplex* (Rydb.) St. John

Rock-jasmine

[1,000] 5,000 - 5,400 ft. [Feb] Mar - May. Winter-annual forb, rosette therophyte. Common on damp soil in streambeds and ephemeral seeps, also well-drained flats, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; Portal. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts., Santa Rita Mts. Coconino, Mohave, Yavapai, and Greenlee counties. Manitoba to British Columbia, south to Indiana, Texas, New Mexico, Arizona. Plains.

Exsicc.: CHIR [Reeves 2300, 2372, 2510]. SWRS [MHoy s.n., Roth s.n.]

### **Androsace septentrionalis** L. ssp. **puberulenta**

### (Rydb.) G.T. Robbins

*Androsace puberulenta* Rydb., *Androce septentrionalis* L. var. *puberulenta* (Rydb) R. Kunth Rock jasmine

[7,000] 8,600 - 9,600 [12,000] ft. [Apr] May - Jul [Sep]. Summer-annual forb, rosette therophyte. Uncommon on gravelly flats and streambeds.

Chiricahua Mts.: Rustler Park, Long Park; Wilderness Area; East Turkey Creek. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts. Northern Apache County and Coconino County, south to the mountains of Cochise and Pima counties. Widely distributed in the cooler parts of the Northern Hemisphere. Northern.

Exsicc.: SWRS [SWRS 1959-419, Witman 34]. CHWA [L16, 49].

### **Primula rusbyi** Greene

[7,500] 8,700 - 9,680 [10,500] ft. [May] Jul - Aug [Sep]. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll. Uncommon on shaded slopes and damp mossy ledges.

Chiricahua Mts.: Suicide Rocks; Rustler Park; Saulsbury Canyon; Wilderness Area, along Crest Trail on west slope Chiricahua Peak, south slope Snowshed Peak; Crest Trail near Monte Vista Peak. Also Rincon Mts., Pinaleno Mts. Mountains of Graham, Cochise, Santa Cruz, and Pima counties. New Mexico and southeastern Arizona. Apachian.

Exsicc.: SWRS [Walker s.n., Whitman 119]. CHWA [L119, 190].

### **Samolus vagans** Greene

*Samolus decumbens* Greene

[3,500] - 8,000 ft. [May] Jun - [Oct]. Perennial deciduous forb, rhizome geophyte; nanophyll, orthophyll. Uncommon on wet soil.

Chiricahua Mts.: Southwestern Research Station. Also Rincon Mts., Huachuca Mts., Sierra de los Ajos. Sonora, Mexico. Apachian.

Type collected in the Chiricahua Mts. by J.C. Blumer.

Exsicc.: SWRS [Walker s.n.]. ARIZ [Blumer 1546 (type)].

## **PYROLACEAE—Pyrola Family.**

A family of perennial evergreen, somewhat woody herbs. Found in north temperate zone, extending south into Mexico and the West Indies (1 species) and Chimaphila.

**Chimaphila maculata** (L.) Pursh var. *dasyystemma* (Torr.) Kearney & Peebles  
*Chimaphila dasyystemma* Torr.

Pipsissewa

7,220 - 8,200 ft. Jul - Sep. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon on swales and lower slopes, rocks in pine forest.

Chiricahua Mts.: Rucker Canyon. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts. Cochise County, Pima County. Massachusetts and Ontario, south to Georgia, Arizona, and Mexico.

Exsicc.: SWRS [Roth s.n.]; CHWA [L771].

**Chimaphila umbellata** (L.) W. Bart. ssp. *acuta* (Rydb.) Hultén

*Chimaphila umbellata* var. *acuta* (Rydb.) Blake, *C. corymbosa* Pursh, *C. umbellata* var. *cisatlanticum* Blake, *C. occidentalis* Rydb., *C. umbellata* var. *occidentalis* (Rydb.) Blake

[6,500] - 9,000 ft. Jul. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon in shade.

Chiricahua Mts.: Wilderness Area: Crest Trail near Paint Rock. Also White Mts., Pinaleno Mts. Apache County, Cochise County. Widely distributed in the Northern Hemisphere. Temperate.

This plant is used as an ingredient of root beer.

Exsicc.: SWRS [Walker s.n.]

### **Pyrola chlorantha** Sw.

*Pyrola chlorantha* var. *convoluta* (W. Bart.) Fern., *P. chlorantha* var. *revoluta* Jennings, *P. convoluta* W. Bart., *P. oxypetala* Austin ex Gray, *P. virens* Scheb., *P. virens* var. *saximontana* Fern.

Wintergreen

6,400 - 9,400 [10,000] ft. May - Jul [Sep]. Perennial deciduous forb, rosette hemicryptophyte; microphyll, orthophyll. On all but south-facing slopes at the highest elevations, lower down on mesic forested slopes and shallow draws. *Pinus arizonica*, *Pseudotsuga menziesii*, *Populus tremuloides*.

Chiricahua Mts.: Wilderness Area, Summit Ridge on Fly Peak Trail, Crest Trail; Rustler Peak; Rucker Canyon; Long Park. Also Pinaleno Mts., Huachuca Mts. Apache County, Coconino County, Cochise and Pima County. Canada to the District of Columbia, New Mexico, Arizona, and California; Europe.

Exsicc.: SWRS [1958-113]. CHWA [L131]. ARIZ [McCormick 169; Keener s.n.; Blumer 1618; Darrow & Phillips 2502; Barr 64-346; Darrow et al. 1062; Darrow 2598; Loomis et al. 2216].

## **RANUNCULACEAE—Buttercup Family.**

A family of annual or perennial herbs, occasionally shrubs or vines, or very rarely trees. A moderately large family, chiefly of the cooler temperate regions of the earth but centered in the temperate and cold regions of the northern and southern hemispheres, chiefly in north temperate regions. About 45 genera and 2,000 species of which about 20 genera and nearly 300 species are indigenous to this country with 4 additional genera that are naturalized or adventive. The family is notable for the large number of ornamentals available (27 genera and 280 species). Roots of the golden seal and monkshood are used in the drug trade.

### **Aconitum columbianum** Nutt.

*Aconitum arizonicum* Greene

Monks-hood

[5,000] 8,040 - 9,020 [9,500] ft. Jun - Sep. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll. Uncommon along streams.

Chiricahua Mts.: Wilderness Area. Santa Rita Mts., Huachuca Mts. Apache, Coconino, Cochise, Santa Cruz, and Pima counties. British Columbia to Montana, south to New Mexico, Arizona, and California. Western.

The plant contains strong alkaloids that are exceedingly poisonous.

Exsicc.: CHWA [Leithliter 322, 589].

### **Actaea rubra** (Ait.) Willd. ssp. **arguta** (Nutt.) Hult.

*Actaea arguta* Nutt., *A. arguta* var. *viridiflora* (Greene) Tides., *A. rubra* var. *arguta* (Nutt.) Laws. Maidenberry, bane-berry

[7,000] - 9,240 [10,000] ft. [May] - Aug. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon along streams in wet soil but also found on open north-facing slopes at higher elevations. Chiricahua Mts.: Wilderness Area, Crest Trail near Cima Saddle; East Turkey Creek. Also Huachuca Mts., Lukachukai Mts., Pinaleno Mts., Santa Catalina Mts. Apache County and Coconino County, southward to the mountains of Cochise and Pima counties. South Dakota to Alaska, south to New Mexico, Arizona, and California. Northern, Western.

Exsicc.: CHWA [Leithliter 601]. ARIZ [Barr 65-279].

### **Anemone tuberosa** Rydb.

Desert windflower

[2,500] - 5,100 ft. [Feb] - Mar [Apr]. Perennial deciduous forb, bulb geophyte. Uncommon on rocky slopes and dry uplands.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at Overlook, near Apache Pass; Whitetail Canyon; Paradise. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Coconino and Mohave counties to Greenlee, Cochise, Santa Cruz, and Pima counties. Texas to Utah, Arizona, and California. Southwestern.

Exsicc.: FOBO [MHoy 12]. SWRS [Duek s.n., Walker s.n.].

### **Aquilegia chrysanthia** Gray

Columbine

[3,000] 6,400 - 9,790 [11,000] ft. [Apr] Jun - Sep. Perennial deciduous forb, semirosette hemicryptophyte. Common in rocky wet canyon bottoms, also on cool mesic slopes. *Pseudotsuga menziesii*, *Fraxinus cuspidata*, *Viola canadensis*, *Pinus strobus*, *Pinus engelmannii*.

Chiricahua Mts.: Pine Creek; East Turkey Creek; Wilderness Area. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Sierra de los Ajos. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Southern Colorado to New Mexico, Arizona, and northern Mexico. Southwestern. This species apparently crosses with *Aquilegia triternata*. SWRS [Wittmann 314] is an example. The most common and widespread columbine in Arizona.

Exsicc.: SWRS [SWRS 1960-115]. CHWA [Leithliter 310, 363, 380, 585].

### **Aquilegia triternata** Pays.

Columbine

[4,000] 5,400 - 9,180 [10,000] ft. [May] Jun - Oct. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll. Common on shaded rock ledges and slopes in wooded canyons, chiefly in coniferous forests.

Chiricahua Mts.: Chiricahua Nat. Mon.; Pinery Canyon 1 mi. below campground; Wilderness Area; Bootlegger Trail above Rustler Park. Also Baboquivari Mts., Animas Mts., Pinalino Mts. White Mountains (Apache County), and mountains of Cochise, Santa Cruz, and Pima counties. Western Colorado, western New Mexico, and eastern Arizona. Madrean.

Type specimen came from Chiricahua Mountains.

Exsicc.: CHIR [Clark 8560, Reeves 993, 1383, 4231]. SWRS [Cummins s.n.]. CHWA [Leithliter 134, 354, 720].

### **Clematis drummondii** Torr. & Gray

Texas virgin's bower, barbas de chivato

3,880 - [5,100]. [Mar] Aug - Sep. Perennial deciduous forb, woody stemmed vine; microphyll, orthophyll. Uncommon among shrubs, usually on fairly open ground.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Portal to Paradise road; 3 mi. northeast of Portal; San Simon Cienega. Also Rincon Mts., Pinaleño Mts., Sierra de los Ajos. Southern Yavapai County, Greenlee, Gila, Maricopa, Pinal, Cochise, and Pima counties. Texas to Arizona and northern Mexico. Chihuahuan.

Exsicc.: SWRS [Ordway 138]. ARIZ [Blumer 73].

### **Clematis ligusticifolia** Nutt. var. **lingusticifolia** *Clematis neomexicana* Woot. & Standl., *C. suksdorffii* Rob.

[3,000] 5,400 - 7,200 [8,000] ft. [May] Jul - Aug [Sep]. Woody vine, suffrutescent chamaephyte. Uncommon in wooded canyons, climbing on bushes and trees, swales and lower slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; Paradise; East Turkey Creek; Wilderness Area, Winn Falls. Also Rincon Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Apache, Navajo, and Coconino counties south to Cochise, Santa Cruz, and Pima counties. Western Canada and North Dakota to New Mexico, Arizona, and California. Western.

Occasionally grown as an ornamental, this plant was used by the Indians as a remedy for sore throats and colds. The crushed roots were placed in the nostrils of tired horses to revive them. Apparently intergrades or hybridizes with *C. drummondii*.

Exsicc.: CHIR [Clark 8567, Reeves 1701, 3712, 4159]. SWRS [Ordway s.n., SWRS 1959-832]. CHWA [Leithliter 617]. ARIZ [Blumer 1510].

### **Delphinium andesicola** Ewan. ssp. **andesicola**

[5,000] 7,250 - 9,250 [9,500] ft. [Jun] - Aug [Sep].

Deciduous perennial forb, semirosette hemicryptophyte. Common in shallow drainages on cool shaded slopes.

Chiricahua Mts.: Barfoot Park; Wilderness Area; Anita Park. Also Huachuca Mts., Santa Rita Mts., Animas Mts., Sierra de los Ajos. Cochise, Santa Cruz, and Pima counties. Sonora, Mexico. Apachian.

Browsed by deer. Type was collected in the Chiricahua Mts. at Barfoot Park by J.C. Blumer.

Exsicc.: SWRS [Ordway s.n.]. CHWA [Leithliter 209]. ARIZ [Blumer 136].

### **Delphinium scopulorum** Gray

[5,500] - [6,500] 8,200 ft. [Aug] - Sep. Uncommon on dry uplands, stream flats with oaks and sycamores, and the lower edge of the pine belt.

Chiricahua Mts.: Barfoot Park. Also Huachuca Mts., Santa Rita Mts., Baboquivari Mts., Sierra Ancha. Greenlee, Santa Cruz, Cochise, and Pima counties. Southwestern New Mexico and southeastern Arizona. Madrean.

Exsicc.: Repos. Unk. [Blumer 1373].

### **Delphinium wootonii** Rydb.

*Delphinium geyeri* Greene var. *wootonii* (Rydb.) K.C. Davis, *Delphinium virescens* Nutt. ssp. *wootonii* (Rydb.) Shinners  
Plains larkspur

4,600 - 5,100 [6,000] ft. Apr - Jun. Deciduous perennial forb, semirosette hemicryptophyte. Roadsides, open flats, valley floors, and gentle foothill slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. in grassland west of

monument; Fort Bowie Nat. Historic Site at Overlook; 3 mi. north of Bernardino. Also Huachuca Mts., Pinaleño Mts., Tumacacori Mts., Rincon Mts., Animas Mts., Canelo Hills. Graham, Cochise, Santa Cruz, and Pima counties. Widely distributed in the Great Plains region. Plains.

Exsicc.: CHIR [Reeves 2933]. FOBO [MHoy 380]. SWRS [Walker s.n.].

### **Myosurus aristatus** Benth.

*Myosurus minimus* L. var. *aristatus* (Benth.) Boivin 5,000 ft. [Mar] - [Jun]. Winter annual forb, rosette therophyte. Sunny creek bank.

Chiricahua Mts.: East Turkey Creek near Galeyville. Also Animas Mts., Santa Rita Mts., Santa Catalina Mts. (?). Cochise and Coconino Counties. Nebraska to British Columbia, south to New Mexico, Arizona, and California; South America. Western, Latin American.

Exsicc.: SWRS [Walker s.n.].

### **Myosurus cupulatus** S. Wats.

Mouse-tail

[2,500] 5,300 - 5,900 ft. [Feb] Mar - Apr [May]. Winter-annual forb, rosette therophyte. Uncommon in ephemeral seeps and damp soil in drainages, flats and open woodland, also dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Ralph Morrow's Ranch. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Greenlee County to Mohave County, south to Cochise, Santa Cruz and Pima counties. New Mexico to California and Sonora, Mexico. Sonoran.

Exsicc.: CHIR [Reeves 2590, 2631]. SWRS [SWRS 1959-313].

### **Ranunculus arizonicus** J.G. Lemmon ex Gray

*Ranunculus arizonicus* var. *typicus* L. Benson

[5,000] 5,300 - 5,900 ft. [Jun] - [Aug]. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Rare in dry situations.

Chiricahua Mts.: West Turkey Creek near El Coronado Ranch; along road 2 mi. east of Rucker Lake. Also Huachuca Mts., Rincon Mts., Patagonia Mts., Canelo Hills. Greenlee County to Cochise County and Santa Cruz County. Southwestern New Mexico and southeastern Arizona; northwestern Mexico. Madrean.

This plant, described as new to science was collected by J.C. Lemmon and wife near Rucker Canyon (no. 585) circa 1881. This species is remarkably xerophytic considering the usual habitats for the genus.

Exsicc.: SWRS [Wittmann 78, McNay s.n.].

### **Ranunculus hydrocharoides** Gray var. **hydrocharoides**

*Ranunculus hydrocharoides* var. *typicus* L. Benson

[7,000] - 7,800 [9,500] ft. [Jun] Jul - [Sep]. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon in marshes, streams, and springs in the pine belt.

Chiricahua Mts.: below Barfoot Park. Also Huachuca Mts., Sierra Ancha, Animas Mts., San Francisco Peaks, White Mts., Canelo Hills. Coconino County, Apache County, Cochise County. Southwestern New Mexico; Arizona; above Owens Lake, California; Mexico. Madrean.

Exsicc.: SWRS [Pough 1962-9].

### **Ranunculus inamoenus** Greene

[6,500] - 9,300 [9,500] ft. [Apr] Jul - [Aug]. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon in dry forest openings.  
Chiricahua Mts.: Wilderness Area, Round Park. Sierra Ancha, Lukachukai Mountains (Apache County), Kaibab Plateau, San Francisco Peaks and vicinity, and Potato Lake (Coconino County), Gila County. Rocky Mountains, from Alberta to New Mexico and Arizona. Rocky Mountain.  
Exsicc.: CHWA [Leithliter 462].

### **Thalictrum fendleri** Engelm. ex Gray var. **wrightii** (Gray) Trel.

Meadow-rue

[5,000] 6,000 - 9,790 ft. [Apr] Jul - Aug. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common on cool mesic slopes and in canyons with rich moist loamy soils. Abundance increases with overgrazing of range. *Pseudotsuga menziesii*, *Pinus arizonica*, *P. discolor*, *P. strobus*, *Juniperus deppeana*, *Quercus hypoleucoides*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon.; base of Winn Falls; Rustler Park; Barfoot Park; Wilderness Area along Crest Trail. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Montana and Idaho to California and western Texas, south to Mexico. Rocky Mountain.

Not generally grazed.

Exsicc.: CHIR [Clark 9311, Reeves 1431, 3766, 3986]. SWRS [Roth s.n., Wittmann 481]. CHWA [Leithliter 96, 311]. Repos. Unk. [Blumer 1339].

### **RHAMNACEAE—Buckthorn Family.**

A family of trees or shrubs, erect or climbing (by hooks, tendrils, or twining stems), rarely herbs, sometimes suffrutescent. The family is of almost cosmopolitan distribution, composed of about 45 genera and 550 species which are of little economic importance.

### **Ceanothus fendleri** Gray

*Ceanothus fendleri* Gray var. *venosus* Trel., *C. fendleri* var. *viridis* Gray, *C. subsericeus* Rydb. Buck-brush, deer-briar

[5,000] 5,200 - 9,510 [10,000] ft. Apr - Oct. Spiny evergreen shrub, nanophanerophyte. Common in clearings of wooded canyons, wooded slopes and chaparral, burns. Grows well on limestone. *Pinus arizonica*, *P. strobus*, *P. discolor*, *Pseudotsuga menziesii*, *Quercus hypoleucoides*, *Arbutus arizonicus*.

Chiricahua Mts.: Chiricahua Nat. Mon. in upper Hunt and Sarah Deming canyons; Hands Pass; Cave Creek south of Sunny Flat; Barfoot Park; Wilderness Area. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Sierra Ancha, Mule Mts., Animas Mts., Sierra de los Ajos. Throughout the state except in the driest desert portions. Colorado and Utah to western Texas, New Mexico, Arizona, and northern Mexico; South Dakota and Wyoming. Rocky Mountain.

Deer and livestock browse. Tends to form thickets.

Exsicc.: CHIR [Clark 8152, Fish 50, Reeves 2450, 2526, 2844, 2848, 3635, 3700]. SWRS [SWRS 1959-24, Ordway s.n.]. CHWA [Leithliter 45, 166, 493, 698, 832, 843]. ARIZ [Garton 16988, Blumer 1283].

### **Ceanothus greggii** Gray ssp. **vestitus** (Greene)

### **C. Schmidt**

#### ***Ceanothus greggii* var. *vestitus* Greene**

[3,000] 5,100 - 6,500 [7,000] ft. Mar - Jun [Sep]. Broadleaf evergreen shrub, nanophanerophyte. Common in wooded canyons and dry slopes. *Pinus engelmannii*, *Pinus leiophylla*, *Quercus hypoleucoides*, *Quercus arizonica*, *Muhlenbergia longiligula*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at Apache Pass Overlook; Jhus Canyon; Portal to Onion Saddle road; Portal to Paradise road; Pine Canyon. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts. Coconino and Mojave counties to Graham, Cochise, and Pima counties. Western Texas to Utah, Nevada, southern California, and Mexico. Southwestern.

Exsicc.: CHIR [Clark 8284, Dole 22, Reeves 3058, 3180]. FOBO [MHoy 14]. SWRS [SWRS 1959-119].

### ***Ceanothus integerrimus* Hook. & Arn.**

*Ceanothus andersonii* Parry, *C. californicus* Kellogg, *C. integerrimus* var. *californicus* (Kellogg) G.T. Benson, *C. intergerrimus* var. *macrothyrsus* (Torr.) G.T. Benson, *C. intergerrimus* puberulus (Greene) Abrams

Deer brush

[3,500] - [8,100] ft. [Apr] May - Nov. Broadleaf deciduous shrub, microphanerophyte; microphyll, orthophyll. Common on shaded slopes, streambeds, and dry uplands.

Chiricahua Mts.: Greenhouse Trail; below Onion Saddle along road; Pine Canyon; junction East Turkey Creek and Onion Saddle roads. Also Huachuca Mts., Rincon Mts., Sierra Ancha. Southern Coconino County to Cochise and Pima counties. New Mexico and Arizona to Washington, Oregon, California. Western.

Exsicc.: SWRS [Barr 63-623].

### ***Condalia spathulata* Gray**

Squaw-bush

[2,500] 4,600 - 5,400 ft. Mar - Jul [Sep]. Spiny evergreen shrub. Common on dry mesas and bajadas.

Chiricahua Mts.: Fort Bowie Nat. Historic Site around fort ruins; 2 mi. north of Portal; Paradise. Mule Mts. Southwestern Gila County and eastern Pinal County to Cochise and Pima counties. Western Texas to southern Arizona and northern Mexico. Chihuahuan.

"The stones of the black fruits have a soapy taste and are only slightly bitter." -Kearn. et al. (1960).

Exsicc.: FOBO [MHoy 332]. SWRS [Lindsley 1960-310, Bottimer s.n.].

### ***Frangula betulifolia* ssp. *betulifolia***

*Rhamnus betulifolia* Greene

Birch-leaf buck-thorn

[3,500] 5,300 - 7,540 ft. May - Jul. Broadleaf deciduous shrub, microphanerophyte; mesophyll, orthophyll. Common in wooded canyons and shaded slopes. *Cupressus arizonica*, *Toxicodendron rydbergii*, *Quercus hypoleucoides*, *Q. rugosa*.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; Cave Creek, Herb Martyr Dam; Greenhouse Canyon; Wilderness Area. Also Pinaleno Mts., Animas Mts., Sierra de los Ajos. Southern Apache and southern Coconino counties to Cochise and Pima counties. New Mexico, eastern Arizona, and northern Mexico. Madrean.

Exsicc.: CHIR [Borell s.n., Clark 8088, Dole 102, Reeves 1909, 3090, 3403]. SWRS [Pough 1961-33; SWRS 1958-107]. CHWA [Leithliter 461, 499, 636].

**Frangula californica** (Eschsch.) Gray ssp.  
**ursina** (Greene) Kartesz & Gandhi  
*Rhamnus californica* Esch. ssp. *ursina* (Greene) C.B. Wolf, *Rhamnus oleifolia* Hook., *R. laurifolia* Nutt. ex Torr. & Gray, *Frangula californica* Gray, *R. purshiana* var. *californica* Rehd. in Baily, *R. californica* Esch., *R. californica* var. *ursina* (Greene) McMinn, *Rhamnus blumeri* Greene

California buck-thorn, coffee-berry, pigeon-berry  
[3,500] 4,900 - 6,000 [8,300] ft. May - Aug. Broadleaf evergreen shrub, microphanerophyte; microphyll, sclerophyll. Uncommon on dry well-drained slopes in oak-pine woodland, cool moist slopes; also along drainages at lower elevations.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in Cut Off Canyon; Chiricahua Nat. Mon., mouth of Jesse James and upper Picket canyons. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Hualapai Mts., Canelo Hills. Southern Coconino County and Mohave County to Graham, Cochise, and Pima counties. New Mexico and Arizona to southern Oregon, California, and Baja California. Western.

Type collected from the Chiricahua Mts. by J.C. Blumer.

Exsicc.: CHIR [Dole 66, Roseberry 178]. FOBO [MHoy 448]. SWRS [SWRS 1958-223; MHoy s.n.]. ARIZ [Blumer 1290 (type)].

**Rhamnus serrata** H. & B. ex J.A. Schultes  
*Rhamnus serrata* Humb. & Bonpl. ex J.A. Schultes in R. & S. var. *serrata*, *R. smithii* Greene ssp.  
*fasciculata* (Greene) C. B. Wolf

Buck-thorn

6,100 ft. Jul. Broadleaf evergreen shrub, nanophanerophyte; microphyll, orthophyll. Local in shaded, mesic canyon with *Cupressus*. *Cupressus arizonica*, *Garrya wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon., Lost Canyon, Surprise Canyon. Apache and Cochise Counties. Southwestern Colorado, western Texas, New Mexico, and eastern Arizona. Madrean.

Exsicc.: CHIR [Reeves 3253, 3569].

**Zizyphus obtusifolia** (Hook. ex. T. & G.) Gray var. **canescens** (Gray) M.C. Johnston

*Condalia lycioides* (Gray) Weberb. var. *canescens* (Gray) Trel., *Condaliopsis lycioides* var. *canescens* (Gray) Suess.

Gray-thorn, gray-leaved abrojo

[1,000] 5,400 - 7,250 ft. [May] Jun - Aug [Sep]. Spiny deciduous shrub, nanophanerophyte. Common on dry mesas and slopes, wooded canyons, and chaparral. Shade tolerant.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in Siphon Canyon; Chiricahua Nat. Mon. Also Huachuca Mts., Santa Catalina Mts., Rincon Mts., San Simon Valley, Mule Mts., Pinaleno Mts. Coconino and Mohave counties to Greenlee, Cochise, Santa Cruz, Pima, and Yuma counties. Western Texas to southeastern California and northern Mexico. Southwestern.

Birds relish the fruits. Pima Indians treated sore eyes with a decoction of the roots, which have also been used as a substitute for soap.

Exsicc.: FOBO [MHoy 323].

## ROSACEAE—Rose Family.

A large family of trees, shrubs, or herbs, often thorny, sometimes

climbing. There are about 115 genera and 3,200 species, distributed over most of the earth and abundant in eastern Asia, North America, and Europe. About 50 genera have species indigenous to this country; 38 genera occur in the Pacific states, and one-half are restricted to that area or extend only southeasterly into Mexico, and 30 genera are restricted to the northeastern section of the country. The family is of considerable economic importance for apples (*Malus*), pears (*Pyrus*), quince (*Cydonia*), cherry, plum, prune, peach, nectarine, apricot, almond, sloeberry (ssp. of *Prunus*); blackberry, raspberry, loganberry (ssp. *Rubus*), and strawberry (*Fragaria*). Spirea, cotoneaster, pyracantha, hawthorn, photinia, rose and cinquifoils (*Potentilla*) are important ornamentals.

## **Agrimonia striata** Michx.

Agrimony

6,500 - 8,500 ft. Jul - Oct. Perennial deciduous forb, scapose or leafy stemmed hemicryptophyte; microphyll, orthophyll. Common on mesic slopes with good soil in partial sun.

Chiricahua Mts.: Barfoot Park. Also Santa Catalina Mts., Huachuca Mts., Pinaleno Mts., Rincon Mts. Apache to Coconino counties south to Cochise and Pima counties. Across Canada, south to West Virginia, New Mexico, and Arizona.

Exsicc.: ARIZ [Blumer 1324, 1598].

## **Cercocarpus montanus** Raf. var. **argenteus**

(Rydb.) F.L. Martin

*Cercocarpus argenteus* Rydb.

Hairy mountain mahogany

[3,500] 5,600 - 8,120 [9,000] ft. [May] Jun - Aug. Broadleaf deciduous shrub, microphanerophyte. Common; very common in wooded canyons, also on slopes and chaparral. *Pinus arizonica*, *P. strobiformis*, *P. discolor*, *Juniperus deppeana*, *Quercus hypoleucoides*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on Bowie Mountain; upper Pinery Canyon; Cave Creek above Paradise cutoff; Wilderness Area. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Coconino, Yavapai, and Gila counties. South Dakota and Montana to Kansas, New Mexico, and Arizona. Western.

Martin 1950.

Exsicc.: CHIR [Clark 8146, 8337, Reeves 2981, 3560, 3940, 3977]. FOBO [MHoy 235]. SWRS [1962-42, 1958-284]. CHWA [Leithliter 799].

## **Cercocarpus montanus** Raf. var. **glaber** (S.

Wats.) F.L. Martin

*Cercocarpus betuloides* Nutt. ex Torr. & Gray, *C. betuloides* var. *multiflorus* Jepson

Birch-leaf mountain mahogany

[3,000] - 5,000 [6,500] ft. [Mar] - Jul. Broadleaf evergreen shrub, nanophanerophyte; nanophyll, sclerophyll. Rare, mostly in chaparral and dry uplands.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Huachuca Mts., Sierra Ancha. Apache County to Mohave County, south to Cochise and Pinal counties. Arizona, Oregon, California. Madrean.

Most important member of the genus as a browse plant.

Exsicc.: SWRS [MHoy s.n.].

## **Cercocarpus montanus** Raf. var.

**paucidentatus** (S. Wats.) F.L. Martin

*Cercocarpus breviflorus* Gray, *C. breviflorus* var. *eximus* Schneid.

**Mountain mahogany**

5,600 - 7,000 ft. [May] Perennial deciduous forb, spreading hemicryptophyte. Common in wooded canyons, also on slopes and chaparral. *Pinus arizonica*, *Pseudotsuga menziesii*, *Pinus strobus*, *Pinus discolor*, *Quercus hypoleucoides*.

Chiricahua Mts.: Chiricahua Nat. Mon. Also Pinaleno Mts., Santa Catalina Mts., Animas Mts. Western.

Exsicc.: CHIR [Reeves 3536, 3831, 3869].

**Fallugia paradoxa** (D. Don.) Endl. ex Torr.  
Apache plume, ponytail

[3,000] 4,700 - 8,120 ft. Apr - Oct. Broadleaf deciduous shrub, nanophanerophyte; nanophyll, orthophyll. Uncommon in open woodland, wooded canyons, and on sides of washes; favors dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. in Picket Park; Fort Bowie Nat. Historic Site along trail; Portal to Paradise road; Cave Creek-Portal-San Simon road junction; Wilderness Area; Centella Point, Rock Canyon, Pinery Canyon. Also Pinaleno Mts., Sierra Ancha, Animas Mts. Navajo, Coconino, and Mohave counties to Greenlee, Graham, Cochise, and Pima counties. Southern Colorado and western Texas to southeastern California and northern Mexico. Madrean.

Used in erosion control. Forage for cattle and goats. Browsed by deer. Indians used young twigs for brooms and older ones for arrow shafts. Hopis used an infusion of the leaves as a stimulant for hair growth. Grows rapidly with good moisture.

Exsicc.: CHIR [Clark 8092, Reeves 1243, 1316, 2846]. FOBO [MHoy 193]. SWRS [SWRS 1959-218]. CHWA [Leithliter 352].

**Fragaria vesca** L. ssp. **bracteata** (Heller)

Staudt

*Fragaria bracteata* Heller, *F. helleri* Holz., *F. vesca* var. *bracteata* (Heller) R.J. Davis

Strawberry

6,500 - 9,790 ft. May - Sep. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon on shaded, cool moist slopes, along streams.

Chiricahua Mts.: South Fork Cave Creek; Wilderness Area. Also Huachuca Mts., Pinaleno Mts., Rincon Mts., Sierra Ancha, White Mts. Apache, Graham, and Cochise Counties. Montana to British Columbia, south to New Mexico, Arizona, and California. Western.

Exsicc.: SWRS [SWRS 1958-178]. CHWA [Leithliter 65, 336].

**Fragaria virginiana** Duchn. ssp. **virginiana**

*Fragaria australis* (Rydb.) Rydb., *F. canadensis*

Michx., *F. multipunctata* Fern., *F. ovalis* (Lehm.)

Rydb., *F. virginiana* var. *australis* Rydb., *F.*

*virginiana* var. *canadensis* (Michx.) Farw., *F.*

*virginiana* var. *ovalis* (Lehm.) R.J. Davis

Strawberry

7,000 - 9,300 [11,000] ft. [May] Jul - Aug [Oct]. Perennial deciduous forb, rosette hemicryptophyte. Common beneath conifers. At upper altitudinal limits *F. virginiana* occurs on all but south-facing slopes in partial sun on moist to saturated soils; at lower elevations it is found in deep shade beneath conifers, particularly on north-facing slopes; at the lower limits it is found in deep canyons on wet soil. *Pseudotsuga menziesii*, *Picea*

*engelmannii*.

Chiricahua Mts.: near Rustler Park along road to Long Park; Wilderness Area, Round Park, upper reaches of Pine Canyon; Centella Point. Also Pinaleno Mts., Sierra Ancha, Santa Catalina Mts. Apache, Navajo, and Coconino counties, south to Cochise and Pima counties. Wyoming to New Mexico and Arizona. Rocky Mountain.

Edible and palatable.

Exsicc.: SWRS [Walker s.n.]. CHWA [Leithliter 214].

**Holodiscus dumosus** (Nutt.) Heller

*Holodiscus discolor* (Pursh) Maxim. var. *dumosus* (Nutt. ex Hook.) Maxim. ex Coulter, *H. dumosus* var. *typicus* Ley

Rock-spiraea, shrubby cream bush

[3,000] 6,200 - 9,790 [10,500] ft. Jun - Sep. Broadleaf deciduous shrub, nanophanerophyte; nanophyll, sclerophyll. Common in mesic, wooded canyons, slopes and cliffs in pine and spruce forests.

Chiricahua Mts.: Chiricahua Nat. Mon. on Sugarloaf Mountain; above Barfoot Park; along Onion Creek; Wilderness Area; Fly Peak trail; Centella Point. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Santa Rita Mts., Sierra de los Ajos. Apache to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Wyoming to Utah, south to western Texas, New Mexico, Arizona, and northern Mexico. Western.

Fruit eaten by the Tewa Indians.

Exsicc.: CHIR [Clark 8201, 8961, Reeves 978, 3974, 4232]. SWRS [SWRS 1959-292, 1960-198]. CHWA [Leithliter 110, 178, 397, 407, 469]. ARIZ [Chir. Veg. Team 58-77, Karpiscak 1974-163].

**Physocarpus monogynus** (Torr.) Coulter

[8,800] - 9,000 [9,500] ft. [Jun] - Jul. Broadleaf deciduous shrub, nanophanerophyte; microphyll, orthophyll. Uncommon on talus slopes. Chiricahua Mts.: Wilderness Area; Crest Trail, Chiricahua Peak. Also Pinaleno Mts., White Mts. Apache, Graham, and Cochise counties. South Dakota to Texas and eastern Arizona. Rocky Mountain.

Exsicc.: SWRS [Roth s.n.]. CHWA [Leithliter 88, 113].

**Potentilla crinita** Gray var. **crinita**

*Potentilla vallicola* Greene

[6,000] ft. - 9,000 ft. [Apr] May - [Sep]. Deciduous perennial forb, semirosette hemicryptophyte; microphyll, orthophyll. Found in pine forests. *Pinus arizonica*, *Pseudotsuga menziesii*.

Chiricahua Mts.: Crest Trail. Also Huachuca Mts. Apache to Coconino County, Cochise County. Colorado, Utah, New Mexico, and Arizona. Rocky Mountain.

Exsicc.: SWRS [Roth s.n.].

**Potentilla hippiana** Lehm.

Cinquefoil, five finger

[7,000] 7,220 - 9,590 [11,500] ft. May - Sep. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll. Uncommon in meadows and forest openings.

Chiricahua Mts.: between Rustler Park and Long Park; Wilderness Area. Pinaleno Mts. Apache, Navajo, and Coconino counties, Graham County, Cochise County. Saskatchewan and Alberta, south to New Mexico, Arizona, and Nevada. Rocky Mountain.

Exsicc.: SWRS [Roth s.n.]. CHWA [Leithliter 90, 186].

**Potentilla subviscosa** Greene var. **ramulosa**  
(Rydb.) Kearney & Peebles

[6,000] - 9,200 [12,000] ft. [Apr] - [Jun] Aug. Perennial deciduous forb, semirosette hemicryptophyte; nanophyll, orthophyll. Common in coniferous forest openings in deep needle litter, rock crevices, roadsides, and dry meadows; found in more mesic situations at lower elevations. *Pinus arizonica*.

Chiricahua Mts.: Centella Point. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Sierra Madre Occidental. Navajo and Coconino counties to Graham, Cochise, and Pima counties. New Mexico and Arizona to Chihuahua, Mexico. Southwestern.

Exsicc.: ARIZ [Fishbein 440].

**Potentilla thurberi** Gray var. **atrorubens**  
(Rydb.) Kearney & Peebles  
Cinquefoil

6,100 - [8,500] ft. [Jul] - Aug [Oct]. Perennial deciduous forb, semirosette hemicryptophyte. Uncommon in hydro- and mesoriparian streambeds, springs, and seeps.

Chiricahua Mts.: Chiricahua Nat. Mon. in East Whitetail Canyon; Greenhouse Trail. Also Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Sierra de los Ajos. Apache, Navajo, and Coconino counties, south to Cochise and Pima counties. New Mexico, Arizona, northern Mexico. Madrean.

Employed as an astringent in folk medicine.

Exsicc.: CHIR [Clark 8704].

**Potentilla thurberi** Gray var. **thurberi**

5,300 [6,000] - 8,200 [9,000] ft. Jul - Aug [Oct]. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll. Uncommon in rich shaded soil and dry uplands. *Pinus engelmannii*, *Pinus strobiformis*, *Quercus gambelii*, *Pseudotsuga menziesii*.

Chiricahua Mts.: South Fork Cave Creek; Morse Canyon Trail at West Turkey Creek; upper Pinery Canyon; Rustler Park; Pinery Canyon Camp; East Turkey Creek; Onion Saddle. Also Huachuca Mts., Sierra Ancha, Pinaleno Mts., Animas Mts., Santa Catalina Mts., Santa Rita Mts. Apache, Navajo, and Coconino counties, south to Cochise and Pima counties. New Mexico, Arizona and northern Mexico. Madrean.

Exsicc.: SWRS [Cummins s.n., Wittmann 186]. CHWA [Leithliter 435]. ASU [Schmiederer & Reeves 785, 825, 4768; Cazier 688, 246, 192, 606; McGill & Keil 8522; Bertelsen s.n.; Rapson 847; Bicker 336].

**Potentilla wheeleri** S. Wats.

*Potentilla viscidula* Rydb.

8,040 - 9,680 ft. May - Jun. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon on dry uplands.

Chiricahua Mts.: Wilderness Area. Also Huachuca Mts., Sierra Ancha, Santa Rita Mts. Cochise County, Santa Cruz County. Southern Arizona and southeastern California. Madrean.

Exsicc.: CHWA [Leithliter 7, 52].

**Prunus emarginata** (Dougl. ex Hook.) Walp.  
var. **emarginata**

*Prunus emarginata* var. *crenulata* (Greene) Kearney & Peebles

Bitter cherry

[5,000] 7,000 - [9,000] ft. [Apr] May - [Jun]. Broadleaf deciduous shrub, nanophanerophyte. Uncommon on cool moist slopes.

Chiricahua Mts.: along Greenhouse Trail. Also Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Hualpai Mts. Coconino County and Mohave County to Cochise and Pima counties. Montana to British Columbia, south to New Mexico, Arizona, and California. Western.

Exsicc.: SWRS [Walker s.n.].

**Prunus serotina** Ehrh. var. **rufula** (Woot. & Standl.) McVaugh

*Prunus virens* (Woot. & Standl.) Shreve var. *rufula* (Woot. & Standl.) Sarg.

Southwestern chokecherry

[4,500] 5,000 - 6,400 [8,400] ft. [Apr] May - Jun. Broadleaf deciduous tree, microphanerophyte. Common, patchy, on open flats in moist soil, wooded canyons, and along drainages. *Quercus hypoleucoides*, *Pinus arizonica*, *Pseudotsuga menziesii*, *Juniperus deppeana*, *Pinus strobiformis*.

Chiricahua Mts.: Chiricahua Nat. Mon.; West Turkey Creek; Price Canyon; Barfoot Park; Pine Canyon; Cave Creek. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Temperate.

Exsicc.: CHIR [Clark 8087, Reeves 2866, 3143]. SWRS [SWRS 1958-201, 1959-18].

**Purshia mexicana** (D. Don) Hendrickson

*Cowania mexicana* D. Don, *Cowania mexicana* var. *dubia* Brandeg.

Cliff-rose, quinine-bush

[3,000] - 5,800 [8,000] ft. [Apr] Jun - [Sep]. Broadleaf evergreen shrub, nanophanerophyte; nanophyll, sclerophyll. Common on dry slopes and mesas; also on dry uplands.

Chiricahua Mts.: Tex Canyon road, near summit, Silver Creek Canyon 2 mi. from Paradise, Rucker Canyon. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Animas Mts., Canelo Hills. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Southern Colorado to southeastern California, south to central Mexico. Madrean.

Important winter browse plant for cattle, sheep, and deer, despite the bitter taste of the foliage. Strips of the inner bark were braided together by the aborigines of Utah and Nevada and used for clothing, sandals, rope, and mats. The plant is used by the Hopi Indians as an astringent and as a wash for wounds, and the wood formerly for making arrows. The flowers are fragrant.

Exsicc.: SWRS [SWRS 1959-x, 1959-73].

**Pyracantha coccinea** M. Roemer

*Cotoneaster pyracantha* (L.) Spach

5,400 ft. Persisting about hearths.

Chiricahua Mts.: Chiricahua Nat. Mon. in Silver Spur Meadow. Cultivar from Eurasia.

Exsicc.: CHIR [Reeves 1520, 2870].

**Pyrus communis** L.

Pear

5,200 ft. Mar - Apr. Broadleaf deciduous tree, microphanerophyte; mesophyll, orthophyll.

Chiricahua Mts.: Chiricahua Nat. Mon., a few old trees

persist near Stafford Cabin. Cultivar. Fruit trees.  
Exsicc.: CHIR [Reeves 2509, 3410].

### **Rosa woodsii** Lindl. var. **ultramontana** (S. Wats.) Jepson

*Rosa arizonica* Rydb., *R. arizonica* var. *granulifera* (Rydb.) Kearney & Peebles, *R. covillei* Greene, *R. lapwaiensis* St. John, *R. macounii* Greene, *R. pecosensis* Cockerell, *R. ultramontana* (S. Wats.) Heller, *R. woodsii* ssp. *ultramontana* (S. Wats.) Taylor & MacBryde, *R. woodsii* var. *arizonica* (Rydb.) W.C. Martin & C.R. Hutchins, *R. woodsii* var. *macounii* (Greene) W.C. Martin & C.R. Hutchins

[4,000] - 5,700 [9,000] ft. [May] Jun - [Jul]. Uncommon on mesic slopes. *Juniperus deppeana*, *Pinus discolor*, *Quercus arizonica*.

Chiricahua Mts.: Rucker Canyon; Pine Canyon; Faraway Ranch; Cave Creek. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Animas Mts. Apache, Navajo, and Coconino counties, south to Cochise and Pima counties. New Mexico and Arizona. Southwestern.

Exsicc.: SWRS [SWRS 1958-276]. ARIZ [Blumer 1310, 2292; Loomis & Peebles 5396, 5870].

### **Rosa woodsii** Lindl. var. **woodsii**

*Rosa adenosepala* Woot. and Standl., *R. fendleri* Crep., *R. hypoleuca* Woot. & Standl., *R. neomexicana* Cockerell, *R. standleyi* Rydb., *R. terrens* Lunell, *R. woodsii* var. *adenosepala* (Woot. & Standl.) W.C. Martin & C.R. Hutchins, *R. woodsii* var. *fendleri* (Crep.) Rydb., *R. woodsii* var. *hypoleuca* (Woot. & Standl.) W.C. Martin & C.R. Hutchins

[3,500] 4,500 - 6,500 [10,000] ft. Apr - [Aug]. Spineose deciduous shrub, nanophanerophyte; leptophyll, orthophyll. Uncommon in woods, mesic slopes, and canyons. *Ceanothus intergerrimus*, *Quercus hypoleucaoides*, *Lupinus Blumeri*.

Chiricahua Mts.: Chiricahua Nat. Mon., Bonita Canyon; Cave Creek; upper Cave Creek near Onion Saddle. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Rincon Mts. Apache, Coconino, Cochise, and Yavapai counties. Western Texas through New Mexico to Arizona and northward to North Dakota, Minnesota, and British Columbia. Western.

Exsicc.: CHIR [Clark 8116, Reeves 2796]. SWRS [Roth s.n.]. ARIZ [Toumey s.n.; Toolin 813].

### **Rubus discolor** Weihe & Nees

*Rubus procerus* P.J. Muell.

5,400 - [6,000] Broadleaf deciduous shrub, microphanerophyte; mesophyll, orthophyll. Uncommon on swales and lower slopes.

Chiricahua Mts.: Southwestern Research Station. Sierra Ancha, Grand Canyon and Oak Creek Canyon. Coconino County. Introduced.

Exsicc.: SWRS [SWRS 1959-130].

### **Rubus idaeus** L. ssp. **strigosus** (Michx.) Focke

*Rubus carolinianus* Rydb., *R. idaeus* ssp. *melanolasius* (Dieck) Focke, *R. idaeus* var. *sachalinensis* (Levl.) Focke, *R. idaeus* var.

*aculeatissimus* Regel & Tiling, *R. idaeus* var. *canadensis* Richards., *R. idaeus* var. *gracilipes* M.E. Jones, *R. idaeus* var. *melanolasius* (Dieck) R.J. Davis, *R. idaeus* var. *melanotrichys* (Focke) Fern., *R. idaeus* var. *strigosus* (Michx.) Maxim, *R. melanolasius* Dieck, *R. neglectus* Peck, *R. strigosus* Michx., *R. strigosus* var. *acalyphaca* (Greene) V. Bailey, *R. strigosus* Michx. var. *arizonicus* (Greene) Kearney & Peebles, *R. strigosus* var. *canadensis* (Richards.) House

[6,500] 8,300 - 8,800 [11,500] ft. Jun - [Jul]. Broadleaf deciduous shrub, microphanerophyte; mesophyll, orthophyll. Uncommon on dirt roadsides, swales and lower slopes.

Chiricahua Mts.: Rustler Park; Wilderness Area, Price Canyon Trail; Centella Point. Also Pinaleno Mts., Sierra Ancha, Huachuca Mts. Apache County to Mohave County, south to Cochise and Pima counties. Widely distributed in the cooler parts of North America. Temperate.

This is the progenitor of some of the cultivated raspberries.  
Exsicc.: SWRS [Morse s.n.]. CHWA [Leithliter 347].

### **Rubus neomexicanus** Gray

*Rubus exrubicundus* V. Bailey  
Thimbleberry

[5,000] 6,000 - [9,000] 9,020 ft. May - Sep. Broadleaf deciduous shrub, nanophanerophyte. Common in rocky wooded canyons and north-facing slopes, becoming confined to the riparian at lower elevations. *Ceanothus integerrimus*, *Purshia mexicana*.

Chiricahua Mts.: Chiricahua Nat. Mon.; between Rustler Park and Long Park; Wilderness Area; Cave Creek; Portal to Onion Saddle road; along crest south of Rustler Park. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts. Coconino County to Graham, Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and northern Mexico. Apachian.

Exsicc.: CHIR [Clark 8026, Reeves 996, 2901, Roseberry 132]. SWRS [SWRS 1958-80, Wittmann 27]. CHWA [169, 348, 502, 623].

### **Rubus parviflorus** Nutt. var. **parvifolius**

(Gray) Fern.

*Rubacer parviflorus* (Nutt.) Rydb., *Rubus parviflorus* var. *bifarius* Fern., *R. parviflorus* var. *grandiflorus* Farw., *R. parviflorus* var. *heteradenius* Fern., *R. parviflorus* var. *hypomalacus* Fern., *R. parviflorus* var. *parviflorus* (Gray) Fern.

Thimbleberry

6,500 [8,000] - 7,000 [9,500] ft. [Jun] Fruit [Aug] - [Sep] Fruit [Sep]. Broadleaf deciduous shrub, microphanerophyte; mesophyll, orthophyll. Found in woodlands, copses, groves, borders, and open places.

Chiricahua Mts.: Greenhouse Trail; upper Pine Canyon. Pinaleno Mts. New Mexico, northward to western Ontario, west to Alaska, British Columbia, and the Pacific Coast states, and southward in the mountains of Mexico. Temperate.

### **Sorbus dumosa** Greene

Mountain-ash

[8,000] - 9,700 [10,000] ft. [Jun] - Jul. Broadleaf deciduous shrub, nanophanerophyte. Uncommon in shallow draws and north-facing slopes of coniferous forests in moist soil.

Chiricahua Mts.: north face of Chiricahua Peak. Also Pinaleno Mts., Santa Catalina Mts. Apache, Navajo, and Coconino

counties, south to Cochise and Pima counties. New Mexico and Arizona. Southwestern.

Exsicc.: SWRS [1959-545]. ARIZ [Chir. Veg. Team 58-472].

## Rubiaceae—Madder Family.

A family of trees or shrubs, sometimes lianas, infrequently herbs. The Rubiaceae are a large pantropical and subtropical family of nearly 400 genera (of which nearly half are monotypic) and 4,800 to 5,000 species. The family is especially abundant in northern South America. About 50 genera are indigenous to Mexico and 14 in the United States. The Rubiaceae are of economic importance primarily for several tropical crops, notably coffee (*Coffea*), quinine (*Cinchona*), and ipecac (*Cephaelis*). Gardenia (*Gardenia*) and madder (*Rubia*) are well known ornamentals.

### **Bouvardia ternifolia** (Cav.) Schlecht.

*Bouvardia glaberrima* Engelm.

Smooth bouvardia

[3,000] 5,000 - 6,260 [9,000] ft. [May] Jul - Aug [Oct]. Suffrutescent shrub, suffrutescent chamaephyte. Common on grassland, grassland/scrub and in wooded canyons on well-drained soil. Prefers partial shade. *Platanus wrightii*, *Juglans major*, *Salix gooddingii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site along Apache Pass Road; Rucker Canyon; 2 mi. southwest of Portal; Wilderness Area, South Fork Cave Creek. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Southern Apache County to Cochise, Santa Cruz, and Pima counties. Southern New Mexico, Arizona, and northern Mexico. Madrean.

Cultivated as an ornamental shrub.

Exsicc.: CHIR [Clark 8351, Moir 518, Reeves 1344, 1522, 3850, 4203]. FOBO [MHoy 267]. SWRS [Ordaway 139].

### **Crusea diversifolia** (Kunth) W.A. Anderson

*Crusea subulata* (Pavon) Gray, *C. wrightii* Gray

[5,000] 5,400 - 6,300 [7,500] ft. Aug - Sep. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Uncommon in meadows, road banks, or in woods.

Chiricahua Mts.: Chiricahua Nat. Mon.; junction of Portal-Onion Saddle road and the Paradise road. Also Huachuca Mts., Santa Rita Mts., Canelo Hills. Southern New Mexico and Arizona; Mexico. Madrean.

Exsicc.: CHIR [Reeves 1532]. SWRS [Walker s.n.].

### **Diodia teres** Walt. var. **angustata** Gray

Button-weed

[4,000] 4,900 - 7,600 ft. Jul - Sep. Summer annual forb. Uncommon in meadows, open woodlands and chaparral, dry slopes, and along streams. *Fraxinus pennsylvanica*, *Juglans major*, *Celtis reticulata*, *Vitis arizonica*, *Chilopsis linearis*, *Populus fremontii*, *Rhus microphylla*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; South Canyon; Onion Saddle. Also Huachuca Mts., Rincon Mts., San Bernardino Mts., Mule Mts., Pinaleno Mts., Santa Rita Mts., Canelo Hills. Connecticut to Missouri and Arizona, south to Florida and Panama. Temperate, Latin American.

Exsicc.: CHIR [Clark 8573, Moir 527, 570, Reeves 1691]. FOBO [MHoy 311].

### **Galium fendleri** Gray

## Bedstraw

5,600 - 9,790 ft. Jun - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common in wooded canyons and on shaded slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.; East Turkey Creek; Turkey Park; Wilderness Area. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Greenlee, Graham, Cochise, Santa Cruz, and Pima counties. New Mexico and southeastern Arizona. Apachian.

Hilend and Howell 1935.

Exsicc.: CHIR [Clark 8393, Reeves 916, 990, 3962]. SWRS [Waler s.n., Pough 1962-30]. CHWA [Leithliter 423, 485, 569].

### **Galium mexicanum** Kunth ssp. **aspernum**

(Gray) Demps.

*Galium aspernum* Gray, *G. mexicanum* var.

*aspernum* (Gray) Higgins & Welsh

Bedstraw

5,500 - 9,790 ft. Jun - Sep. Perennial deciduous forb, spreading hemicryptophyte. Uncommon on open coniferous slopes, wooded canyons, often near boulders in streambeds. *Pinus arizonica*, *Abies concolor*, *Pseudotsuga menziesii*, *Quercus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Rustler Park; along road between Rustler Park and Long Park. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Sonora, Mexico. Temperate.

Hilend & Howell (1935).

Exsicc.: CHIR [Reeves 1446, 4152, 4552]. SWRS [Ordway s.n., Wittmann 31]. CHWA [Leithliter 124, 374, 386, 497, 562].

### **Galium microphyllum** Gray

*Relbunium microphyllum* (Gray) Hemsl.

Bedstraw

5,400 - 7,000 ft. May - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common in dry woodlands, also in canyons and streambeds at lower elevations. *Quercus emoryi*, *Q. arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon.; South Fork Cave Creek. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts., Canelo Hills. Southwestern.

Exsicc.: CHIR [Clark 8267, Dole 104, Reeves 1413, 1460, 3108, 4369]. SWRS [Ordway 144].

### **Galium proliferum** Gray

*Galium proliferum* Gray var. *subnudum* Greenm., *G. virgatum* Nutt. var. *diffusum* Gray

Bedstraw

[2,000] 5,000 - 5,100 ft. Mar - [May]. Winter-annual forb, scapose or leafy-stemmed therophyte. Found in canyons and rocky slopes, often on limestone. *Ericameria laricifolia*, *Nolina microcarpa*, *Dasyliorion wheeleri*, *Aloysia wrightii*, *Fouquieria splendens*, *Opuntia phaeantha*, *Ceanothus greggii*, *Rhus microphylla*, *Bouteloua curtipendula*, *Bouteloua hirsuta*, *Bouteloua eriopoda*, *Muhlenbergia emersleyi*, *Leptochloa dubia*, *Hilaria belangeri*, *Heteropogon contorta*, *Eragrostis intermedia*, *Tridens muticus*, *Aristida fenderiana*, *Lychurus phleoides*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill east of trailer at headquarters. Also Rincon Mts., Santa Catalina Mts. Southwestern.

Hilend & Howell (1935).

Exsicc.: FOBO [MHoy 334]. SWRS [MHoy s.n.].

### **Galium wrightii** Gray

*Galium frankliniense* Correll, *G. rothrockii* Gray, *G. wrightii* (Gray) Ehrend. ex Ferris, *G. wrightii* var. *rothrockii* (Gray) Ehrend. ex Ferris  
Bedstraw

[3,500] 4,900 - 7,000 [8,500] ft. Mar [Jun] - Sep [Oct].

Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte. Common on woodland slopes and rocky warm streambeds. *Fraxinus pennsylvanica*, *Juglans major*, *Celtis reticulata*, *Vitis arizonica*, *Chilopsis linearis*, *Populus fremontii*, *Rhus microphylla*, *Zizyphus obtusifolia*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at Apache Spring. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleño Mts., Animas Mts., Sierra de los Ajos. Apache County to Coconino County, south to Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and northern Mexico. Southwestern.

Hilend & Howell (1935).

Exsicc.: CHIR [Reeves 1359, 1459, 1717, 1795, 1860, 3817, 4368]. FOBO [MHoy 443, 319].

### **Hedyotis greenei** W.H. Lewis

*Oldenlandia greenei* Gray

[5,300] - 6,000 [8,000] ft. Aug - Sep. Uncommon on scab rock and in oak woodland.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita-Pickett saddle; just south of Southwestern Research Station, West Turkey Creek near ranger station. Southern New Mexico and Arizona, northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8688]. SWRS [Elliott s.n.].

### **Houstonia wrightii** (Gray) Fosberg

*Hedyotis cervantesii* Kunth, *H. pygmaea* R. & S., *H. wrightii* (Gray) Fosberg, *Houstonia wrightii* Gray

5,300 - 6,300 [8,800] ft. Apr - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicyclopedia. Common in wooded canyons and open wooded slopes, sometimes on disturbed areas. *Pseudotsuga menziesii*, *Pinus engelmannii*, *Pinus reflexa*, *Pinus arizonica*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Cave Creek along Herb Martyr Dam; above Southwestern Research Station on mesa; near bottom of Morse Canyon Trail. Also Rincon Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Sonora, Mexico. Madrean.

Exsicc.: CHIR [Clark 8353, Reeves 1411, 3451]. SWRS [Pough 1961-22, 1961-28].

### **Houstonia rubra** Cav.

*Hedyotis rubra* (Cav.) Gray, *Oldenlandia rubra* (Cav.) Grey

[4,000] - 5,000 [6,000] ft. [Apr] - [Aug] Sep. Perennial deciduous forb. Found on mesas and dry rocky hills in sandy soil. *Quercus emoryi*, *Juniperus monosperma*, *Juniperus deppeana*, *Pinus discolor*, *Ericameria laricifolia*, *Nolina microcarpa*, *Prosopis glandulosa*, *Agave palmeri*, *Yucca baccata*, *Mimosa aculeaticarpa* var. *biuncifera*, *Muhlenbergia emersleyi*, *Schizachyrum cirratum*, *Bouteloua curtipendula*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site along Apache Pass Road. Also Mule Mts., Canelo Hills. Navajo, Coconino, Cochise, and Santa Cruz counties. New Mexico, Arizona, and Mexico. Chihuahuan.

Correll & Johnston (1970).

Exsicc.: FOBO [MHoy 487].

## **RUTACEAE—Rue Family.**

A family of herbs, shrubs, and trees. There are about 140 genera and 1,300 species, widely distributed in the temperate and tropical regions of the northern and southern hemispheres, but most numerous in South Africa and Australia. The family contains many members of economic importance. Notable among them are the citrus fruits (*Citrus*) and Kumquat (*Fortunella*). A few species are ornamentals.

### **Ptelea trifoliata** L. ssp. **angustifolia** (Benth.) V. Bailey var. **angustifolia** (Benth.) M.E. Jones

*Ptelea angustifolia* Benth.

#### Hop-tree

[4,000] 4,900 - 7,200 [8,500] ft. May - Aug. Broadleaf deciduous tree, microphanerophyte. Uncommon; rare on north-facing wooded slopes and drainages, also on dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site, Siphon Canyon; South Fork Cave Creek; East Turkey Creek; Wilderness Area, Winn Falls. Also Huachuca Mts., Rincon Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Santa Rita Mts., Sierra de los Ajos. Sonora, Mexico. Southwestern.

Exsicc.: CHIR [Clark 8232, Reeves 2980]. SWRS [SWRS 1958-158, 1960-176]. FOBO [MHoy 416]. CHWA [Leithliter 626].

### **Thamnosma texana** (Gray) Torr.

*Rutosma purpurea* Woot. & Standl.

[3,200] - 5,100 ft. Feb. Narrowleaf dicot shrub, chamaephyte; suffrutescent low shrub. Uncommon on well-drained slopes and flats, often on limestone.

Chiricahua Mts.: Fort Bowie Nat. Historic Site, Overlook. Also Rincon Mts., Mule Mts., Santa Catalina Mts. Greenlee County to Coconino County, south to Cochise, Santa Cruz, and Pima counties. Colorado and western Texas to southern Arizona and northern Mexico. Southwestern.

Exsicc.: SWRS [Barnes s.n.]. FOBO [MHoy 16].

## **SALICACEAE—Willow Family.**

A family of woody trees or shrubs (a few arctic species are suffrutescent). The family is composed of 2 genera (*Populus* with 30-40 species, *Salix* with about 300 species) of almost world wide distribution (absent in Australasia and the Malayan Archipelago and only 1 species in the Philippine Islands). The center of distribution is in the north temperate and subarctic regions. The family is of little economic importance.

### **Populus fremontii** S. Wats. ssp. **fremontii**

*Populus arizonica* Sarg., *P. arizonica* var. *jonesii* Sarg., *P. canadensis* Moench var. *fremontii* (S. Wats.) Kuntze, *P. fremontii* var. *arizonica* (Sarg.) Jepson, *P. fremontii* var. *macdougalii* (Rose) Jepson, *P. fremontii* var. *pubescens* Sarg., *P. fremontii* var. *thornberi* Sarg., *P. fremontii* var. *toumeyi* Sarg., *P. macdougalii* Rose

Fremont cottonwood

3,880 - 6,000 ft. Mar - Jul. Broadleaf deciduous tree, mesophanerophyte; mesophyll, orthophyll. Uncommon in open canyons, arroyo banks, and riparian flats.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita and East Whitetail canyons; Fort Bowie Nat. Historic Site in Siphon

Canyon; Tex Canyon; Cave Creek; San Simon Cienega. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Throughout Arizona. Western Texas to Nevada, Arizona, California, and northern Mexico. Southwestern.  
Exsicc.: CHIR [Clark 8103, Reeves 2967, 3437, 4354].  
SWRS [SWRS 1959-199].

**Populus tremuloides** Michx. var. **aurea**  
(Tides.) Daniels  
*Populus aurea* Tides., *P. cercidiphylla* Britt., *P. xpolygonifolia* Bernard, *P. tremula* L. ssp. *tremuloides* (Michx.) Löve & Löve, *P. tremuloides* var. *aurea* (Tides.) Daniels, *P. tremuloides* var. *cercidiphylla* (Britt.) Sudw., *P. tremuloides* var. *intermedia* Victorin, *P. tremuloides* var. *magnifica* Victorin., *P. tremuloides* var. *rhomboidea* Victorin., *P. tremuloides* var. *vancouveriana* (Trel.) Sarg., *P. vancouveriana* Trel.

Quaking aspen, alamo temblon

7,000 - 9,680 [9,800] ft. [May] - Aug. Broadleaf deciduous tree, mesophanerophyte. Common on cool mesic slopes, often on old fire scars; at lower elevations may become a riparian plant.  
*Pinus arizonica*, *Pseudotsuga menziesii*, *Abies concolor*.

Chiricahua Mts.: Greenhouse Trail; above Barfoot Park; Rustler Park; Wilderness Area; Booger Spring; Centella Point; Rock Canyon. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Huachuca Mts., Sierra de los Ajos. Throughout western North America. Sonora, Mexico. Temperate, Northern.

Little (1953). Correll & Johnson (1970).

Exsicc.: SWRS [Ordway s.n.]. CHWA [Leithliter 668].

### **Salix bonplandiana** Kunth

*Salix bonplandiana* var. *toumeyi* (Britt. & Shafer)  
Schneid., *S. toumeyi* Britt. & Shafer

Bonpland willow

[4,000] - 5,400 ft. Apr. Broadleaf deciduous tree, mesophanerophyte. Rare in wet drainages, riparian.

Chiricahua Mts.: Southwestern Research Station near swimming pool; Bootlegger Trail. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Sonora, Mexico. Southwestern.

Exsicc.: SWRS [Kurzius/Kingsley s.n., Roth s.n.].

### **Salix exigua** Nutt.

*Salix argophylla* Nutt., *S. exigua* ssp. *interior* (Rowlee) Cronq., *S. exigua* ssp. *interior* var. *pedicellata* (Andersss.) Cronq., *S. exigua* var. *luteosericea* (Rydb.) Schneid., *S. exigua* var. *nevadensis* (S. Wats.) Schneid., *S. exigua* var. *stenophylla* (Rydb.) C.K. Schneid., *S. exigua* var. *virens* Rowlee, *S. fluvialis* Nutt. var. *argophylla* (Nutt.) Sarg., *S. fluvialis* var. *exigua* (Nutt.) Sarg., *S. fluvialis* var. *sericans* (Nees) Boivin, *S. hindsiana* Benth. var. *tenuifolia* Andersss., *S. interior* Rowlee, *S. interior* var. *angustissima* (Andersss.) Dayton, *S. interior* var. *exterior* Fern., *S. interior* var. *luteosericea* (Rydb.) C.K. Schneid., *S. interior* var. *pedicellata* (Andersss.) Ball, *S. interior* var. *wheeleri*

Rowlee, *S. linearifolia* Rydb. *S. longifolia* Muhl. non Lam., *S. longifolia* var. *angustissima* Andersss., *S. longifolia* var. *agrophylla* (Nutt.) Andersss., *S. longifolia* var. *exigua* (Nutt.) Bebb, *S. longifolia* var. *interior* (Rowlee) M.E. Jones, *S. longifolia* var. *opaca* Andersss., *S. longifolia* var. *pedicellata* Andersss., *S. longifolia* var. *wheeleri* (Rowlee) C.K. Schneid., *S. luteosericea* Rydb., *S. macrostachya* Nutt., *S. macrophylla* Nutt. ex Ball, *S. nevadensis* S. Wats., *S. rubra* Richards. non Huds., *S. stenophylla* Rydb., *S. thurberi* Rowlee, *S. wheeleri* (Rowlee) Rydb. (Rydb.) Schneid Coyote willow

4,900 - [8,000] ft. Apr. Broadleaf deciduous shrub, microphanerophyte. Common along wet watercourses. Chiricahua Mts.: Fort Bowie Nat. Historic Site in lower Cut Off Canyon; Southwestern Research Station; West Turkey Creek. Also Rincon Mts., Santa Catalina Mts., Pinaleno Mts., Animas Mts. Western. Exsicc.: FOBO [MHoy 99].

### **Salix gooddingii** Ball

*Salix gooddingii* Ball var. *variabilis* Ball, *S. nigra* Marsh. var. *vallicola* Dudl., *S. vallicola* (Dudl.) Britt. & Shafer

Southwestern black willow, Goodding willow  
3,880 - 6,000 [7,000] ft. Apr - Jun. Deciduous broadleaf tree. Common in wooded canyons and wet places, riparian.  
*Populus fremontii*.

Chiricahua Mts.: Chiricahua Nat. Mon. at Bonita Springs and East Whitetail Canyon; Fort Bowie Nat. Historic Site at Apache Spring; Southwestern Research Station near lab; Herb Martyr Dam; San Simon Cienega. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Mule Mts., Animas Mts., Canelo Hills. Throughout most of Arizona. Western Texas to California and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 8104, Reeves 2954, 3439, 3815].  
SWRS [Kurzius/Kingsley s.n., Roth s.n.].

### **Salix irrorata** Anderss.

Silver-leaf willow

[4,000] 5,450 - 5,800 [7,500+] ft. Mar. Broadleaf deciduous shrub, microphanerophyte. Rare along streams.

Chiricahua Mts.: Chiricahua Nat. Mon., Bonita Canyon, Bonita and Shake Springs. Also White Mts., Rincon Mts., Santa Catalina Mts. Rocky Mountain.

Exsicc.: CHIR [Clark 8105, Reeves 2460, 2462, 2503, 2518, 2955].

### **Salix lasiolepis** Benth.

*Salix bakeri* von Seem. ex C.F. Baker, *S. boiseana* A. Nels., *S. lasiolepis* var. *bakeri* (von Seem. ex C.F. Baker) Ball, *S. lasiolepis* var. *braceolinae* Ball, *S. lasiolepis* var. *fallax* Bebb, *S. lasiolepis* var. *nivaria* Jepson, *S. lasiolepis* var. *sandbergii* (Rydb.) Ball, *S. lutea* Nutt. var. *nivaria* Jepson, *S. sandbergii* Rydb., *S. suksdorffii* Gand., *S. tracyi* Ball Arroyo willow

[4,000] 5,200 - 7,540 [7,500] ft. Feb - Sep. Broadleaf deciduous shrub, microphanerophyte. Uncommon along streams.

Chiricahua Mts.: Chiricahua Nat. Mon. in Bonita Canyon and Shake Springs; Southwestern Research Station; Wilderness Area; West Turkey Creek. Also Sierra Ancha, Santa Catalina Mts., Animas Mts., Canelo Hills. Apache, Navajo and Coconino counties, south to the mountains of Cochise and Pima counties. Idaho and Washington to Arizona, California, and northern Mexico. Western.

Exsicc.: CHIR [Reeves 1448, 3438, 4164]. SWRS [Ordway 63, Kurzius/Kingsley s.n.]. CHWA [Leithliter 436, 618].

### **Salix scouleriana** Barratt ex Hook.

*Salix brachystachys* Benth., *S. brachystachys* ssp. *scouleriana* var. *crassylulis* Andersss., *S. brachystachys* var. *scouleriana* (Hook.) Andersss., *S. capreoides* Andersss., *S. flavescens* Nutt., *S. flavescens* var. *capreoides* (Andersss.) Bebb, *S. flavescens* var. *scouleriana* (Barratt ex Hook.) Bebb, *S. nuttallii* Sarg., *S. nuttallii* var. *capreoides* (Andersss.) Sarg., *S. scouleriana* var. *brachystachys* (Benth.) M.E. Jones, *S. scouleriana* var. *coetanea* Ball, *S. scouleriana* var. *crassijulis* (Andersss.) Schneid., *S. scouleriana* var. *flavescens* (Nutt.) Henry, *S. scouleriana* var. *poikila* Schneid., *S. scouleriana* var. *thompsonii* Ball, *S. stagnalis* Nutt. Scouler willow, fire willow

[8,100] 8,530 - 9,790 ft. Jun - Sep. Broadleaf deciduous tree, microphanerophyte. Uncommon. Riparian except at highest elevations; lower down on shaded slopes; cool microhabitats below north-facing cliffs, etc.

Chiricahua Mts.: Rustler Park, near spring; Wilderness Area; Centella Point; Tub Springs. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts. Western.

Exsicc.: SWRS [SWRS 1960-104]. CHWA [Leithliter 425, 473, 598].

### **Salix taxifolia** Kunth

*S. microphylla* Schlecht. & Cham., *S. taxifolia* var. *lejocarpa* Andersss., *S. taxifolia* var. *limitanea* I.M. Johnston, *S. taxifolia microphylla* (Schlecht. & Cham.) Schneid., *S. taxifolia* var. *seriocarpa* Andersss.

Yew-leaf willow

[3,500] 4,900 - 6,000 ft. Apr - Jul. Broadleaf deciduous tree, microphanerophyte. Local along streams and arroyos in grassland.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Bonita Canyon and west of monument; Cave Creek Ranch; Cave Creek. Also Rincon Mts., Animas Mts., Huachuca Mts. Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona, south to Guatemala. Latin American.

Excellent browse for livestock. Slow growing.

Exsicc.: CHIR [Clark 8249, Reeves 3148]. SWRS [SWRS 1959-518, Walker s.n.].

### **SANTALACEAE—Sandalwood Family.**

A family of trees, shrubs, or herbs, a few genera parasitic on the roots or branches of trees. There are 26 genera widely distributed throughout temperate and tropical regions. The number of species recognized by various taxonomists varies from 250 to 600. The economic importance of the family is nearly limited to the aromatic and sweet-scented sandalwood (*Santalum album*) which is prized for use in perfumery and cabinet-making.

### **Commandra umbellata** (L.) Nutt. ssp. **pallida**

(A. DC.) Piehl

*Comandra pallida* A. DC., *C. umbellata* var. *angustifolia* (A. DC.) Torr., *C. umbellata* var. *pallida* (A. DC.) M.E. Jones

Bastard-toadflax

[5,000] 5,400 - 9,020 ft. Apr - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon on slopes and open woodland; also on rocky slopes in canyons, often in the shade of oaks. *Pinus discolor*, *Quercus emoryi*, *Juniperus deppeana*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Paradise; Wilderness Area. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts. Southwestern, Plains.

Exsicc.: CHIR [Clark 8207, Dole 97, Reeves 1235, 1729, 2621, 2784]. SWRS [Walker s.n.]. CHWA [Leithliter 71, 355].

### **SAPINDACEAE—Soapberry Family.**

A family of trees or shrubs, or sometimes tendril-producing vines, rarely herbs. There are 130 genera and about 1,100 species, primarily pantropical in distribution and abundant in Asia and America. The family is economically important for the lychee (*Litchi chinensis*), a much prized fruit.

### **Sapindus saponaria** L. var. **drummondii**

(Hook. & Arn.) L. Benson

*Sapindus drummondii* Hook. & Arn.

Soapberry, western soapberry, jabonillo

4,900 - 5,800 ft. May - Jul [Aug]. Broadleaf deciduous tree, microphanerophyte. Uncommon on arroyos and alluvium in grassland, grassland/scrub or south-facing slopes, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in Siphon Canyon; Whitewater Draw; Tex Canyon. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts. Southwestern, Latin America.

Exsicc.: CHIR [Clark 8237, Reeves 3147, 3182, 3564, 4068]. FOBO [MHoy 179]. SWRS [SWRS 1959-267].

### **SAPOTACEAE—Sapote Family.**

A family of shrubs or trees, often with spines and milky juice. Distribution is mainly in the tropics of the Eastern and Western hemispheres with about 40 genera and 800 species. The family is of no economic value.

### **Sideroxylon lanuginosum** Michx. ssp. **rigidum** (Gray) Pennington

*Bumelia lanuginosa* ssp. *rigida* (Gray) Cronq., *B. lanuginosa* var. *rigida* Gray, *B. lanuginosa* var.

*texana* (Buckl.) Cronq., *B. monticola* Buckl., *B. rigidula* (Gray) Small, *B. texana* Buckl.

Gum bumelia, sapote, ironwood

[3,500] 4,900 - 5,200 [6,000] ft. Jun - Jul. Broadleaf deciduous shrub, microphanerophyte; microphyll, orthophyll. Uncommon on gravel stream terraces and on floodplains.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; South Canyon; Lower Tex Canyon; Cave Creek, Idlewilde Campground; Wood Canyon. Also Rincon Mts., Animas Mts., Santa Catalina Mts. Cochise, Santa Cruz, and Pima counties. Georgia and Florida to Illinois, Kansas, southern Arizona, and northern Mexico. Temperate.

Exsicc.: FOBO [MHoy 218]. SWRS [Pough 1961-41, Roth

s.n.].

## SAURURACEAE—Lizard's Tail Family.

A small family of perennial herbs, usually of moist situations. There are 5 genera and 7 species. From the Himalayas to Japan, Taiwan and the Philippines, Indochina, North America and Mexico. The family is of little economic value.

### **Anemopsis californica** (Nutt.) Hook. & Arn.

*Anemopsis californica* var. *subglabra* L. Kelso  
Yerba mansa

[2,000] 3,900 - 5,400 ft. Jul - Aug. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll. Wet ground, ciénegas, swamps.

Chiricahua Mts.: Southwestern Research Station. Also Canelo Hills. Coconino County, Yavapai County, and Cochise to Yuma counties. Western Texas to Utah, Arizona, and California, southward into Mexico. Southwestern.

An infusion of the root was used by Californians of Spanish descent and by the Pima Indians as a remedy for various ailments.

Exsicc.: SWRS [Pough 1962-75, Todsen s.n.].

## SAXIFRAGACEAE—Saxifrage Family.

A family of herbs, shrubs, or small trees. There are about 80 genera and 1,200 species. The family is represented by 30 genera in this country, 6 in South America, 4 in Mexico, 9 in Australia and New Zealand, 6 in South Africa, and 6 in Oceania. The family is primarily important for its ornamentals with the sale of currants and gooseberries of minor importance.

### **Heuchera glomerulata** Rosendahl, Butters & Lakela

Alumroot

[4,000] - [9,000] ft. [May] - [Aug]. Perennial deciduous forb, rosette hemicryptophyte. Uncommon.

Chiricahua Mts.: along crest south of Rustler Park. Also Pinaleno Mts., Santa Catalina Mts. Graham County and Cochise County. Known only from southeastern Arizona. Apachian.

### **Heuchera rubescens** Torr. var. *versicolor* (Greene) M.G. Stewart

*Heuchera leptomeria* Greene, *H. leptomeria* var. *peninsularis* Rosendahl, Butters & Lakela, *H. versicolor* Greene, *H. versicolor* var. *leptomeria* (Greene) Kearney & Peebles  
Alum root

[4,000] 7,000 - 9,680 [12,000] ft. May - Oct. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon on mesic slopes in pine forests. *Pinus arizonica*, *P. strobus*, *Pseudotsug menziesii*.

Chiricahua Mts.: Mormon Spring Canyon; north and northwest face Buena Vista Peak; Rustler Park; Barfoot Park; Monument Peak; south of Onion Saddle, East Turkey Creek, Centella Point, Wilderness Area. Also Rincon Mts. Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Huachuca Mts., Santa Rita Mts., Sierra de los Ajos. Apache to Mohave counties and south to Cochise, Santa Cruz, and Pima counties. Western Texas and southern Utah to Arizona, California, and Sonora, Mexico. Madrean.

Rootstocks are used as a styptic and astringent. Reputedly relieves diarrhea caused by minerals in alkaline drinking water.

Exsicc.: SWRS [Walker s.n.], CHWA [Leithliter 93]. ARIZ [Van Devender 85-177, 85-198, & McMoran s.n., Kaiser 49-193, Blumer pr 13, 1458, Gibson 2824, Clark 8494, Barr 64-344, 64-524, 65-298, 66-210].

### **Heuchera sanguinea** Engelm.

Coral-bells

[4,000] 5,500 - 9,680 ft. [Mar] May - Oct. Evergreen perennial forb, rosette hemicryptophyte; microphyll, orthophyll. Common on shady north slopes, rock ledges, cliffs and canyons, and along streams.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on Bowie Mountain; 0.5 mi. east of Onion Saddle; Wilderness Area. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Santa Rita Mts., Sierra de los Ajos. Southern Apache to Cochise, Santa Cruz, and Pima counties. Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8662, 8700, Moir 516, Reeves 979, 1382, 4083]. FOBO [MHoy 234]. SWRS [s.c. s.n.]. CHWA [Leithliter 393, 674, 716].

### **Saxifraga eriophora** S. Wats.

[4,600] - 8,200 [8,500] ft. [Mar] Apr - [May]. Evergreen perennial forb, rosette hemicryptophyte. Uncommon on shaded moist banks and under boulders in mesic habitats.

Chiricahua Mts.: East Turkey Creek; south of Rustler Park. Also Rincon Mts., Santa Catalina Mts., Santa Rita Mts., Huachuca Mts. Graham County, Cochise County, Santa Cruz and Pima counties. Southern New Mexico and southern Arizona. Apachian.

Exsicc.: SWRS [Walker s.n.], ARIZ [Hessel-Berg 65-286, Moir 657].

## SCROPHULARIACEAE—Figwort Family.

A large family mostly of herbs or small shrubs, sometimes lianas, a few are parasites lacking chlorophyll and some others are parasites or saprophytes containing chlorophyll. About 210 genera and nearly 3,000 species, of cosmopolitan distribution and represented on all continents. The family is not particularly important except for the drug plant *Digitalis* and numerous garden ornamentals.

### **Brachystigma wrightii** (Gray) Pennell

*Gerardia wrightii* Gray

[4,500] 5,200 - 5,650 [7,500] ft. Aug - Sep. Perennial. Probably root parasites. Uncommon on dry gravelly slopes, often among rocks and live oak trees.

Chiricahua Mts.: Chiricahua Nat. Mon.; Portal to Paradise road, Wilderness Area, Greenhouse Trail. Also Huachuca Mts., Mule Mts., Rincon Mts., Animas Mts., Canelo Hills. Cochise, Santa Cruz, and Pima counties. Southwestern New Mexico, southern Arizona, and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8685, Lehto 3327, Moir 493, Reeves 1239, 1602]. SWRS [s.c. s.n.].

### **Castilleja austromontana** Standl. & Blumer

5,000 - [9,500] ft. [Jul] - Aug [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common on shaded slopes, dry uplands, and pine forests.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; Apache Pass Mine. Also Rincon Mts., White Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts., Sierra de los Ajos. Apache and Greenlee counties to Cochise County, west to Gila and Pima Counties. Southern New Mexico, southeastern Arizona, and

northeastern Sonora. Madrean.

Type was collected in the Rincon Mts. by J.C. Blumer. The elevational disparity of these collections should be verified.  
Exsicc.: FOBO [MHoy 463]. ARIZ [Blumer 3411].

### **Castilleja integra** Gray var. **gloriosa** (Britt.)

Cockerell

*Castilleja gloriosa* Britt.

Indian paintbrush

[3,000] 5,100 - 5,500 [7,500] ft. Mar - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte. Common on well-drained soils in grassland, grassland/scrub and open woodland. *Quercus gisea*, *Pinus discolor*, *Bouvardia glaberrima*, bunch grasses.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site north of Overlook; Southwestern Research Station; between West Turkey Creek and Rock Creek in vicinity of Sanders Ranch. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleño Mts., Animas Mts. Apache County to Mohave County, south to Cochise, Santa Cruz, and Pima counties. Colorado, western Texas, New Mexico, Arizona and northern Mexico. Rocky Mountain.

Exsicc.: CHIR [Clark 8621, 9238, Moir 544, Reeves 1525, 1677, 2440, 4180]. FOBO [MHoy 137]. SWRS [Ordway 123].

### **Castilleja lanata** Gray

Indian paintbrush, paintedcup

[2,500] 5,100 - 6,500 [7,000] ft. [Jan] Apr - Aug [Dec]. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte. Uncommon on rocky slopes, sometimes on limestone. Grasses, shrubs, oaks.

Chiricahua Mts.: Chiricahua Nat. Mon. Fort Bowie Nat. Historic Site on hill east of trailer. Also Huachuca Mts., Rincon Mts., Dos Cabezas Mts., Sierra Estrella, Ajo Mts., Santa Catalina Mts., Pinaleño Mts., Mule Mts., Animas Mts. Greenlee, Graham, and Cochise, Pima, and Maricopa counties. Western Texas to southern Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [Reeves 2625, 2985, 4059]. FOBO [MHoy 120]. SWRS [SWRS 1958-127].

### **Castilleja linariifolia** Benth. ex DC.

*Castilleja linariifolia* var. *omnipubesens* (Pennell) Clokey, *C. linearis* Rydb., *C. trainii* Edwin

(3,000?) [5,000] - 8,500 [10,000] ft. [Apr] - Sep [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte. Common on dry uplands. Juniper, pine, spruce, and fir.

Chiricahua Mts.: Barfoot Park, Sierra Ancha. Apache County to Mohave County, south to Cochise and Pima Counties. Wyoming to New Mexico, Arizona, southern Nevada, and California. Rocky Mountain.

Exsicc.: SWRS [Ordway s.n.].

### **Castilleja minor** (Gray) Gray

[3,000] - 5,700 [7,500] ft. Apr - Aug. Summer annual forb, scapose or leafy-stemmed therophyte. Rare on moist soil near streams and springs, also cool moist slopes.

Chiricahua Mts.: near Stephens' Ranch; Barfoot Park; Little Park. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Whetstone Mts., Pajarito Mts. Navajo, Coconino, and Mohave counties to Greenlee, Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and northern Mexico. Southwestern.

Blumer [1810] was collected on the Stephens ranch on October 24, 1907, by the daughter of the family. The Stephens

ranch was situated in Pinery Canyon, just inside the Coronado National Forest boundary.

Exsicc.: ARIZ [Blumer N162, 1810, Loomis & Peebles 5424].

### **Castilleja nervata** Eastw.

*Castilleja cruenta* Standl.

Indian paintbrush

6,000 - [9,800] ft. [Jun] - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte. Uncommon, rare in the United States. Rocky dry shallow ravines on rhyolitic soil. *Bouvardia glaberrima*, *Quercus emoryi*, *Q. grisea*, *Castilleja integra*, perennial bunch grasses, *Pinus discolor*.

Chiricahua Mts.: between West Turkey Creek and Rock Creek in the vicinity of Sanders Ranch. Pinaleño Mts. Mexico. Apachian.

Type was collected in the Chiricahua Mts. by J.C. Blumer.  
Exsicc.: ARIZ [Blumer 2133, Egger 529].

### **Castilleja patriotica** Fern.

*Castilleja blumeri* Standl., *C. galeata* A. Nels., *C. patriotica* var. *blumeri* (Standl.) Kearn. and Peeb.

7,220 - 9,020 ft. Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte. Found in forest openings. *Pinus arizonica*, *Pinus engelmanni*, *Stevia*, *Geranium*, bracken, *Delphinium andesicola*.

Chiricahua Mts.: head of Pine Canyon; Wilderness Area; foot of Barfoot Peak; Centella Point. Also Huachuca Mts., Animas Mts., Sierra de los Ajos. Cochise County. Southeastern Arizona and northern Mexico. Madrean.

J.C. Blumer's 1906 collection at Barfoot notes that the area was recently lumbered. Type was collected in the Chiricahua Mts. by Blumer.

Exsicc.: SWRS [Ordway s.n.]. CHWA [Leithliter 823]. ARIZ [Blumer 143, 1380]. NMC [Blumer 1379; Ward & Peterson 83-040; Carter s.n.].

### **Castilleja sessiliflora** Pursh

Downy paintedcup

[4,000] - 5,100 ft. Apr - Jun. Perennial deciduous forb, scapose or leafy-stemmed hemicycophyte. Rare on rocky slopes and dry plains, sometimes on limestone. *Dasylion* and *Agave*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill east of trailer. Also Rincon Mts., Canelo Hills. Cochise, Santa Cruz, and Pima counties. Illinois to Saskatchewan, south to Missouri, Texas, and southern Arizona. Plains.

Corolla color varies from ochroleucus to pale purple within the same stand. Arizona specimens approach *Castilleja mexicana* (Hemsl.) Gray.

Exsicc.: FOBO [MHoy 121]. SWRS [Roth s.n.].

### **Castilleja tenuiflora** Benth.

*Castilleja laxa* Gray, *C. retrosa* Standl., *C. setosa* Penn. *tenuiflora* Benth.

Indian paintbrush, paintedcup

[4,000] 5,200 - 7,060 [7,700] ft. [Mar] Jun - Nov. Perennial deciduous forb, scapose or leafy-stemmed proto-chamaephyte. Uncommon on dry slopes, rock ledges, and among rocks in streambeds. Chaparral, oaks, pines.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; north slope of the Nippers; Wilderness Area, Monte Vista Trail. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Sierra de los Ajos. Cochise, Santa Cruz, and Pima counties. Southern Arizona and northern Mexico, south

beyond Rio Mayo. Apachian.

Type collected from the Chiricahua Mts. by J.C. Blumer.

Exsicc.: CHIR [Reeves 1842, 2837]. SWRS [1959-788].  
CHWA [Leithliter 43]. ARIZ [Blumer 2132].

### **Cordylanthus wrightii** Gray var. **wrightii**

*Cordylanthus wrightii* var. *pauciflorus* Kearney & Peebles

Club-flower, bird-beak

[5,000] 5,400 - 6,100 [7,500] ft. [Jul] Aug - Aug, Sep (fruits)  
[Oct]. Summer-annual forb, scapose or leafy-stemmed therophyte.  
Uncommon on alluvium and woodland, open forests, dry uplands,  
pines.

Chiricahua Mts.: Chiricahua Nat. Mon. in upper East  
Whitetail Canyon; Paradise Ranch. Also Sierra Ancha, Santa  
Catalina Mts. Apache, Navajo, and Coconino counties to Cochise  
and Pima counties. Western Texas to Arizona and northern  
Mexico. Madrean.

Exsicc.: CHIR [Reeves 1402]. SWRS [Walker s.n.].

### **Linaria dalmatica** (L.) P. Mill.

*Linaria dalmatica* ssp. *dalmatica*, *L. dalmatica* var.  
*macedonica* Fanzl., *L. macedonica* (Griseb.) D.A.  
Sutton

5,000 ft. Aug.

Chiricahua Mts.: Fort Bowie Nat. Historic Site along Cut Off  
Canyon and trail. Introduced from Europe.

Exsicc.: FOBO [MHoy 488].

### **Maurandya antirrhiniflora** Humb. & Bonpl.

*Antirrhinum maurandoides* Gray, *Asarina*  
*antirrhiniflora* (Humb. & Bonpl. ex Willd.) Penn.,  
*Maurandella antirrhiniflora* Humb. & Bonpl. ex  
Willd.

Blue maurandya

[1,500] 5,000 - 7,000 ft. [Apr] May - Aug [Oct]. Perennial  
deciduous forb, twining hemicryptophyte. Common on wooded  
slopes and canyons, along streambeds and often climbing over  
other vegetation.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat.  
Historic Site at Apache Spring; Portal to Paradise road;  
Southwestern Research Station. Also Huachuca Mts., Rincon  
Mts., Grand Canyon, Pinaleno Mts., Sierra Ancha, Santa Catalina  
Mts., Mule Mts. Southeastern corner Coconino County and  
Mohave County to Cochise, Santa Cruz, Pima, and Yuma counties.  
Western Texas to southeastern California and southward.  
Southwestern.

Exsicc.: CHIR [Clark 8425, Reeves 1521, 4008, 4290].  
FOBO [MHoy 173]. SWRS [Ordway 122].

### **Mimulus guttatus** DC.

*Mimulus arvensis* Greene, *M. bakeri* Gandog., *M.*  
*brachystylis* Edwin, *M. clementinus* Greene, *M.*  
*cordatus* Greene, *M. cuspidata* Greene, *M. decorus*  
(A. Grant) Suksd., *M. equinnus* Greene, *M. glabratus*  
Kunth var. *ascendens* Gray, *M. glareosus* Greene, *M.*  
*grandiflorus* J.T. Howell, *M. guttatus* ssp. *arenicola*  
Penn., *M. guttatus* ssp. *arvensis* (Greene) Munz, *M.*  
*guttatus* ssp. *haidensis* Calder & Taylor, *M. guttatus*  
ssp. *littoralis* Penn., *M. guttatus* ssp. *micranthus*

(Heller) Munz, *M. guttatus* ssp. *scouleri* (Hook.)  
Penn., *M. guttatus* var. *arvensis* (Greene) A. Grant,  
*M. guttatus* var. *decorus* A. Grant, *M. guttatus* var.  
*depauperatus* (Gray) A. Grant, *M. guttatus* var.  
*gracilis* (Gray) Campb., *M. guttatus* var. *grandis*  
Greene, *M. guttatus* var. *hallii* (Greene) A. Grant, *M.*  
*guttatus* var. *insignis* Greene, *M. guttatus* var. *laxus*  
(Penn. ex Peck) Peck, *M. guttatus* var. *lyratus*  
(Benth.) Penn. ex Peck, *M. guttatus* var. *microphyllus*  
(Benth.) Penn. ex Peck, *M. guttatus* var. *nasutus*  
(Greene) Jepson, *M. guttatus* var. *puberulus* (Greene)  
A. Grant, *M. hallii* Greene, *M. hirsutus* J.T. Howell,  
*M. langsdorffii* Donn ex Greene, *M. langsdorffii* var.  
*argutus* Greene, *M. langsdorffii* var. *arvensis*  
(Greene) Jepson, *M. langsdorffii* var. *californicus*  
Jepson, *M. langsdorffii* var. *guttatus* (Greene) Jepson,  
*M. langsdorffii* var. *insignis* (Greene) A. Grant, *M.*  
*langsdorffii* var. *microphyllus* (Benth.) A. Nels. & J.F.  
Macbr., *M. langsdorffii* var. *minimus* Henry, *M.*  
*langsdorffii* var. *nasutus* (Greene) Jepson, *M.*  
*langsdorffii* var. *platiphyllus* Greene, *M. laxus* Penn.  
ex Peck, *M. longulus* Greene, *M. luteus* L. var.  
*gracilis* Gray, *M. lyratus* Benth., *M. maguirei* Penn.,  
*M. marmoratus* Greene, *M. micranthus* Hell., *M.*  
*microphyllus* Benth., *M. nasutus* Greene, *M. nasutus*  
var. *micranthus* (Hell.) A. Grant, *M. paniculatus*  
Greene, *M. pardalis* Penn., *M. parishii* Gandog. non  
Greene, *M. petiolaris* Greene, *M. prionophyllus*  
Greene, *M. procerus* Greene, *M. puberulus* Greene  
ex Rydb., *M. puncticalyx* Gandog. *M. rivularis* Nutt.,  
*M. scouleri* Hook., *M. subreniformis* Greene, *M.*  
*tenellus* Nutt. ex Gray, *M. thermallis* A. Nels., *M.*  
*unimaculatus* Penn.

Monkey-flower

[500] 4,500 - 8,400 [9,500] ft. Mar - Sep. Perennial  
deciduous forb, semirosette hemicryptophyte. Uncommon along  
streams and periodically wet areas in canyons. *Pinus arizonica*,  
*Pseudotsuga menziesii*, *Quercus gambelii*, *Populus tremuloides*,  
*Salvia lemonii*, *Senecio wrightii*.

Chiricahua Mts.: Chiricahua Nat. Mon.: Residential Area;  
Fort Bowie Nat. Historic Site in Siphon Canyon tank; near Sunny  
Flat Campground; Wilderness Area, Southwestern Research  
Station near stream; Bootlegger Trail. Also Huachuca Mts.,  
Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts.,  
Animas Mts., Santa Rita Mts., Sierra de los Ajos. Apache County  
to Mohave County, south to Cochise, Santa Cruz, Pima, and La  
Paz counties. Montana to Alaska, south to Chihuahua, Sonora, and  
Baja California. Western.

Grant (1924). Pennell (1940).

Exsicc.: CHIR [Reeves 2418, 2968, 3816]. FOBO [MHoy  
s.n.]. SWRS [SWRS 1959-61A; Barnes s.n.]. CHWA [Leithliter  
353]. NMC [Anderson, et al. 938, Carter s.n.; Ward 86-062].

### **Mimulus rubellus** Gray

*Mimulus gratioloides* Rydb.

Monkey-flower

[2,000] 5,400 - 5,500 [7,500] ft. Mar - Apr [June].  
Winter-annual forb, scapose or leafy-stemmed therophyte.  
Uncommon on north-facing wooded slopes, gravelly soils, and  
under shrubs or on damp soil of streambeds.

Chiricahua Mts.: Chiricahua Nat. Mon. near mouth of

Newton Canyon; Fort Bowie Nat. Historic Site; Southwestern Research Station, near water tank on hill. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleno Mts., Animas Mts., Santa Rita Mts. Coconino and Mohave counties to Greenlee, Cochise, Santa Cruz, and Pima counties. Wyoming to New Mexico, Arizona, and southern California. Southwestern.

Exsicc.: CHIR [Reeves 2633]. SWRS [Elliott s.n.]. NMC [Anderson-Reinhart 950; Thornber 378].

### **Mimulus verbenaceus Greene**

*Mimulus cardinalis* Dougl. ex Benth. var. *verbenaceus* (Greene) Kearney & Peebles  
Crimson monkey-flower

[2,000] 5,100 - 9,020 ft. [Mar] Jun - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Common along meso- and hydroriparian streams in wet soil. *Pinus arizonica*, *P. leiophila*, *Acer grandidentatum*, *Juniperus deppeana*, *Pseudotsuga menziesii*, *Picea engelmannii*, *Quercus gambelii*, *Juglans major*, *Hedoma hyssopifolium*, *Habenaria sparsifolia*.

Chiricahua Mts.: East Turkey Creek; Pine Canyon; Wilderness Area, Winn Falls, Greenhouse Canyon, Chaperon Canyon. Also Pinaleno Mts., Santa Catalina Mts., Sierra de los Ajos. Grand Canyon. Mohave County, south and southeast to the White Mountains and Cochise and Pima counties. Utah to Oregon, south to northwestern Mexico, south of Rio Mayo. Western.

Exsicc.: SWRS [Walker s.n.]. CHWA [Leithliter 94, 143]. NMC [Blumer 1551].

### **Nuttallanthus texanus (Scheele) D.A. Sutton**

*Linaria texana* Scheele, *Linaria canadensis* (L.) Chaz. var. *texana* (Scheele) Penn.  
Texas toad flax

[1,500] - 4,700 [5,500] ft. [Feb] - Apr [May]. Winter annual. Common in damp soil in streambeds and ephemeral seeps, dry plains and mesas, dry uplands.

Chiricahua Mts.: 1 mi. southeast of Portal. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Animas Mts. Northeast corner Greenlee(?) County, Graham, Gila, Maricopa, Pinal, Cochise, and Pima counties. South Carolina to British Columbia, southern Mexico. Temperate, Latin American.

Exsicc.: SWRS [Walker s.n.].

### **Pedicularis centranthera Gray**

*Pedicularis centranthera* var. *exulans* Peck

[5,000] 6,000 - [7,500] ft. [Apr] May - [June]. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Rare on gravelly flats and floodplains.

Chiricahua Mts.: Barrel Spring on Hands Pass Road. Also Rincon Mts., Sierra Ancha. Apache, Coconino, northern Mohave counties, south to Pinal and (probably) Pima counties. Colorado, Utah, New Mexico, and Arizona. Southwestern.

Exsicc.: SWRS [Roth s.n.].

### **Pedicularis procera Gray**

*Pedicularis grayi* A. Nels.

Elephant head

[8,000] - 9,550 [10,000] ft. Jul - [Aug]. Perennial deciduous forb, rhizome geophyte; mesophyll, orthophyll. Uncommon.

Chiricahua Mts.: Fort Bowie Nat. Historic Site; South Junction Saddle on northeast-facing slope of Chiricahua Peak. Pinaleno Mts. Southern Apache and northern Greenlee counties, Graham County, Cochise County. Wyoming to New Mexico and eastern Arizona. Rocky Mountain.

Exsicc.: SWRS [Taylor s.n.].

### **Penstemon barbatus (Cav.) Roth ssp. *torreyi***

(Benth.) Keck

*Penstemon barbatus* var. *torreyi* (Benth.) Gray, *P. torreyi* Benth.

Beardtongue

[4,000] 4,900 - 9,180 [10,000] ft. Jun - Oct. Perennial deciduous forb, semirosette hemicryptophyte. Common on rocky slopes, sunny clearings, shaded canyons, at lower elevations along streams. *Pinus discolor*, *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in South Canyon; between Rustler Park and Long Park; Wilderness Area; Barfoot Park. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Apache County, northern Navajo County, Coconino County, south to Mexican border. Southern Colorado and Utah to the central highlands of Mexico. Southwestern, Rocky Mountain.

Exsicc.: CHIR [Clark 8113, Reeves 1634, 3239, 3689]. FOBO [MHoy 432]. SWRS [Roth s.n.]. CHWA [Leithliter 135, 320, 494, 584]. NMC [Carter s.n. Blumer 1376, 1575].

### **Penstemon dasyphyllus Gray**

[3,500] - 5,500 ft. Apr - [Jun]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, sclerophyll. Found on gravelly slopes.

Chiricahua Mts.: Tex Canyon. Also Huachuca Mts., Mule Mts., Dragoon Mts., Canelo Hills. Southeastern corner of Cochise, Santa Cruz, and Pima counties. Western Texas to southeastern Arizona and Chihuahua. Chihuahuan.

Exsicc.: SWRS [Hainsworth s.n.]. NMC [Carter s.n.].

### **Penstemon linarioides Gray ssp. *linarioides***

*Penstemon linarioides* ssp. *typicus* Keck

Beardtongue

[4,200] 4,950 - 6,500 [9,000] ft. Jun - Aug. Perennial deciduous forb, rhizome geophyte; nanophyll, orthophyll. Common on grassland/scrub, open woodland and chaparral; also on rocky slopes and gravelly flats, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in South Canyon; 1 mi. north of Southwestern Research Station; Portal-Paradise road. Also Rincon Mts., Sierra Ancha, Pinaleno Mts., Animas Mts. Apache to Mohave Counties, south to Cochise, Gila and Yavapai counties. Colorado, Utah, New Mexico, and Arizona. Southwestern.

Exsicc.: CHIR [Clark 8537, Reeves 1223, 3072, 3779]. FOBO [MHoy 219]. SWRS [Pough 1962-56]. UNM [Reed 233].

### **Penstemon parryi (Gray) Gray**

*P. Shantzii* A. Nels., *P. Shantzii* var. *incognitus* A. Nels.

[1,500] - [4,800]. May. Evergreen perennial forb, semirosette hemicryptophyte. Common on arroyos and rocky slopes.

Chiricahua Mts.: Tex Canyon. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Santa Rita Mts. Gila, Pinal, Cochise, Santa Cruz, and Pima counties. Southern Arizona and Sonora, south beyond Rio Mayo. Madrean.

Exsicc.: SWRS [Walker s.n.].

### **Penstemon pinifolius Greene**

### **Beardtongue**

6,500 - 9,790 ft. Jun - Aug. Narrowleaf dicot shrub, woody chamaephyte; leptophyll, sclerophyll. Common on rocky slopes, forest, woodland, and chaparral.

Chiricahua Mts.: Chiricahua Nat. Mon.; along Ridge Trail 2.5 mi. from Rustler Park; Wilderness Area; Barfoot Peak; Centella Point. Also Animas Mts. Greenlee County and Cochise County. Southwestern New Mexico, southeastern Arizona, and adjacent Mexico. Madrean.

Exsicc.: CHIR [Clark 8174, Reeves 3240, 3596, 3959]. SWRS [Cummins 57-73]. CHWA [Leithlitter 136, 467, 529]. NMC [Blumer 1541]. UNM [Reed 220].

### ***Penstemon pseudospectabilis* M.E. Jones ssp. *connatifolius* (A. Nels) Keck**

#### **Beardtongue**

[2,000] 5,000 - [7,200] 7,500 ft. Apr - Jul. Deciduous perennial forb, scapose or leafy-stemmed proto-chamaephyte. Uncommon in wooded canyons and grassland/scrub, gravelly slopes and steambeds, often under oaks.

Chiricahua Mts.: Chiricahua Nat. Mon.; Cave Creek at Stewart Campground, head of Wood Canyon. Also Rincon Mts., Dos Cabezas Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Dragoon Mts. Apache, southern Coconino and Mohave counties, south and east to Graham, Cochise, Pima, and Yuma counties. Southwestern New Mexico to eastern California. Southwestern.

Exsicc.: CHIR [Clark 8114, Reeves 2793, 3864, Reed 250]. SWRS [SWRS 1958-126, Roth s.n.]. NMC [Blumer 1536; Carter s.n.; Anderson, et al. 1151].

### ***Penstemon ramosus* Crosswhite**

*Penstemon lanceolatus* Benth., *Penstemon pauciflorus* Greene

4,800 - 5,600 [6,000] ft. May - [Jun] Jul. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon in rocky mountain canyons.

Chiricahua Mts.: Portal to Paradise road; Fort Bowie Nat. Historic Site on hill east of trailer; below Paradise; base of Harris Mountain near old mine. Pinaleno Mts. Greenlee, Graham, and Cochise counties. Southwestern New Mexico, southeastern Arizona, and northern Mexico. Madrean.

Exsicc.: FOBO [MHoy 158]. SWRS [SWRS 1958-469, Walker s.n.].

### ***Penstemon stenophyllum* (Gray) J.T. Howell**

5,500 - [6,200] ft. Jul. Deciduous perennial forb, scapose or leafy-stemmed proto-chamaephyte; nanophyll, orthophyll. Calcareous soil.

Chiricahua Mts.: Paradise. Also Huachuca Mts. Sierra Madre, near Colonia Garcia, Sierra de los Ajos. Mexico.

Exsicc.: NMC [Blumer 1604].

### ***Schistophragma intermedia* (Gray) Penn.**

*Leucospora intermedia* (Gray) Keil, *Conobea intermedia* Gray,

[3,700] 5,200 - 6,400 ft. [Jul] Aug - [Sep] Oct. Summer annual forb, scapose or leafy-stemmed therophyte; nanophyll, orthophyll. Common in gravelly openings in grassland, grassland/scrub and open woodland, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. in Sara Deming Canyon, Lower Picket Canyon; Southwestern Research Station; Cave Creek; Portal, Paradise. Also Rincon Mts., Sierra Ancha,

Huachuca Mts., Canelo Hills, Dragoon Mts., Baboquivari Mts., Whetstone Mts., Mule Mts., Peloncillo Mts. Greenlee, Gila, Cochise, Santa Cruz and Pima counties. Southern New Mexico and Arizona and northern Mexico. Madrean.

Exsicc.: CHIR [Clark 8606, Lehto 3321, Moir 484, 550, Reeves 1238, 1269, 1628]. SWRS [Todson s.n.]. ARIZ [Van Devender 89-332, Blumer 1735, Moir 550, Harris et al. 6167].

### ***Scrophularia parviflora* Woot. & Standl.**

*S. davidsonii* Penn., *S. glabrata* Davids.

#### **Figwort**

[5,000] - 7,000 [8,400] ft. Jul - Sep [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon in heavy oak litter, sometimes on disturbed sites, swales and lower slopes; cool mesic canyon slopes and along canyon bottoms at lower elevations.

Chiricahua Mts.: Chiricahua Nat. Mon. in Upper Rhyolite and Totem Canyons; Silver Peak. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Huachuca Mts. Southern Coconino County and Mohave County, to Greenlee, Graham, Cochise, and Pima counties. Western New Mexico and Arizona. Southwestern.

Exsicc.: CHIR [Clark 8422, Reeves 4233]. SWRS [Morse s.n.].

### ***Seymeria bipinnatisecta* Seem.**

*Seymeria harvardii* (Penn.) Standl.

6,750 ft. Oct. Summer annual forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Rare.

Chiricahua Mts.: Cave Creek. Rio de Bavispe, Sierra Madre, Mexico. Madrean.

McLaughlin & Mason (1977)

Exsicc.: ARIZ [Harlan, s.n.].

### ***Verbascum thapsus* L.**

#### **Moth-mullein**

[5,000] - 8,530 ft. May - Jul [Aug]. Summer annual forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Common on alluvium and disturbed sites. Alien species. Dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; Ruster Park; Barfoot Park; Pine Canyon; along Crest Trail; Pinery Canyon. Also Pinaleno Mts., Sierra Ancha. Widespread in the U.S. and introduced from the Middle East. Here and there in Coconino, Yavapai, Gila and Cochise counties. Naturalized from Europe. Temperate. Introduced.

Exsicc.: CHIR [Clark 8222, Reeves 3096, 3098]. SWRS [Ordway s.n.]. CHWA [Leithlitter 166, 188, 329]. ARIZ [Blumer 1611].

### ***Verbascum virgatum* Stokes**

#### **Mullein**

5,100 - [7,000] 7,800 ft. Jul - Sep [Fall]. Summer annual forb, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Common on disturbed soil and alluvium.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Bonita Canyon; Sunny Flat Campground; Centella Point; Pine Canyon. Animas Mts. Coconino County, Cochise County. Here and there in North America; adventive from Europe. Introduced.

Exsicc.: CHIR [Clark 8465, Reeves 1631, 2872, 3414]. SWRS [SWRS 1959-848]. ARIZ [Blumer 1481].

### ***Veronica peregrina* L. ssp. *xalapensis* (Kunth)**

Penn.

*Veronica peregrina* var. *xalapensis* (Kunth) Penn., *V. sherwoodii* Peck, *V. xalapensis* Kunth  
Speedwell, necklace weed

5,000 - [9,000] ft. [throughout Arizona but usually much lower]. [Mar] May - [Sep]. Winter annual. Uncommon on damp soil in streambeds and ephemeral seeps, riparian.

Chiricahua Mts.: USFS Ranger Station, Cave Creek; Fort Bowie Nat. Historic Site, upper South Canyon. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Animas Mts. Found throughout the state. Widely distributed in North America; South America. Temperate, Latin American.

Exsicc.: SWRS [Mouat s.n.]. FOBO [MHoy 160].

### SOLANACEAE—Nightshade Family.

A large family of herbs, shrubs, and trees; often lianas or creeping. About 85 genera and in excess of 2,200 species, distributed primarily in tropical America and South America (where there are 38 endemic genera). The Solanaceae are a family of considerable economic importance, and are the source of food plants such as the potato and eggplant (*Solanum*), tomato (*Lycopersicon*), red pepper (*Capsicum*), tobacco (*Nicotiana*), henbane (*Hyoscyamus*), belladonna and atropine (*Atropa*), and stramonium (*Datura*). Ornamentals such as the petunia are commonly encountered.

### ***Chamaesaracha coronopus* (Dun.) Gray**

[2,500] [3,200] - 5,400 [7,500] ft. [Apr] Jun - Aug [Sep]. Perennial deciduous forb, spreading hemicryptophyte; microphyll, orthophyll. Locally common on disturbed soil.

Chiricahua Mts.: Chiricahua Nat. Mon. at edge of Visitor Center parking lot; Fort Bowie Nat. Historic Site. San Simon Valley, east of Davis Mtn. Also Rincon Mts., Pinaleno Mts., Animas Mts. Apache, Navajo, and Coconino counties, south to Cochise, Pima, and Yuma counties. Kansas to Utah, south to northern Mexico. Southwestern, Plains.

Exsicc.: CHIR [Reeves 1251, 3109, 3509]. SWRS [SWRS 1958-537].

### ***Chamaesarachia sordida* (Dun.) Gray.**

Groundcherry

[3,200] - 5,000 [5,500] ft. [Mar] Apr - Aug [Oct]. Perennial deciduous forb, spreading hemicryptophyte. Uncommon on rocky slopes, often on limestone.

Chiricahua Mts.: Fort Bowie Nat. Historic Site at trailhead. Also Rincon Mts., Santa Catalina Mts., Animas Mts. Gila, Cochise, and Pima counties. Kansas and Colorado to southeastern Arizona and northern Mexico. Southwestern, Plains.

Exsicc.: FOBO [MHoy 118]. SWRS [Pough 1961-114, Barnes s.n.].

### ***Datura ferox* L.**

*Datura quercifolia* Kunth

[3,800] - 5,500 [5,700] ft. [Aug] - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Found along roadsides, tolerates limestone.

*Cercocarpus montanus*.

Chiricahua Mts.: Paradise. Also Huachuca Mts., Patagonia Mts., Peloncillo Mts., Sierra Madre Mts. at Colonia Morelos; Sierra del Tigre, Sonora. Madrean.

Exsicc.: ARIZ [Blumer 2667].

### ***Datura wrightii* Regel**

*Datura metel* L. var. *quinquecuspida* Torr., *D. meteloides* auct non Dun.

Sacred datura, indian-apple, tolguacha

[1,000] 4,900 - 6,900 ft. May - Jul [Oct]. Winter-annual forb, semirosette therophyte. Common on disturbed soil and roadsides, also on dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in Siphon Canyon. Dos Cabezas. San Simon Valley. Also Huachuca Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Navajo County to Mohave County, south to Cochise, Santa Cruz, Pima counties. Colorado to Texas, Arizona, southern California, and Mexico. Southwestern, Latin America.

All parts of the plant contain a powerful alkaloid, daturine, which has properties similar to atropine. Livestock and humans have been poisoned by this plant. Some Indians eat the roots and other plant parts to induce visions, a dangerous practice. Three persons were fatally poisoned at Grand Canyon in 1968 as a result of this practice.

Exsicc.: CHIR [Clark 8228, Reeves 1682, 3105, 3688]. FOBO [MHoy 188]. SWRS [SWRS 1958-123, Pough 1961-51].

### ***Jaltomata procumbens* (Cav.) J.L. Gentry**

*Saracha procumbens* (Cav.) Ruiz & Pavon

[3,500] - 5,700 ft. [Aug] - Sep. Found in shady canyons in rich soil.

Chiricahua Mts.: Rockcreek on the Wilgus Ranch. Bisbee: Quarry Canyon. Cochise, Santa Cruz, and Pima counties. Southern Arizona to South America. Southwestern, Latin America.

Type collected in the Chiricahua Mts. by J.C. Blumer.

Exsicc.: SWRS [Leutcke s.n.]. ARIZ [Blumer 1637].

### ***Lycium fremontii* Gray**

[2,500] ft. [Jan] - [Feb] and throughout year. Spiny deciduous shrub, nanophanerophyte. Common along shallow drainages, also on dry hillsides with subsurface moisture.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Sierra Ancha, Santa Catalina Mts. Western and southern Arizona. Arizona, southeastern California and northwestern Mexico. Sonoran.

Exsicc.: FOBO [MHoy s.n.].

### ***Lycium pallidum* Miers**

Wolf-berry, desert-thorn

[3,500] 4,900 - 5,700 [7,000] ft. Apr - May [Jun]. Spiny deciduous shrub, microphanerophyte. Common on grassland and floodplains. Grama grass, mesquite.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site at Apache Spring; mouth of Pinery Creek; Portal to Paradise road. Also Rincon Mts., Pinaleno Mts., Santa Catalina Mts., Animas Mts. Almost throughout the state. Western Texas to southern Colorado and Utah, Arizona, southern California, and Mexico. Southwestern.

Exsicc.: CHIR [Reeves 3146, 3150]. FOBO [MHoy 88]. SWRS [SWRS 1960-214, Walker s.n.].

### ***Margaranthus solanaceus* Schlecht.**

*Margaranthus lemmontii* Gray, *M. purpurascens* Rydb.

[3,500] 5,400 - 5,700 ft. Jul [Aug] - Sep. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon in woodland openings, often beneath shrubs on

gravelly soil; also on dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Pinaleno Mts. Bisbee: Quarry Canyon. Yavapai, Greenlee, and Gila counties to Cochise, Santa Cruz, and Pima counties. New Mexico, Arizona, and Mexico. Madrean. Exsicc.: CHIR [Lehto 3311, Moir 457, Reeves 1444, 1577A]. SWRS [Roth s.n., Luetke s.n.].

### **Nicotiana attenuata** Torr. ex S. Wats.

[1,000] - 6,000 [7,000] ft. [May] - [Oct]. Summer annual forb, scapose or leafy-stemmed therophyte, microphyll, orthophyll. Uncommon along roadsides and dry uplands.

Chiricahua Mts.: Paradise, along road. Sierra Ancha. Almost throughout the state. Utah to Texas, Arizona, and California. Southwestern. Exsicc.: SWRS [1958-215].

### **Nicotiana trigonophylla** Dunal. var. **trigonophylla**

#### Tobacco

4,200 - 5,400 [6,000] ft. Apr - Aug [flowers year round], sometimes perennial in southwestern Arizona. Summer-annual forb, scapose or leafy-stemmed hemicryptophyte. Uncommon in arroyos and on rocky slopes.

Chiricahua Mts.: Chiricahua Nat. Mon. at North Bonita Canyon and Residential Area; Fort Bowie Nat. Historic Site along Apache Pass Road; Cave Creek Canyon, Crystal Cave. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts., Santa Rita Mts. Almost throughout the state. Western Texas to southern California and Mexico. Southwestern.

Exsicc.: CHIR [Clark 8941, Reeves 4050]. FOBO [MHoy 113]. SWRS [Roth s.n., Wittmann 226].

### **Physalis acutifolia** (Miers) Sandw.

#### *Physalis wrightii* Gray

[100] - 5,000 ft. [Jun] - [Sep]. Summer annual. A common weed in cultivated land in southern Arizona.

Chiricahua Mts.: Fort Bowie Nat. Historic Site near NCO Quarters and trail. Animas Mts. Navajo to Cochise, Pima, and Yuma counties. Western Texas to southern California and northern Mexico. Southwestern.

Exsicc.: FOBO [MHoy 305].

### **Physalis hederifolia** var. **fendleri** (Gray) Gray Cronq.

#### *Physalis hederaefolia* var. *cordifolia* (Gray)

#### Waterfall, *Physalis fendleri* Gray

#### Groundcherry, husk-tomato

[3,000] 4,900 - 5,400 [7,000] ft. [Apr] Aug - [Aug] Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Uncommon in grassland, near rock outcrops and wooded canyons, also on dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site near NCO Quarters and on trail. San Simon Valley, Rodeo. Also Sierra Ancha, Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Coconino and Mohave counties to Cochise and Pima counties. Colorado and Utah to Texas, Arizona, southeastern California, and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 8546, Reeves 4209]. FOBO [MHoy 305]. SWRS [Ordway s.n.].

### **Physalis longifolia** Nutt. var. **longifolia**

*Physalis pumila* Nutt. var. *sonorae* Torr., *P. rigidula* Pollard & Ball, *P. virginiana* P. Mill. var. *sonorae* (Torr.) Waterfall

*Physalis lanceolata* Michx., *P. longifolia* Nutt., *P. heterophylla* Nees var. *sonorae* (Torr.) Waterfall, *P. rigidula* Pollard & Ball

#### Longleaf groundcherry

[5,000] - [8,500] ft. [Aug] - [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Found on alluvial slopes, may prefer limestone.

*Quercus oblongifolia*, *Q. emoryi*, *Bouteloua curtipendula*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site. Also Huachuca Mts. Southeastern corner Apache or Greenlee County; Cochise, Santa Cruz, and Pima counties. Illinois to South Dakota, Arkansas, and eastern Arizona. Plains.

Exsicc.: FOBO [MHoy s.n.].

### **Physalis pubescens** L.

#### Groundcherry, husk-tomato

[3,000] 5,200 - 5,650 [6,000] ft. [Aug] - Sep. Summer annual forb, scapose or leafy-stemmed therophyte; mesophyll, orthophyll. Uncommon on grassland and open woodland, mostly along streams in partial shade.

Chiricahua Mts.: Chiricahua Nat. Mon. Yavapai, Greenlee, Santa Cruz, and Pima counties. Pennsylvania to Colorado, Florida, and Arizona, southward to Panama. Temperate, Latin America.

Exsicc.: CHIR [Reeves 1562, 1577].

### **Solanum americanum** P. Mill.

#### *Solanum americanum* var. *nodiflorum* (Jacq.)

#### Edmonds, *S. americanum* var. *patulum* (L.)

#### Edmonds, *S. fistulosum* Dun. ex Poir., *S. hermanii*

#### Dun. *S. nigrum* L. var. *americanum* (P. Mill.) O.E.

#### Schultz, *S. nigrum* var. *virginicum* L., *S. nodiflorum* Jacq., *S. sodomaeum* auct. non L.

#### American nightshade, hierba mora negra

4,900 - 5,600 ft. Jul - Aug. Summer annual forb, scapose or leafy-stemmed therophyte; mesophyll, orthophyll. Uncommon in shaded sites, among rhyolite boulders and cliff bases, roadsides and waste land.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in South Canyon. Also Huachuca Mts., Animas Mts. Maricopa, Pinal, Cochise and Santa Cruz counties. Widely distributed in the southeastern United States, apparently rare westward. Introduced from tropical America. Temperate, tropical.

Exsicc.: FOBO [MHoy 285, 431]. CHIR [Reeves 2781, 4564].

### **Solanum douglasii** Dun.

#### *Solanum nigrum* L. var. *douglasii* (Dun.) Gray

[1,500] 5,400 - [7,400] 7,600 ft. [Mar] Jul - Nov. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common among rocks on dry sunny slopes, flats, waste places, and dry uplands. *Verbena carolina*, *Quercus emoryi*, *Pinus discolor*.

Chiricahua Mts.: 0.5 mi. below Paradise on East Turkey Creek; Ash Spring above Herb Martyr Dam; Wood Canyon; Chiricahua Nat. Mon. Whitetail Canyon; Onion Saddle. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts.,

Galiuro Mts., Dragoon Mts., Pajarito Mts., Santa Rita Mts., Peloncillo Mts., Baboquivari Mts., Mule Mts., Canelo Hills, Tucson Mts., Pinaleño Mts., Animas Mts. Coconino County, south to Cochise, Santa Cruz, Pima, and Yuma counties. Western New Mexico and Arizona to Oregon and southern California. Southwestern.

Exsicc.: ARIZ [Blumer 1512, 1768, 1797; R.J. Barr 60-285, 62-488; Darrow et al. 1273; O.M. Clark 8335].

### **Solanum elaeagnifolium** Cav.

Silverleaf nightshade, horse-nettle, trompillo, white (or silver) horse-nettle, bull-nettle.

[1,000] 5,150 - 7,308 ft. Mar [May] - Aug [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common on grassland, woodland, and chaparral and also on disturbed areas. *Quercus emoryi*.

Chiricahua Mts.: Portal to Paradise road; Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hill east of trailer. San Simon Valley: Rodeo. Also Huachuca Mts., Rincon Mts., Pinaleño Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Throughout the state. Kansas and Colorado to Arizona and California, south to tropical America. Southwestern, Latin America.

Exsicc.: CHIR [Clark 8210, Reeves 999, 1686, 3097]. FOBO [MHoy 151]. SWRS [SWRS 1959-814, Ordway s.n.].

### **Solanum fendleri** Gray ex Torr.

Wild potato

[6,000] 6,200 - [8,000] 9,020 ft. Jul - Aug. Perennial deciduous forb, geophyte vine. Uncommon in mesic wooded canyons and chaparral, also on cool moist slopes.

Chiricahua Mts.: Greenhouse Trail; Pinery Canyon; Chiricahua Nat. Mon.; Wilderness Area, Centella Point; Barfoot Park. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Pinaleño Mts. Greenlee, Gila, Cochise, Santa Cruz, and Pima counties. New Mexico and Arizona. Southwestern.

Exsicc.: CHIR [Clark 8467, Reeves 998, 4241]. SWRS [SWRS 1958-421]. CHWA [Leithliter 179, 515, 578].

### **Solanum heterodoxum** Dunal var. *novomexicanum* Bartlett

Nightshade

[4,000] 5,200 - 5,500 ft. Aug - Sep [Oct]. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Uncommon on disturbed soil and roadsides.

Chiricahua Mts.: Chiricahua Nat. Mon. in Campground and Residential Areas; Greenhouse Trail; mouth of Price Canyon; Straight Line Road at Willow Tank. Also Animas Mts. Yavapai County, Cochise County. Western Texas to Arizona and Mexico. Chihuahuan.

Exsicc.: CHIR [Borell 5, Reeves 1683, 4450, 4495]. SWRS [Roth s.n.].

### **Solanum jamesii** Torr.

Wild potato

5,100 - [8,500] ft. [Jul] Aug - [Sep]. Summer annual forb, scapose or leafy-stemmed therophyte; microphyll, orthophyll. Found mostly in coniferous forests.

Chiricahua Mts.: Cave Creek Canyon 4.5 mi. west of Portal. Apache County to Coconino County, south to Cochise and Yavapai counties. Colorado and Utah to Texas and Arizona. Southwestern.

Exsicc.: SWRS [Pough 1962-85].

### **Solanum rostratum** Dunal

*Solanum cornutum* auct. non Lam., *Androcera rostrata* (Dun.) Rydb.

Nightshade, buffalo bur, mala mujer

[1,000] 5,400 - 5,500 [7,000] ft. [Jun] Jul - Aug. Local in sandy valleys and along roadsides.

Chiricahua Mts.: Chiricahua Nat. Mon. at edge of parking lot, Headquarters Area and Lower Bonita Canyon; Tex Canyon. Also Huachuca Mts., Animas Mts., Canelo Hills, Sierra de los Ajos. Apache County to Coconino County, south to Cochise and Pima counties. North Dakota and Wyoming to Arizona and Mexico. Rocky Mountain.

Exsicc.: CHIR [Clark 8240, Reeves 3508]. SWRS [SWRS 1959-s.n.].

### **Solanum tuberosum** L.

Potato, patata

8,200 ft. Jul - [Sep]. Deciduous perennial forb, tuber geophyte; microphyll, orthophyll. Shaded slopes.

Chiricahua Mts.: Barfoot Park.

This is not specifically distinct from the cultivated potato of Latin America. C.S. Fly maintained a cabin near Fly Peak where he cultivated potatoes, but the source of Blumer's collection is problematical since the potato is not naturalized in our area.

Exsicc.: NMC [Blumer 1566, 1579].

## TAMARICACEAE—Tamarisk Family.

A family of small, heathlike trees or shrubs with slender flexuous branches, halophytic or xerophytic, leaves scalelike. There are 4 genera and about 100 species, mostly of the Mediterranean region and central Asia. None is indigenous to the United States, though several are naturalized from South Carolina across the south to California. The family has no economic value.

### **Tamarix ramosissima** Ledeb.

Salt cedar

3,880 - [5,000] ft. [Mar] - [Aug]. Narrow leaf dicot shrub microphanerophyte; leptophyll, orthophyll. Common in riparian areas. Chiricahua Mts.: San Simon Cienega. Sierra Ancha. Common along streams in most of the state. Naturalized from Eurasia. Temperate, Introduced.

## TYPHACEAE—Cattail Family.

A family of perennial herbs of open marshes with creeping rhizomatous rootstocks. A single genus *Typha* contains about 15 species. The genus is of more or less cosmopolitan throughout riparian and estuarine marshes of temperate and tropical regions of northern and southern hemispheres.

### **Typha domingensis** Pers.

*Typha angustata* Bory & Chuabard  
Cattail

[1,000] - [5,000?] ft. Jul. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; mesophyll, orthophyll. Uncommon in stagnant pools and riparian areas.

Chiricahua Mts.: Chiricahua Nat. Mon.: Picket Canyon; West Turkey Creek, Alisa Tank. Also Rincon Mts., Sierra Ancha, Animas Mts., Santa Catalina Mts. Navajo, Coconino, Gila, Maricopa, and Cochise counties. Southern United States to southern South America. Temperate, Latin American.

Exsicc.: CHIR [Clark 8298].

### **Typha latifolia L.**

[3,000] - [7,000] 8,200 ft. Aquatic and hydroriparian.

Chiricahua Mts.: Barfoot Park; Canelo Hills. Various parts of the plant are used as food by Indians. Listed by Russell (1982) as collected by J.C. Blumer in Barfoot Park.

### **ULMACEAE—Elm Family.**

A family of trees or shrubs. About 15 genera and more than 150 species. Distributed throughout much of the northern hemisphere and more, particularly in the tropics and subtropics. The family is principally valued as ornamental trees and, to a minor degree, for lumber.

#### **Celtis laevigata Willd. var. *reticulata* (Torr.) L.**

Benson

*Celtis douglasii* Planch., *Celtis occidentalis* L. var. *reticulata* (Torr.) Sarg., *C. reticulata* Torr., *C. reticulata* var. *vestita* Sarg.

Netleaf hackberry, palo-blanco, sugar-berry

[2,500] 5,500 – 6,600 ft. [Mar] – Jun. Broadleaf deciduous tree, microphanerophyte; microphyll, sclerophyll. Common in mesic microhabitats in chaparral, among rhyolite towers and bases of cliffs, in draws, canyons, and along arroyos. *Prosopis glandulosa*, *Fraxinus pennsylvanica*, *Plantus wrightii*, *Chilopsis linearis*.

Chicicahua Mts.: Chiricahua Nat. Mon. in East Whitetail Canyon, Bonita Canyon Road, Lower Pickett and Bonita canyons; Fort Bowie Nat. Historic Site; Whitewater Draw; stock tanks on flats between West Turkey Creek and Rucker Canyon; Portal to Paradise road; Southwestern Research Station. Also Huachuca Mts., Rincon Mts., Santa Catalina Mts., Mule Mts., Peloncillo Mts., Pinaleño Mts., Sierra Ancha, Animas Mts., Sierra de los Ajos. Oklahoma and Colorado, Arizona, northern Mexico. Widespread. Southwestern.

Morphology variable.

Exsicc.: CHIR [Clark 8254, Reeves 3955, 4085]. SWRS [Roth s.n., Walker s.n.].

#### **Celtis pallida Torr.**

*Celtris spinosa* Spreng. var. *pallida* (Torr.) M.C. Johnson, *C. tala* Gillies var. *pallida* (Torr.) Planch., *Momisia pallida* (Torr.) Planch.

[1,500] 3,880 – [4,600] ft. Spinose evergreen shrub, nanophanerophyte. Common, often found along streambeds and surrounding stock tanks in desert grassland.

Chiricahua Mts.: San Simop Cienega. Also Rincon Mts., Santa Catalina Mts. Greenlee, Gila, Pinal, Maricopa, Cochise, and Pima counties. Western Texas to Arizona and northern Mexico. Southwestern.

### **VALERIANACEAE—Valerian Family.**

A family of annual or perennial herbs, rarely subshrubs. There are 10 genera and about 370 species, mostly of north temperate distribution except for occurrences in the Andes of South America. *Valariana* is the largest genus (about 210 species). The family is of minor economic importance.

#### **Valeriana arizonica Gray**

*Valeriana acutiloba* Rydb. var. *ovata* (Rydb.) A. Nels., *V. ovata* Rydb.

Tobacco root

[4,500] 7,380 - 9,020 ft. [Apr] May - Jul. Perennial

deciduous forb, semirosette hemicryptophyte. Uncommon on shaded north-facing slopes and in cool, moist canyons.

Chiricahua Mts.: Crest Trail, Cima Cabin; south of Rustler Park; Centella Point. Also Pinaleno Mts., Sierra Ancha, Rincon Mts., Santa Catalina Mts., Sierra de los Ajos. Apache, Navajo, and Coconino counties to Cochise, Santa Cruz, and Pima counties. Wyoming to New Mexico, southern Arizona, and Sonora, Mexico. Rocky Mountain.

Exsicc.: SWRS [Roth s.n.]. CHWA [Leithliter 66, 334, 343].

### **Valeriana edulis Nutt. ssp. *edulis***

Tobacco root

[7,000] - 8,400 [9,500] ft. [Jun] - Oct. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon in wet meadow with grasses and iris, swales and lower slopes. *Iris missouriensis*.

Chiricahua Mts.: Rustler Park; Barfoot Park. Also Pinaleno Mts., Sierra Ancha, Huachuca Mts., Sierra de los Ajos. Apache County to Coconino County and in Yavapai, Graham, and Cochise counties. Montana and Idaho to New Mexico, Arizona, and Sonora, Mexico. Rocky Mountain.

Exsicc.: SWRS [Walker s.n.]. Respos. Unk. [Blumer 1353].

### **VERBENACEAE—Verbena Family.**

A family of herbs, shrubs, or trees, with stems and twigs often quadrangular. Primarily of tropic or subtropical distribution, although *Verbena* extends into the temperate regions of the Old and New World. The family is economically most important for teak lumber (*Tectona grandis*) of east India.

#### **Aloysia wrightii (Gray) Heller**

*Lippia wrightii* Gray ex Torr.

Wright lippa, oregano

[1,500] 4,900 - 6,000 ft. Jun [Aug] - Oct. Broadleaf deciduous shrub, nanophanerophyte. Uncommon on south-facing slopes at higher altitudes and north-facing slopes at lower altitudes. *Prosopis glandulosa*, *Bouteloua* spp., *Aristida ternipes*, *Sporobolus cryptandrus*, *Muhlenberbia arenicola*, *Muhlenbergia porteri*, *Leptochloa dubia*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site along South Canyon and trail; 1.5 mi. north of Portal. Also Huachuca Mts., Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Coconino County and northern Mohave County to Greenlee, Cochise, Pima, and Yuma counties. Western Texas to southern Nevada, southeastern California, and northern Mexico. Southwestern.

Exsicc.: CHIR [Reeves 1244, 3554]. FOBO [MHoy 328]. SWRS [Cazier 42].

#### **Glandularia bipinnatifida (Nutt.) Nutt. var. *bipinnatifida***

*Verbena ambrosifolia* Rydb. ex Small, *V. bipinnatifida* Nutt., *V. bipinnatifida* var. *latiloba* Perry, *V. ciliata* Benth., *V. ciliata* var. *longidentata* Perry, *V. ciliata* var. *pubera* (Greene) Perry, *V. demareei* Moldenke, *V. pubera* Greene

Vervain

4,500 - 9,790 [10,000] ft. Mar [May] - [Sep] Nov. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte. Common on openings in mesic conifer forests; dry pine woodlands; dry drainages at lower elevations. *Pinus arizonica*, *P.*

*discolor*, *Abies concolor*, *Pseudotsuga menziesii*, *Pinus strobus*, *Quercus arizonica*, *Q. emoryi*, *Q. grisea*, *Q. rugosa*, *Opuntia leptocaulis*, *Gaillardia pulchella*, *Ephedra trifurca*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site on hillside east of trailer, Siphon Canyon; along road between Rustler Park and Long Park; near Southwestern Research Station; Wilderness Area; Centella Point. Also Huachuca Mts., Rincon Mts., Pinaleño Mts., Santa Catalina Mts., Mule Mts., Animas Mts., Sierra de los Ajos. Apache, Navajo, and Coconino counties. Alabama, westward to Texas, South Dakota, Colorado, Arizona, and Sonora, Mexico. Chihuahuan.

Umber (1979).

Exsicc.: CHIR [Borell s.n., Clark 8200, Moir 654, Reeves 2522, 2640, 2885]. SWRS [Moldenke 21880, Wittmann 29, Barnes s.n.]. FOBO [MHoy 75, 469]. CHWA [Leithliter 70, 326, 507, 582, 775].

### **Glandularia gooddngii** (Briq.) Solbrig

*Verbena arizonica* Briq., *V. gooddngii* Briq., *V. gooddngii* var. *nepetifolia* Tides., *V. verna* A. Nels., *V. verna* var. *fissa* A. Nels.

#### Vervain

[4,400] - 4,900 [8,800] ft. Jun - Aug [flowers throughout the year]. Evergreen perennial forb, scapose or leafy-stemmed hemicryptophyte. Uncommon on rocky desert slopes and arroyos.

Chiricahua Mts.: Greenhouse Trail; Halfmoon Valley (Pedregosa Mts.). Also Rincon Mts., Pinaleño Mts., Santa Catalina Mts. Occurs throughout the state. Southern Texas; Utah, Nevada, Arizona, California, and northwestern Mexico. Southwestern.

Umber (1979).

Exsicc.: SWRS [SWRS 1958-117].

### **Glandularia wrightii** (Gray) Umber

*Verbena wrightii* Gray

#### Vervain

5,100 ft. Jun - Oct. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon on grassland and dry uplands. *Dasyllirion wheeleri*, *Opuntia chlorotica*, *Baccharis sarothroides*, *Parthenium incanum*, *Ceanthus greggii*.

Chiricahua Mts: Chiricahua Nat. Mon. west of monument; Fort Bowie Nat. Historic Site on hill northeast of Overlook. Also Huachuca Mts., Sierra Ancha. Apache, Navajo, Coconino, Graham, and Pinal counties; probably elsewhere, but apparently rare in Arizona. Western Texas to Colorado and Arizona. Southwestern.

Lehr & Pinkava (1980) state that this species is not a member of the Arizona flora. Umber, R. E., 1979; The genus *Glandularia* (Verbenaceae) in North America; Systematic Botany 4:72-102.

Exsicc.: CHIR [Reeves 2966]. FOBO [MHoy 43]. Repos. Unk. [Blumer 1345].

### **Tetraclea coulteri** Gray

*Tetraclea coulteri* Gray var. *angustifolia* (Woot. & Standl.) A. Nels. & Macbr., *Tetraclea angustifolia* Woot. & Standl.

[3,200] - 5,000 ft. [Apr] May - [Aug]. Perennial deciduous forb. Uncommon on gravelly flats, often in low-lying areas or on disturbed ground, tolerates limestone.

Chiricahua Mts: Fort Bowie Nat. Historic Site north of Overlook. Also Huachuca Mts., Rincon Mts., Mule Mts., Animas Mts. Coconino, Yavapai, Greenlee, Maricopa, Cochise, Santa Cruz, and Pima counties. Western Texas to southern Arizona and

Mexico. Chihuahuan.

Exsicc.: FOBO [MHoy 183].

### **Verbena bracteata** Lag. & Rodr.

*Verbena bracteosa* Michx., *V. imbricata* Woot. & Standl.

#### Vervain

[1,000] - 5,400 [7,500] ft. [May] Jun - [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon in river bottoms and waste land.

Chiricahua Mts.: Chiricahua Nat. Mon. in Lower Bonita Canyon. Also Huachuca Mts., Peloncillo Mts. Almost throughout the state. Widely distributed in North America. Temperate.

Exsicc.: CHIR [Clark 8187]. SWRS [Pough 1961-65].

### **Verbena carolina** L.

[5,000] - 5,400 [6,000] ft. Jul [Sep] - Sep [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Found on dry hillsides and in forests along streams.

Chiricahua Mts.: Southwestern Research Station. Also Sierra de los Ajos. Gila, Cochise, Santa Cruz, and Pima counties. Florida to Texas, southern Arizona, south to Central America. Temperate, Latin American.

Exsicc.: SWRS [Roth s.n., Moldenke 137].

### **Verbena gracilis** Desf.

#### Vervain

[4,500] 5,000 - 6,200 [6,500] ft. Jun - Sep [Oct]. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Uncommon on grassland/scrub and alluvium of lower canyons.

Chiricahua Mts.: 7 mi. southwest of Portal; Fort Bowie Nat. Historic Site around ruins; Chiricahua Nat. Mon. Also Canelo Hills, Sierra de los Ajos. Pinal, Cochise, Santa Cruz, and Pima counties. Southern Arizona to southern Mexico. Madrean.

Exsicc.: CHIR [Clark 8293, Reeves 3427, 4110]. SWRS [Pough 1962-49]. FOBO [MHoy 231].

### **Verbena macdougalii** Heller

#### Vervain

5,200 - [7,500] 7,800 ft. [Jun] Jul - Sep. Perennial deciduous forb, scapose or leafy-stemmed hemicryptophyte; microphyll, orthophyll. Uncommon in grassland/scrub and alluvium of lower canyons, occurring mostly in pine forests.

Chiricahua Mts.: Chiricahua Nat. Mon.; Centella Point. Apache, Navajo, and Coconino counties (reported by Moldenke also from Greenlee, Yavapai, and Pima counties). Southern Wyoming to western Texas, New Mexico, and Arizona. Rocky Mountain.

Exsicc.: CHIR [Fish 6, Reeves 1511, 4543].

### **Verbena neomexicana** (Gray) Small

#### Vervain

[2,000] 5,300 - 5,700 [6,000] ft. [Mar] Jul - Sep [Oct]. Perennial deciduous forb. Scapose or leafy-stemmed hemicryptophyte; nanophyll, orthophyll. Common in grassland/scrub and rocky slopes.

Chiricahua Mts.: Chiricahua Nat. Mon.: Chiricahua Mine. Also Rincon Mts., Santa Catalina Mts., Mule Mts. Mohave,

Yavapai, Gila, Maricopa, Pinal, Cochise, Santa Cruz, and Pima counties. Texas to southern California and northern Mexico. Southwestern.

Exsicc.: CHIR [Clark 9102, Reeves 3828, 3865, 4004]. NMC [Carter s.n.; Blumer 1804].

### **Verbena plicata** Greene

[3,800] - 5,500 ft. [Mar] - Sep. Deciduous perennial forb, prostrate hemicyclopophyte; nanophyll, orthophyll. Found on flats and lower slopes.

Chiricahua Mts.: Rucker Canyon; San Bernardino Ranch at Pipe Spring Cienega. Animas Mts., Atascosa Mts., Santa Rita Mts. Yavapai, Cochise, and Pima counties. Texas to Arizona and northern Mexico. Chihuahuan.

Exsicc.: ASU [Marrs-Smith 851; Tate 672; Cazier 918].

### **VIOLACEAE—Violet Family.**

A family of shrubs or herbs (usually perennial), rarely climbing. There are about 16 genera and 850 species, of wide distribution and occurring on all continents. The family is of economic value as ornamentals and in the florist trade.

#### **Hybanthus verticillatus** (Ortega) Baill. var. *verticillatus*

*Hybanthus linearis* (Torr.) Shinners, *Calceolaria verticilata* (Ortega) Kuntze

[3,500] 4,500 - [5,500] ft. Mar - Aug [Sep]. Perennial deciduous forb, scapose or leafy-stemmed hemicyclopophyte; microphyll, orthophyll. Uncommon on rocky grasslands, sometimes on limestone, dry uplands, dry plains and mesas.

Chiricahua Mts.: Chiricahua Nat. Mon., Fort Bowie Nat. Historic Site; 1 mi. east of Portal, Paradise. Also Rincon Mts., Sierra Ancha, Animas Mts., Canelo Hills. Greenlee County to eastern Mohave County, south to Cochise, Santa Cruz, and Pima counties. Kansas and Colorado to Arizona and Mexico. Southwestern.

Exsicc.: SWRS [Roth s.n.]. CHIR [Reeves 2749, 4122]. ARIZ [Blumer 194, 1720].

#### **Viola canadensis** L.

Violet

6,000 - 9,790 [11,500] ft. [Apr] May - Sep. Perennial deciduous forb. Semirosette hemicyclopophyte. Common in shaded moist woods, on lower slopes, and along streams.

Chiricahua Mts.: Chiricahua Nat. Mon. in Totem Canyon; West Turkey Creek; Pine Canyon; Greenhouse Canyon; roadcut below Barfoot Park; Wilderness Area, west of Tub Spring. Also Rincon Mts., Pinaleno Mts., Sierra Ancha, Santa Catalina Mts. Apache County to Coconino County, south to Cochise and Pima counties. New Brunswick to British Columbia, south to South Carolina, Alabama, New Mexico, and Arizona. Temperate.

Exsicc.: CHIR [Clark 9044]. SWRS [SWRS 1958-111, 1959-420]. CHWA [Leithliter 14, 55, 154, 751, 759].

#### **Viola nephrophylla** Greene var. *arizonica* (Greene) Kearney & Peebles

[5,000] - 9,100 [9,500] ft. [Apr] Jun - [Aug]. Perennial deciduous forb, rhizome geophyte; microphyll, orthophyll. Uncommon in wet soil of springs and streambeds, also on swales and lower slopes. Chiricahua Mts.: Wilderness Area, west of Tub Spring, bog near Flys Peak. Also Rincon Mts., Pinaleno Mts., Sierra Ancha. Apache and Coconino counties, south to Cochise and Pima counties. Newfoundland to British Columbia, south to New Mexico, Arizona, and California. Temperate.

Exsicc.: SWRS [SWRS 1959-427]. CHWA [Leithliter 50].

### **VISCACEAE—Mistletoe Family.**

A family of herbs or shrubs parasitic on tree branches, attached to the host by modified roots. Primarily a tropical family, of about 30 genera and 1,100 or more species, but one that extends into temperate zones of both hemispheres.

#### **Arceuthobium apachecum** Hawksworth & Wiens

Apache dwarf mistletoe

7,220 - 9,790 ft. May. Parasitic, geophyte. Common.

Parasitic on *Pinus strobiformis*.

Chiricahua Mts.: Onion Saddle. Madrean.

Exsicc.: SWRS [Mathiasen 7606]. CHWA [Leithliter 105, 368].

#### **Arceuthobium blumeri** A. Nels.

(*A. campylopodum* Engelm. *forma blumeri* (Engelm.) Gill).

7,220 - 9,790 ft. Parasitic, geophyte. Uncommon. Parasitic on *Pinus arizonica*.

Chiricahua Mts.: Wilderness Area. *A. campylopodum* found throughout most of Arizona in various forms. *Forma blumeri* occurs in mountains of Graham, Cochise, and Pima counties, parasitic on *Pinus strobiformis*. The type of *A. blumeri* was collected by Blumer in the Chiricahua Mts. Madrean.

Type collected in the Chiricahua Mts. by J.C. Blumer.

Exsicc.: CHWA [Leithliter 2]. ARIZ [Blumer s.n.].

#### **Arceuthobium douglasii** Engelm. ex L.C. Wheeler

7,700 ft. Jul. Parasitic, geophyte. Rare on cool moist slopes. Parasitic on *Pseudotsuga menziesii*-Douglas fir.

Chiricahua Mts.: Onion Saddle. Also Sierra Ancha, Animas Mts. Apache, Navajo, and Coconino counties, south to Greenlee, Graham, and Pima counties. Western Canada to New Mexico, Arizona, California, and Mexico. Western.

Host: *Pseudotsuga menziesii*.

Exsicc.: SWRS [Mathiasen s.n.].

#### **Arceuthobium gillii** Hawksworth & Weins

Mistletoe

7,000 ft. Jul - Aug. Parasitic, geophyte. Uncommon.

Parasitic on *Pinus leiophylla* var. *chihuahuana*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Pedistal Pass. Also Animas Mts. Madrean.

Exsicc.: CHIR [Clark 8652, Reeves 1279]. SWRS [Mathiasen s.n.]. ARIZ [Blumer 1515].

#### **Arceuthobium vaginatum** (Willd.) Presl ssp. *cryptopodium* (Engelm.) Hawksworth & Wiens

*Arceuthobium vaginatum* (Kunth) Eichler, *A.*

*cryptopodium* Engelm.

Southwestern dwarf mistletoe

[7,400] - 8,300 ft. Jan - [Jun]. Parasitic, geophyte.

Common on trunks of *Pinus arizonica*, dry uplands.

Chiricahua Mts.: Rustler Park. Also Pinaleno Mts., Sierra

Ancha, Santa Catalina Mts. Apache, Navajo, and Coconino counties, south to Cochise and Pima counties. Colorado and Utah to Mexico. Southwestern, Rocky Mountain.

Exsicc.: SWRS [Rae 50].

**Phoradendron bolleanum** (Seem.) Eichler ssp. **pauciflorum** (Torr.) Wiens

*Phoradendron bolleanum* var. *pauciflorum* (Torr.)

Fosberg, *P. pauciflorum* Torr.

Juniper mistletoe

5,100 - [8,000] ft. Dec. Parasitic, geophyte; nanophyll, sclerophyll. Uncommon. Parasitic on *Abies concolor*.

Chiricahua Mts.: FOBO on hill south of trailer; Paradise.

Also Rincon Mts. Coconino County to Cochise, Santa Cruz, and Pima counties. Western Texas to Oregon, California, and northern Mexico. Western.

Exsicc.: FOBO [MHoy 42]. ARIZ [Blumer 1524].

**Phoradendron californicum** Nutt.

*Phoradendron californicum* var. *distantis* Trel., *P. californicum* var. *leucocarpum* (Trel.) Jepson

[4,000] - 5,000 ft. Feb - Mar [Apr]. Parasitic, geophyte. phanerophyte. Uncommon. Parasitic on various leguminous trees and shrubs, dry uplands.

Chiricahua Mts.: Fort Bowie Nat. Historic Site on hill east of trailer; Dunn Springs Mtn. near base. Also Rincon Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts. Coconino County and common in semidesert southern and western parts of Arizona. Southern Utah and Arizona to southern California and northern Mexico. Southwestern.

Exsicc.: FOBO [MHoy 335]. SWRS [Walker s.n.].

**Phoradendron capitellatum** Torr. ex Trel.

*Phoradendron bolleanum* var. *capitellatum* (Torr. ex Trel.) Kearney & Peebles

Mistletoe

[4,000] - 5,000 ft. Jan - Jul. Parasitic, geophyte; nanophyll, sclerophyll. Common. Parasitic on *Juniperus monosperma* and *Juniperus erythrocarpa*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site; Blue Mountain on north face. Also Huachuca Mts., Rincon Mts., Pinaleño Mts. Flagstaff, Coconino County (Hedgecock 4915, in part, Deaver 1596), and from the Mazatzal Mts., Gila County (Peebles 11557). In Arizona it is parasitic on *Cupressus* and sometimes on *Juniperus*. Madrean.

Exsicc.: CHIR [Clark 8288].

**Phoradendron juniperinum** Gray

Mistletoe

5,000 - 6,500 ft. Jun - Dec. Parasitic, geophyte. Common. Parasitic on *Juniperus deppeana*, dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon.; near Paradise; Bonita Canyon Wash. Also Huachuca Mts., Sierra Ancha, Animas Mts. Apache, Navajo, and Coconino counties, south to Cochise and Pima counties. Southwestern Colorado and southern Utah to western Texas, Arizona, and northern Mexico. Southwestern, Texas.

Exsicc.: CHIR [Reeves 1256, 3056, 3251]. SWRS [SWRS 1958-67].

**Phoradendron tomentosum** (DC.) Gray

*Phoradendron flavescens* Nutt. ex Engelm. var. *pubescens* Engelm. ex Gray., *P. serotinum* (Raf.)

M.C. Johnston var. *pubescens* (Engelm. ex Gray)

M.C. Johnston

Mistletoe

[4,200] - 5,400 ft. Mar - Apr. Parasite saprophytic geophyte; microphyll, sclerophyll. Uncommon. Parasitic on *Juglans major*, *Fraxinus pennsylvanica*, and *Sapindus drummondii*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Paradise. Also Rincon Mts. Yavapai County to Graham, Cochise, Santa Cruz, and Pima counties, doubtless also in Yuma County. New Jersey to Florida, west to California, south to central Mexico. Temperate.

Exsicc.: CHIR [Reeves 2282, 2551]. SWRS [Walker s.n.].

**Phoradendron villosum** (Nutt.) Nutt. ssp.

**coryae** (Trel.) Wiens.

*Phoradendron coryae* Trel., *P. havardianum* Trel.

[3,500] 4,900 - 8,500 ft. Feb - Jun [Jul]. Parasite. Epiphyte phanerophyte. Parasitic on evergreen oaks and (rarely) barberry (*Berberis haematocarpa*), dry uplands. *Quercus emoryi*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in lower Siphon Canyon; 2 mi. east of Paradise. Also Huachuca Mts., Rincon Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Animas Mts. Southern Coconino County to Graham, Cochise, Santa Cruz, and Pima counties. Western Texas to Arizona and Sonora. Madrean.

Exsicc.: CHIR [Clark 8139, Reeves 1282, 1338, 1579, 2259, 2424, 3244]. SWRS [Ordway 51].

**VITACEAE—Grape Family.**

A family mostly of climbing shrubs with tendrils, seldom erect shrubs or small trees. There are 11 genera and about 600 species, widely distributed in the tropics and subtropics with ranges extending into the north and south temperate regions.

Economically the family is of most importance for the wine grape (*Vitis vinifera*) and other species grown extensively for their edible fruit from which are obtained wine and raisins. Boston ivy (*Parthenocissus tricuspidata*) and Virginia creeper (*P. quinquefolia*) are cultivated as ornamental vines.

**Parthenocissus quinquefolia** (L.) Planch. var. **quinquefolia**

*Amelopsis quinquefolia* (L.) Michx., *Hedera quinquefolia*, *Parthenocissus hirsuta* (Pursh) Graebn., *P. inserta* (Kern.) Fritsch, *P. quinquefolia* var. *hirsuta* (Pursh) Planch., *P. quinquefolia* var. *saintpaulii* (Koehne ex Graebn.) Rehd., *Psedera quinquefolia* (L.) Lam., *Vitis inserta* Kerner, *V. quinquefolia* (L.) Lam. Virginia-creeper

[3,000] 5,400 - 8,050 ft. [Apr] May - Sep. Woody-stemmed vine, phanerophyte. Uncommon at forest edges and along streams.

Chiricahua Mts.: Chiricahua Nat. Mon. at Faraway, maintenance yard; South Fork Cave Creek; Southwestern Research Station; Paradise; Wilderness Area. Also Rincon Mts., Pinaleño Mts., Sierra Ancha, Santa Catalina Mts., Baboquivari Mts. Apache County to Coconino County, south to Cochise and Pima counties. Ohio to Wyoming, New Mexico, and Arizona. Temperate.

Exsicc.: CHIR [Clark 9221, Reeves 3138]. SWRS [Walker s.n., SWRS 1958-470]. CHWA [Leithliter 619, 710A, 718].

**Vitis arizonica** Engelm.

*Vitis arizonica* var. *galvini* Munson, *V. arizonica* var. *glabra* Munson, *V. treleasei* Munson ex V. Bailey

**Arizona grape, canyon grape**

[2,000] 5,300 - 7,540 ft. [Apr] May - Aug, fruits [Jul] - Aug. Woody-stemmed vine, phanerophyte; mesophyll, orthophyll. Common in mesic wooded canyons and draws on well-drained soils.

Chiricahua Mts.: Chiricahua Nat. Mon. in Rhyolite Canyon; Fort Bowie Nat. Historic Site; West Turkey Creek, Rucker Canyon; Pine Canyon; Portal to Paradise road; Greenhouse Canyon; Wilderness Area, Pinery Canyon. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts., Mule Mts., Pinaleno Mts., Animas Mts. Navajo, Coconino, Mohave counties to Greenlee, Cochise, Santa Cruz, and Pima counties. Western Texas to southern Utah, Arizona, and northern Mexico. Madrean.

Food for wildlife. Eaten by Indians. Killed by excessive moisture.

Exsicc.: CHIR [Clark 8093, Reeves 2850, 3684, 4540]. SWRS [SWRS 1958-224]. CHWA [Leithliter 46, 616].

**ZYGOPHYLLACEAE—Caltrop Family.**

A family mostly of herbs and shrubs, rarely trees. There are 27 genera and nearly 200 species, primarily pantropical with ranges extending into temperate regions of northern and southern hemispheres. The members are especially abundant in the drier areas of the Mediterranean region. The family is of economic importance for lignum vitae (*Guaiacum officinale*), the hardest and densest of all woods. This species and others of the genus and of *Zygophyllum*, *Tribulus*, and *Larrea* are grown domestically ornamentals, mostly in warmer regions.

**Kallstroemia californica** (S. Wats.) Vail

*Kallstroemia brachystylis* Vail, *K. californica* var. *brachystylis* (Vail) Kearney & Peebles

**California caltrop**

5,100 - [7,000] ft. [May] Jul - [Oct]. Summer-annual forb, spreading therophyte. Light sandy or gravelly grassland soils.

Chiricahua Mts.: Chiricahua Nat. Mon. west of monument. Also Rincon Mts., Santa Catalina Mts., Pinaleno Mts. Apache, Coconino, Yavapai counties to Santa Cruz, Pima, and Yuma counties. Southern Colorado to Arizona, Mojave and Colorado deserts, southern California, eastern lower California, Sonora, and Sinaloa, southeastern California, Mexico. Southwestern.

Exsicc.: CHIR [Reeves 1647A].

**Kallstroemia grandiflora** Torr. ex Gray

**Arizona-poppy, Mexican-poppy, summer-poppy**

4,700 - 5,200 ft. [Feb] Jul - Aug [Sep]. Summer-annual forb, spreading therophyte. Uncommon on gravelly flats and drainages, also occurring on dry uplands.

Chiricahua Mts: Chiricahua Nat. Mon. west of monument; Fort Bowie Nat. Historic Site at summit of Apache Pass, below Paradise. Also Rincon Mts., Sierra Ancha, Santa Catalina Mts., Animas Mts., Sierra de los Ajos. Greenlee County to Yavapai County, south to Cochise, Santa Cruz, Pima, and Yuma counties. Texas to Arizona and Mexico. Southwestern.

Exsicc.: CHIR [Reeves 4092, 4100]. FOBO [MHoy 258]. SWRS [Cummins s.n.].

**Kallstroemia hirsutissima** Vail ex Small  
**Carpetweed**

[2,500] - 4,700 ft. Aug - [Oct]. Summer-annual forb, spreading therophyte. Occurs on flats on silty soil, often on disturbed sites.

Chiricahua Mts.: mouth of Whitetail Canyon. Also Santa Catalina Mts., Animas Mts. Cochise, Santa Cruz, and Pima counties. Kansas and Colorado to Texas, southeastern Arizona, and northern Mexico. Southwestern.

Exsicc.: ASU [Lehto 3954].

**Kallstroemia parviflora** Nort.

*Kallstroemia intermedia* Rydb.

[1,000] 4,700 - 5,200 ft. Jul [Aug] - Sep [Oct]. Summer-annual forb, spreading therophyte. Uncommon on gravelly flats and washes, also occurring on dry uplands. *Platanus racemosa*, *Quercus arizonica*, *Arbutus arizonica*, *Vitis arizonica*, *Juglans major*, *Fraxinus pennsylvanica*.

Chiricahua Mts.: Chiricahua Nat. Mon.; Fort Bowie Nat. Historic Site in South Canyon; 2 mi. northeast of Portal. Also Huachuca Mts., Rincon Mts., Sierra Ancha, Santa Catalina Mts. Navajo County to Mohave County, south to Greenlee, Cochise, Santa Cruz, and Pima counties. Mississippi to Arizona and northern Mexico. Southwestern, Plains.

Exsicc.: CHIR [Reeves 1664, 4113, 4176]. FOBO [MHoy 286]. SWRS [s.n.].

**Larrea tridentata** (Sessé and Moc. ex DC.)

Coville var. **tridentata**

*Covillea tridentata* (Sessé & Moc. ex DC.) Vail, *Larrea divaricata* Cav. ssp. *tridentata* (Sesse & Moc. ex DC.) Felger & Lowe, *Larrea glutinosa* Engelm. Creosote bush, greasewood, hediondilla, governadora

[4,000] - 4,900 [5,000] ft. May - Sep [flowers throughout the year but profusely in the spring]. Broadleaf evergreen shrub, nanophanerophyte; leptophyll, sclerophyll. Common on lower bajadas and flats with silty soil. *Prosopis*, *Yucca*.

Chiricahua Mts.: Fort Bowie Nat. Historic Site in wash east of trailer; 5 mi. north of Portal on the San Simon road. Also Rincon Mts., Santa Catalina Mts., Mule Mts., Pinaleno Mts. Coconino County to Mohave County, Greenlee, Cochise, Santa Cruz, Pima, and Yuma counties. Western Texas to southern Utah, Arizona, California, and northern Mexico. Southwestern.

Exsicc.: FOBO [MHoy 213]. SWRS [Wittmann 147, Bichier 191, SWRS 1958-97].

**Tribulus terrestris** L.

**Caltrop, puncture-vine, bull-head, bur-nut, cadillo, abrojo de flor**

4,300 - 5,400 [7,000] ft. [Mar] Jun - Aug [Oct]. Summer-annual forb, spreading therophyte. Rare on grassland and lower canyons on disturbed and beaten ground, also on dry uplands.

Chiricahua Mts.: Chiricahua Nat. Mon. west of monument; Fort Bowie Nat. Historic Site in Siphon Canyon; Portal to Paradise road. Also Huachuca Mts., Rincon Mts, Sierra Ancha, Santa Catalina Mts., Animas Mts. Scattered throughout the state. Extensively naturalized in the United States; alien from southern Europe. Temperate, Latin American, Introduced.

This species bears fruits armed with stout spines capable of piercing bicycle tires.

Exsicc.: CHIR [Clark 8213, Reeves 1252, 1647, 4165]. SWRS [SWRS 1958-492]. FOBO [MHoy 481].

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Appendix 1.  
**Forrest Shreve's list of 524 Blumer collections made in the  
Chiricahua Mountains, 1906 and 1907.**

Chronological arrangement of this list gives insight into Blumer's travels and collection methods. His first recorded collection was made August 8, 1906 near Paradise in the eastern foothills of the range where he headquartered. Several weeks were then spent in the high country, apparently on horseback, with occasional trips to the Wilgus Ranch, "Miss Rhoda Rigg's Ranch", and Stephans' Ranch, perhaps for supplies. He seems to have spent the entire summer in the field since the greatest hiatus in collecting dates is 4 days until November 27, 1906 when there was a 10 day break in collecting activity. He made his last 1906 collection at the Wilgus Ranch on Christmas day. Blumer returned to the mountains in June 1907 and remained until late October.

Blumer's preferred routes of travel were Pinery Canyon, and Pine Canyon when crossing the range. He made little use of West Turkey Creek, Tex Canyon, Rucker Canyon, Hands Pass/Whitetail Canyon for this purpose. He moved north and south along the what is now known as the Crest Trail south of Rustler Park. He seems to have spent little time in the high country to the north. Although the bulk of his collections were made at high elevations, Blumer also collected in the foothills, particularly on the east side of the range.

The list that follows gives Shreve's name for the plants. In the several instances where the Blumer collections were the sole record found by us, Shreve's name is preceded by an asterisk (\*). The Shreve name is followed by the current name, so far as we could discover it through annotations and Kartesz (1994) list. A question mark is placed where we were unable to assign a modern name to Shreve's taxa. Blumer's collection date, locality, field number follow as exsiccatae.

- Acalypha lindheimeri* Muell.-Arg. Exsicc.: 10/31/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1498.  
*Acalypha neomexicana* Meull.-Arg. Exsicc.: 09/13/07 Paradise 1661; 09/21/07 Cedar Gulch, Paradise 1710.  
*Achillea lanulosa* Nutt. → *A. millefolium* Nutt. var. *occidentalis* DC. Exsicc.: 08/24/06 Barfoot Park 1340.  
*Adenostegia wrightii* (Gray) Greene → ? Exsicc.: 09/30/07 Cedar Gulch, Paradise 1744.  
*Agastache pallidiflora* (Heller) Rydb. Exsicc.: 09/21/06 Barfoot Park 1407.  
\**Agrimonia brittoniana occidentalis* Bickl. → *A. striata* Michx. Exsicc.: 10/12/07 Barfoot Park 1324; 09/09/07 Barfoot Park 1598 ARIZ.  
*Agropyron* sp. → *Elymus* sp. Exsicc.: ; 10/24/06 Chaperon Canyon 1495.  
*Agropyron arizonicum* Scribn. & J.G. Sm. → *Elymus arizonicus* (Scribn. & J.G. Sm.) Gould Exsicc.: 10/01/06 Barfoot Park 1438 ARIZ; 10/06/06 Rustler Peak Spring 1467 ARIZ.  
*Agropyron pseudorepens* Scribn. & J.G. Sm. → *Elymus trachycaulis* (Link) Gould ex Shinners Exsicc.: 09/25/06 Barfoot Park 1422.  
*Agrostis hiemalis subrepens* A.S. Hitchc. → *A. scabra* Willd. Exsicc: 09/14/06 Barfoot Park 1374.  
*Agrostis verticillata* Vill. → *Polypogon viridis* (Gouan) Breistr. Exsicc.: 10/22/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1490.  
*Allionia gracillima* Standl. → *Mirabilis coccineus* (Torr.) Benth. & Hook. Exsicc.: 10/05/07 Paradise 1769.  
*Allionia melanotricha* Standl. sp. nov.? → *A. pratensis* Standl.? Exsicc.: 09/17/06 Barfoot Park 1384; 09/17/06 Barfoot Park 1385.  
*Allium recurvatum* Rydb. → *A. cernuum* var. *obtusum* Cockerell ex J.F. Macbr. Exsicc.: 10/01/06 Barfoot Park 1440.  
*Alsine longipes* (Goldie) Coville → *Stellaria longipes* ssp. *longipes* Exsicc.: 07/07/07 Fly Park 1602.  
*Amaranthus* sp. Exsicc.: 09/18/07 Paradise 1667.  
*Amaranthus blitoides* S. Wats. Exsicc.: 08/22/07 Barfoot Park 1595.  
*Amaranthus blitum* L. Exsicc: 08/23/07 Barfoot Park 1596 ARIZ  
*Amaranthus palmeri* S. Wats. Exsicc.: 08/22/07 Barfoot Park 1594.

- Amaranthus retroflexus* L. Exsicc.: 09/20/06 Barfoot Park 1404.
- Ambrosia psilostachya* DC. Exsicc.: 10/10/07 Wilgus Ranch 1779.
- Andropogon cirratus* Hack. → *Schizachyrium cirratum* (Hack.) Woot. & Standl. Exsicc: 09/16/07 Paradise 1699.
- Andropogon torreyanus* Steud. → ? Exsicc.: 10/31/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1500.
- Androsace diffusa* Small → *Androsace septentrionalis* L. ssp. *subulifera* (Gray) G.T. Robbins Exsicc.: 07/02/07 Barfoot Park 1554 ARIZ.
- Anemopsis californica* B. & H. → *Anemopsis californica* (Nutt.) Hook. & Arn. Exsicc.: 06/28/07 Reed Ranch (SWRS) 1548
- Anoda thurberi* Gray Exsicc.: 09/19/07 Paradise 1670 ARIZ; 09/28/07 Paradise 1730 ARIZ.
- \**Anthemis cotula* L. Exsicc.: 07/30/07 Barfoot Park 1573.
- Anthericum torreyi* Baker pro parte → *Echeandia flavesens* (J.A. & J.H. Schultes) Cruden Exsicc.: 09/05/06 Barfoot Park 1355 ARIZ.
- Apocynum scopulorum* Greene ex Rydb. → *A. androsaemifolium* L. var *incanum* A. DC. Exsicc.: 06/26/07 Pine Canyon 1543.
- Aquilegia arizonica* Heller → ? Exsicc.: 09/30/06 Between Barfoot Peak and Ida Peak 1475; 10/01/06 Barfoot Park 1441.
- Aquilegia chrysantha* Gray Exsicc.: 09/27/06 Monument Peak 1454; 07/01/07 Chaperon Canyon 1545.
- Aquilegia pubescens* Coville Exsicc.: 07/03/07 Chaparone 1600. Annotated to *Aquilegia chrysantha* Gray
- Aragallus lambertii* (Pursh) Greene → ? Exsicc.: 08/20/07 Jhu's Pass 1620.
- Arenaria confusa* Rydb. → *A. lanuginosa* (Michx.) Rohrb. ssp. *saxosa* (Gray) Maguire Exsicc.: 09/22/06 Barfoot Park 1410.
- Arenaria fendleri* Gray Exsicc.: 10/02/06 Summit Monument 1459.
- Arenaria saxosa cinerascens* B.L. Robins. → *A. lanuginosa* (Michx.) Rohrb. ssp. *saxosa* (Gray) Maguire Exsicc.: 09/21/06 Barfoot Park 1408.
- Argemone hispida* Gray Exsicc.: 07/19/07 Stephens' Ranch (Pinery Canyon) 1814.
- Aristida americana bromoides* (Kunth) Scribn. & Merr.? → *Bouteloua radicosa* (Fourn.) Griffiths? Exsicc.: 09/19/07 Paradise 1717.
- Aristida scheidiana* auct. non Trin. & Rupr. → *A. orcuttiana* Vasey Exsicc.: 08/30/07 Between. W. Turkey Creek & Cottonwood Creek 1633.
- Artemisia dracunculoides* Pursh. → *A. dracunculus* L. ssp. *dracunculus* Exsicc.: 09/13/06 Barfoot Park 1372.
- Artemisia gnaphaloides* Nutt. → *A. ludoviciana* Nutt. ssp. *ludoviciana* Exsicc.: 10/17/07 Paradise 1798 ARIZ.
- Artemisia ludoviciana* Nutt. Exsicc.: 09/17/06 Barfoot Park 1389.
- Artemisia wrightii* Gray → *A. carruthii* Wood ex Carruth. Exsicc.: 10/17/07 Chiricahua Mine 1794
- Asclepias tuberosa* L. Exsicc.: 07/18/07 Pine Canyon 1607.
- Aspicarpa hartwegiana* A. Juss. → *A. hirtella* L.C. Rich. Exsicc.: 08/26/07 Shaw's Ranch 1629.
- Aster hebecladus* DC. → ? Exsicc.: 10/08/07 Wilgus Ranch 1773.
- Aster hesperius* Gray → *A. lanceolatus* Willd. ssp. *hesperius* (Gray) Semple & Chmielewski Exsicc.: 10/08/07 Wilgus Ranch 1774.
- Athyrium cyclosorum* Rupr. → *A. filix-femina* (L.) Roth var. *cyclosorum* (Rupr.) C. Christens. Exsicc.: 09/06/07 Cold Spring 1650.
- \**Avena fatua* L. Exsicc.: 07/31/07 Barfoot Park 1574.
- Bacharis thesioides* Kunth Exsicc. 10/28/06 Barfoot Park 1451.
- Baileya multiradiata* Harv. & Gray ex Gray Exsicc.: 10/20/07 Silver Creek 1801.
- \**Barbarea barbarea* (L.) McMil. → *B. orthoceras* Ledeb. Exsicc.: 07/01/07 Chaperon Canyon 1550.
- Bidens sp.* Exsicc.: 09/21/07 Cedar Gulch, Paradise 1711.
- Bidens bipinnata* L. Exsicc.: 09/21/07 Cedar Gulch, Paradise 1712; 10/22/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1486.
- Bidens pilosa* L. Exsicc.: ; 08/25/07 Chaperon Canyon 1625 09/03/07 Shelter Cove, N. Wilgus Ranch 1647.
- Bidens tenuisecta* Gray Exsicc.: 09/17/06 Barfoot Park 1386; 08/22/07 Barfoot Park 1593.
- Blepharoneuron tricholepis* (Torr.) Nash Exsicc: 09/14/06 Barfoot Park 1375.
- Boerhavia purpurascens* Gray Exsicc.: 09/20/07 Paradise 1672.
- Boerhavia thornberi* M.E. Jones → *B. erecta* L. Exsicc.: 10/05/07 Paradise 1765.
- Bouteloua aristidoides* (Kunth) Griseb. Exsicc.: 09/20/07 Paradise 1705.

- Bouteloua curtipendula* (Michx.) Torr. Exsicc.: 09/19/07 Paradise 1671.
- Bouteloua oligostachya* (Nutt.) Torr. → *B. gracilis* (Willd. ex Kunth) Lag. ex Griffiths var. *gracilis* Exsicc.: 09/18/07 Paradise 1704.
- Bouteloua polystachya* (Benth.) Torr. → *B. rothrockii* Vasey Exsicc.: 09/20/07 Paradise 1706.
- Bouvardia triphylla* Salisb. → ? Exsicc.: 06/29/07 Goosneck, Paradise 1549; 07/20/07 Gooseneck, Paradise 1606
- \**Brassica nigra* (L.) W.D.J. Koch Exsicc.: 08/19/07 Barfoot Park 1592.
- Bromus maximus* auct. non Desf. var. *gussoni* Parl. → *B. diandrus* Roth Exsicc.: 08/17/07 Barfoot Park 1585.
- \**Bromus polyanthus* Scribn. var. *paniculatus* Shear → *B. polyanthus* Scribn. Exsicc.: 09/12/06 Head of Chaparone Canyon 1818; 8/17/07 Barfoot Park 1367; 10/12/07 Wilgus Ranch 1780.
- Bromus richardsonii* Link. → *B. ciliatus* L. Exsicc.: 09/13/06 Barfoot Park 1368.
- Cacalia decomposita* Gray → *Psacalium decompositum* (Gray) H.E. Robins. & Brett. Exsicc.: 09/15/06 Barfoot Park 1378.
- Calceolaria verticillata* (Ortega) Kuntze → *Hybanthus verticillata* (Ortega) Baill. var. *verticillata* Exsicc.: 09/24/07 Paradise 1720.
- Calliandra humilis* Benth. Exsicc.: 09/19/07 Paradise 1677.
- \**Camelina sativa* (L.) Krantz Exsicc.: 07/30/07 Barfoot Park 1572.
- Carduus floccosus* Rydb. → ? Exsicc.: 09/18/06 Barfoot Park 1395.
- Carduus ochrocentrus* (Gray) Greene → *Cirsium undulatum* (Nutt.) Spreng Exsicc.: 07/19/07 Stephens' Ranch (Pinery Canyon) 1815.
- Carex* sp. → ? Exsicc.: 09/20/06 Barfoot Park 1401; 09/25/06 Barfoot Park 1423.
- Carminatia tenuiflora* DC. Exsicc.: 09/18/07 Paradise 1668.
- Cassia leptocarpa* Benth. *glaberrima* M.E. Jones → *Senna hirsuta* (L.) Irwin & Barneby var. *glaberrima* (M.E. Jones) Irwin & Barneby Exsicc.: 09/03/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1453; 09/01/07 Joe Smith's Ranch (Cottonwood Creek) 1642.
- Cassia lindheimeriana* Scheele → *Senna lindheimeriana* (Scheele) Irwin & Barneby Exsicc.: 10/03/07 Maxon's Peak 1758.
- Castilleja blumeri* Standl. → *C. patriotica* Fern. Exsicc.: 09/15/06 Barfoot Park 1380.
- Castilleja minor* Gray → *C. minor* (Gray) Gray Exsicc.: 06/24/07 Stephens Ranch 1810.
- Castilleja patriotica* Fern. Exsicc.: 09/15/06 Barfoot Park 1379.
- Ceanothus fendleri* Gray Exsicc.: 08/21/07 Rustler Park 1283.
- Centaurea rothrockii* Greenm. Exsicc.: 10/17/06 Pine Canyon 1480
- Centaurium arizonicum* (Gray) Heller → *C. calycosum* (Buckl.) Fern. Exsicc.: 10/11/07 Joe Smith's Ranch (Cottonwood Creek) 1792.
- Cerastium sericeum* S. Wats. → *C. nutans* var. *objectum* Kearney & Peebles Exsicc.: 08/24/06 Barfoot Park 1338.
- Cerastium texanum* Britt. Exsicc.: 09/26/06 Barfoot Park 1428.
- Cevallia sinuata* Lag. Exsicc.: 11/05/06 Fort Bowie 1508.
- Chaetochloa grisebachii* (Fourn.) Scribn. *Setaria grisebachii* Fourn. Exsicc.: 09/13/07 Paradise 1660; 09/24/07 Paradise 1724.
- Chaetochloa viridis* (L.) Scribn. → *Setaria viridis* (L.) Beauv. var. *viridis* Exsicc.: 08/18/07 Barfoot Park 1588.
- Chamaesaracha conoides* (Moric. ex Dunal) Britt. → *C. sordida* (Dun.) Gray Exsicc.: 10/02/07 Maxon's Peak 1752.
- Chaptalia alsophila* Greene → *Leibnitzia seemanii* (Schultz-Bip.) Nesom Exsicc.: 10/06/06 Rustler Peak Spring 1464.
- Cheilanthes eatoni* Baker Exsicc.: 11/16/06 Pedistal Rock 1513; 12/20/06 Hands Trail 1529.
- Cheilanthes feei* Moore Exsicc.: 08/10/06 Paradise Falls 1332.
- Cheilanthes fendleri* Hook. Exsicc.: 11/06/06 Big Emigrant Canyon 1505.
- Cheilanthes lindheimeri* Hook. Exsicc.: 11/05/06 Fort Bowie 1504; 11/23/06 Morse Canyon 1519.
- Chenopodium cornutum* (Torr.) B. & H. → *C. graveolens* Willd. Exsicc.: 09/15/06 Barfoot Park 1381.
- Chenopodium fremontii* S. Wats. → *C. neomexicanum* Standl. Exsicc.: 09/21/06 Barfoot Park 1409.
- \**Chenopodium leptophyllum* (Moq.) Nutt. → *C. desiccatum* A. Nels. Exsicc.: 07/29/07 Barfoot Park 1568.
- Chenopodium murale* L. Exsicc.: 07/29/07 Barfoot Park 1567.
- Chloris elegans* Kunth → ? Exsicc.: 09/21/07 Paradise 1715.
- Chrysoma laricifolia* (Gray) Greene → *Ericameria laricifolia* (Gray) Shinners? Exsicc.: 10/08/07 Shelter Cove,

Wilgus Ranch 1788.

- Chrysothamnus nauseosus albicaulis* (Nutt.) Rydb. → *C. nauseosus* (Pallas ex Pursh) ssp. *albicaulis* (Nutt.) Hall & Clements Exsicc.: 11/22/06 Joe Smith's Ranch (Cottonwood Creek.) 1518.
- Cladonia pyxidata* (L.) Hoffm. → ? Exsicc.: 10/02/06 Monument Peak Exsicc.: 1456.
- Clematis ligusticifolia* Nutt. Exsicc.: 11/10/06 Knowles' Camp 1510.
- Coleosanthus betonicaefolius* (Gray) Kuntze → *Brickellia betonicaefolius* Gray Exsicc.: 10/17/07 Chiricahua Mine 1795.
- Coleosanthus floribundus* (Gray) Kuntze → *Brickellia floribunda* Gray Exsicc. 10/05/07 Paradise 1766.
- Coleosanthus pringlei* Gray? → *Brickellia pringlei* Gray 10/02/07 Maxon's Peak 1750.
- Cologania lemmontii* Gray Exsicc.: 08/25/07 Road above Chaperon Canyon 1627.
- Cologania longifolia* Gray → *C. angustifolia* Kunth Exsicc.: 09/20/07 Paradise 1679; 09/01/06 Barfoot Park 1349.
- Commelina dianthifolia* Delile Exsicc.: 09/05/06 Barfoot Park 1354.
- Conioselinum scopulorum* (Gray) Coulter. & Rose Exsicc.: 09/21/06 Barfoot Park 1406.
- Conobea intermedia* Gray → *C. intermedia* (Gray) Pennell Exsicc.: 09/28/07 Paradise 1735.
- Convolvulus incanus* auct. non Vahl. → *C. arvensis* L. Exsicc.: 09/18/07 Paradise 1684.
- Conyza coulteri* Gray Exsicc.: 09/29/06 Barfoot Park 1435.
- Cosmos parviflorus* (Jacq.) Kunth Exsicc.: 09/24/06 Barfoot Park 1419; 08/23/07 Goldenrod Park 1624.
- Cowania mexicana* D. Don *Purshia mexicana* (D. Don) Hendrickson Exsicc.: 12/07/06 Rucker Canyon 1820.
- Crassina grandiflora* (Nutt.) Kuntze → *Zinnia grandiflora* Nutt. Exsicc.: 09/27/07 Paradise 1733;  
10/22/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1485.
- Crotalaria* sp. → ? Exsicc.: 10/05/07 Paradise 1767.
- Crotalaria collina* Heller → *C. sagittalis* L. Exsicc.: 10/07/07 Shelter Cove, Wilgus Ranch 1772.
- Croton corymbulosus* Engelm. → *C. pottsii* (Klotzsch) Muell.-Arg. Exsicc.: 09/18/07 Paradise 1685.
- Crusea subulata* (Pavon) Gray Exsicc.: 08/30/07 Sanders' Pasture (W. Turkey Creek) 1631.
- Cucurbita foetidissima* Kunth Exsicc.: 07/19/07 Stephens' Ranch (Pinery Canyon) 1813.
- Cyperus* sp. → ? Exsicc.: 09/03/07 Shelter Cove, N. Wilgus Ranch 1644; 09/02/07 Shelter Cove, N. Wilgus Ranch 1636
- Cyperus diandrus capitatus* Britt. → *C. niger* Ruiz & Pavòn Exsicc.: 10/31/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1502.
- Cyperus fendlerianus* Boeckl. Exsicc.: 08/31/06 Barfoot Park 1343.
- Cyperus rusbyi* Britt. → *C. sphaerolepis* Boeckl. Exsicc.: 08/30/07 Between W. Turkey Creek & Cottonwood Creek 1632.
- \**Delphinium scopulorum stachydeum* Gray → *D. stachydeum* (Gray) Tidestrom Exsicc.: 09/14/06 Barfoot Park 1373.
- Dicranum longifolium* → ? Exsicc.: 10/02/06 Monument Peak 1457.
- Draba chrysantha* S. Wats. → *D. standleyi* J.F. Macbr. & Payson Exsicc.: 06/25/07 Barfoot Peak 1538
- Draba spectabilis* Greene → *D. helleriana* Greene var. *bifuracata* C.L. Hitchc. 07/30/07 Monument Peak 1608.
- Draba streptocarpa* Gray Exsicc.: 10/06/06 Rustler Peak Spring 1465.
- Drymaria sperguloides* Gray → *D. molluginea* (Lag.) Dindr. Exsicc.: 09/29/06 Barfoot Park 1433.
- Drymaria tenella* Gray → *D. leptophylla* (Cham. & Schlecht.) Fenzl ex Rohrb. Exsicc.: 09/02/07 Shelter Cove, N. Wilgus Ranch 1639; 09/22/06 Barfoot Park 1411.
- Dugaldia hoopesii* (Gray) Rydb. Exsicc.: 07/27/07 Barfoot Park 1565; 10/12/06 Barfoot Park 1447.
- Dyssodia papposa* (Vent.) A.S. Hitchc. Exsicc.: 09/11/07 Paradise 1654.
- Echinochloa colona zonale* → *E. colona* (L.) Link Exsicc.: 10/04/07 Paradise 1764.
- \**Echinochloa crusgalli* (L.) Beauv. → *E. crus-galli* (L.) Beauv. var. *crus-galli* Exsicc.: 10/12/07 Wilgus Ranch (W. Turkey Cr.) 1782.
- Elionurus barbiculmis* Hack. → *Elyonurus barbiculmis* Hack. Exsicc.: 10/08/07 Shelter Cove, Wilgus Ranch 1787
- Epicampes rigens* Benth. → *Muhlenbergia rigens* (Benth.) A.S. Hitchc. Exsicc.: 10/22/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1491.
- Epicampes ligulata* Scribn. → ? Exsicc.: 09/26/06 Barfoot Park 1424.
- Epilobium adenocaulon perplexum* Trel. → *E. ciliatum* Raf. ssp. *ciliatum* Exsicc.: 08/10/06 Paradise Falls 1333.
- Epilobium novo-mexicanum* Hanssk. → *E. ciliatum* Raf. ssp. *ciliatum* Exsicc.: 09/19/06 Barfoot Park 1400.

- Equisetum* sp. → ? Exsicc.: 10/27/06 Stephens' Ranch (Pinery Canyon) 1496.
- Eragrostis* sp. → ? Exsicc.: 09/21/07 Cedar Gulch, Paradise 1714; 08/18/07 Barfoot Park 1589.
- Eragrostis major* Host → ? *E. cilianensis* (All.) Lut. ex Janchen Exsicc.: 09/28/07 Paradise 1697.
- Erigeron macranthus* Nutt. → *E. speciosus* (Lindl.) DC. var. *macranthus* (Nutt.) Cronq. Exsicc.: 10/01/06 Barfoot Park 1439.
- Erigeron neo-mexicanus* Gray → *E. neomexicanus* Gray Exsicc.: 10/04/07 Paradise 1759; 09/17/07 Paradise 1703 NMU; 09/05/06 Barfoot Park 1352 NMU.
- Eriogonum jamesii* Benth. Exsicc.: 10/02/06 Summit Monument Peak 1460.
- Eriogonum pinetorum* Greene → *Eriogonum abertianum* Torr. Exsicc.: 08/18/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1334.
- Eriogonum wrightii* Torr. ex Benth. var. *wrightii* → *E. wrightii* Torr. Exsicc.: 10/04/07 Gooseneck, Paradise 1761.
- Erodium cicutarium* (L.) L'Her Exsicc.: 07/05/07 Pine Canyon 1613.
- Eryngium lemmoni* Coulter & Rose Exsicc.: 10/05/06 Pine Canyon 1463.
- Erysimum aspernum* (Greene) Rydb. → *E. capitatum* (Dougl. ex Hook.) Greene var. *argillosum* (Greene) R.J. Davis Exsicc.: 07/02/07 Barefoot Park 1599.
- Eupatorium ageratifolium* DC. → ? Exsicc.: 10/04/07 Gooseneck, Paradise 1763.
- Eupatorium arizonicum* (Gray) A. Nels. → *Ageratina herbacea* (Gray) King & H.E. Robins. Exsicc.: 10/04/06 Pine Canyon 1462.
- Eupatorium greggii* Gray Exsicc.: 09/29/07 Mt. Desert 1739.
- Eupatorium rothrockii* Gray → *Ageratina rothrockii* (Gray) King & H.E. Robins. Exsicc.: 10/18/06 Pine Canyon 1483.
- Eupatorium wrightii* Gray → *Ageratina wrightii* (Gray) King & H.E. Robins. Exsicc.: 10/03/07 Maxon's Peak 1754.
- Euphorbia bilobata* Engelm. Exsicc.: 10/01/07 Paradise 1747; 09/07/07 Paradise 1657.
- Euphorbia crenulata* Engelm. Exsicc.: 09/29/06 Barfoot Park 1437.
- Euphorbia dentata* Michx. Exsicc.: 09/19/07 Paradise 1678; 08/19/07 Barfoot Park 1591.
- Euphorbia exstipulata* Engelm. Exsicc.: 09/07/07 Paradise 1658.
- Euphorbia stictospora* Engelm. → *Chamaesyce stictospora* (Engelm.) Small Exsicc.: 09/17/07 Paradise 1690.
- Eurotia lanata* (Pursh.) Moq. → *Krascheninnikovia lanata* (Pursh.) Guldenstaedt Exsicc.: 10/02/07 Maxon's Peak 1751.
- Evernia purpurea* (L.) Mann. → *Krascheninnikovia lanata* (Pursh.) Guldenstaedt Exsicc.: 09/26/06 Barfoot Park 1429 ARIZ; 09/24/07 Paradise 1727 ARIZ.
- Fendlerella utahensis* (S. Wats.) Heller Exsicc.: 09/24/07 Paradise 1725.
- Fragaria bracteata* Heller. *Frageria vesca* L. ssp. *bracreatra* (Heller) Staudt. Exsicc.: 10/11/06 Barfoot Park 1446.
- Frasera speciosa* Dougl. → *F. speciosa* Dougl. ex Griseb. Exsicc.: 08/13/07 Rustler Park 1619.
- Froelichia gracilis* Moq. → *F. gracilis* (Hook) Moq. Exsicc.: 10/09/07 Joe Smith's Ranch 1790.
- Galactia wrightii* Gray Exsicc.: 10/17/07 Paradise 1799.
- Galinsoga parviflora* Cav. Exsicc.: 09/18/07 Paradise 1664; Grand View 1653; 09/21/07 Cedar Gulch, Paradise 1713.
- Galium aspernum* Gray → *G. mexicanum* Kunth ssp. *aspernum* (Gray) Dempster Exsicc.: 09/13/06 Barfoot Park 1369.
- Galium wrightii* Gray Exsicc.: 09/24/06 Barfoot Park 1417.
- Galpinsia hartwegii* (Benth.) Britt. → *Calylophus hartwegii* (Benth.) Raven ssp. *hartwegii* (Gray) Towner & Raven Exsicc.: 07/05/07 Pine Canyon 1610.
- Gaura parviflora* Dougl. Exsicc.: 09/28/07 Paradise 1738; 10/09/07 Wilgus Ranch 1776.
- Gaura suffulta* Engelm. Exsicc.: 07/05/07 Pine Canyon 1601.
- Gentiana wislizenii* Engelm. → *Gentianella wislizenii* (Engelm.) J. Gillett Exsicc.: 09/22/06 Barfoot Park 1414.
- Geranium* sp. → *Geranium richardsonii* Fisch. & Trautv. → Exsicc.: 09/13/06 Barfoot Park 1370.
- Gerardia wrightii* Gray → *Brachystigma wrightii* (Gray) Pennell Exsicc.: 08/21/07 Gooseneck, Paradise 1621.

- Gilia pringlei* auct. non Gray → *Ipomopsis macombii* (Torr. ex Gray) V. Grant Exsicc.: 10/03/06 Barfoot Park 1443.
- Gnaphalium chilense* Spreng. → *G. stramineum* Kunth Exsicc.: 10/11/07 Joe Smith's Ranch 1791.
- Gnaphalium decurrens* Ives non L. → *G. viscosum* Kunth Exsicc.: 09/14/06 Barfoot Park 1377.
- Gomphocarpus hypoleucus* Gray → *Asclepias hypoleuca* (Gray) Woods. Exsicc.: 07/05/07 Barfoot Park 1558.
- Gomphrena nitida* Rothrock Exsicc.: 09/21/07 Paradise 1716.
- Grimmia pulvinata* (L.) Sm. → ? Exsicc.: 11/05/06 Fort Bowie 1503.
- Guillemina densa* (Humb. & Bonpl. ex Willd.) Moq. Exsicc.: 09/26/07 Paradise 1693.
- Gutierrezia californica* Torr. & Gray → *G. serotina* Greene Exsicc.: 10/20/07 head of Silver Creek 1802.
- Gymnolamia annua* (M.E. Jones) Rob. & Greenm. → ? *Heliomeris longifolia* var. *annua* (M.E. Jones) Yates Exsicc.: 10/02/07 Bernoudy's Mine, Maxon's Peak 1755.
- Gymnolomia multiflora* (Nutt.) B. & H. → *Heliomeris multiflora* Nutt. Exsicc.: 09/11/06 Barfoot Park 1361.
- Gynnosperma corymbosa* DC. → *G. glutinosum* (Spreng.) Less. Exsicc.: 09/30/07 Cedar Gulch, Paradise 1743 (?); 10/30/06 Stephens' Ranch (Pinery Canyon) 1497.
- Hedeoma dentata* Torr. Exsicc.: 09/16/07 Paradise 1700.
- Hedeoma drummondii* Benth. Exsicc.: 09/16/07 Paradise 1701.
- Hedeoma hyssopifolia* Gray Exsicc.: 09/22/06 Barfoot Park 1413.
- Hedwigia albicans* (Web.) Lindb. → *Tetragastris*? Exsicc.: 10/13/06 Pine Canyon 1473.
- Helianthella quinquenervis arizonica* Gray → *H. quinquenervis* (Hook.) Gray Exsicc.: 10/03/06 Barfoot Park 1442.
- Helianthus petiolaris* Nutt. Exsicc.: 10/22/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1488.
- Heliopsis parviflora* Gray Exsicc.: 09/29/06 Barfoot Park 1436.
- Heteropogon contortus* (L.) Beauv. ex Roemer & J.A. Schultes Exsicc.: 10/02/07 Maxon's Peak 1753.
- Heterosperma pinnatum* Cav. Exsicc.: 09/18/07 Paradise 1666.
- Heuchera rubescens* Torr. Exsicc.: 10/02/06 Monument Peak 1458.
- Heuchera sanguinea* Engelm. Exsicc.: 09/24/07 Paradise 1723.
- \**Hieracium fendleri* Schultz-Bip. var. *discolor* Gray Exsicc.: 08/24/07 Barfoot Park 1597.
- Hieracium lemmoni* Gray Exsicc.: 09/29/06 Barfoot Park 1434.
- Hordeum murinum* L. Exsicc.: 08/17/07 Barfoot Park 1587.
- Hordeum sativum* Jessen → ? Exsicc.: 08/17/07 Barfoot Park 1586.
- Houstonia wrightii* Gray Exsicc.: 07/18/07 Riggs Canyon 1603.
- Hydastylis longipes* Bickn. → *Sisyrinchium longipes* (Bickn.) Kearney & Peebles & Peeb. Exsicc.: 09/20/06 Barfoot Park 1402.
- Hymenatherum hartwegii* Gray → ? Exsicc.: 10/20/07 Portal 1800.
- \**Hymenopappus mexicanus* Gray Exsicc.: 11/05/06 Fort Bowie 1506 ARIZ; 10/06/07 Rock Creek Canyon 2215 ARIZ.
- Hymenothrix wrightii* Gray Exsicc.: 09/30/07 Cedar Gulch, Paradise 1742.
- Hypericum formosum* Kunth *H. scouleri* Hook. Exsicc.: 09/26/06 Barfoot Park 1426.
- Hypopytis sanguinea* Heller? → *Monotropa* sp.? Exsicc.: 08/13/07 Rustler Peak Spring 1617.
- Ionoxalis metcalfii* Small → *Oxalis alpina* (Rose) Rose ex R. Kunth Exsicc.: 08/14/07 Barfoot Park 1584.
- Ipomoea aruata* Roem. & Schultes → *I. capillaceae* (Kunth) G. Don Exsicc.: 09/03/07 Shelter Cove, N. Wilgus Ranch 1643.
- Ipomoea costellata* Torr. Exsicc.: 09/18/07 Paradise 1663.
- Ipomoea hederacea* Jacq. Exsicc.: 10/24/07 Walker's Garden, Paradise 1807.
- Iris missouriensis* Nutt. Exsicc.: 09/20/06 Barfoot Park 1403; 07/04/07 Barefoot Park 1556.
- Iva ambrosiaeefolia* Gray → *I. ambrosiifolia* (Gray) Gray Exsicc.: 09/16/07 Paradise 1702.
- Juncus tenuis* Willd. Exsicc.: 09/19/06 Barfoot Park 1397.
- Juncus xyphiooides* E. Mey. Exsicc.: 09/19/06 Barfoot Park 1398.
- Koeleria cristata* (L.) Pers. → *K. macrantha* (Ledeb.) J.A. Schultes Exsicc.: 08/31/06 Barfoot Park 1342
- Lactuca serriola* L. Exsicc.: 08/18/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1335.
- Lathyrus graminifolius* (S. Wats.) White Exsicc.: 09/25/06 Barfoot Park 1421.
- Leptilon canadense* (L.) Britt. *Conyza canadensis* (L.) Cronq. var. *canadensis* Exsicc.: 10/04/06 Pine Canyon 1461.

- Limnorchis sparsiflora* (S. Wats.) Rydb. *Platanthera sparsiflora* (S. Wats.) Rydb. Exsicc.: 09/06/07 Cold Spring 1651.
- Linum lewisii* Pursh. Exsicc.: 07/19/07 Stephens' Ranch (Pinery Canyon) 1812; 09/13/07 Paradise 1673.
- Linum neomexicanum* Greene Exsicc.: 09/08/06 Barfoot Park 1360
- Lithospermum* sp. → ? Exsicc.: 10/17/07 Chiricahua Mine 1796.
- Lithospermum cobrense* Greene Exsicc.: 06/25/07 Barfoot Park 1542
- Lithospermum linearifolium* Goldie → *L. incisum* Lehm. Exsicc.: 09/30/07 Paradise 1740; 06/25/07 Barfoot Peak 1540.
- Lobelia splendens* Willd. *L. cardinalis* L. ssp. *graminea* (Lam.) McVaugh Exsicc.: 09/27/07 Paradise 1731.
- \**Lotus corniculatus* (Nutt.) Bisch. *Erythrina flabelliformis* Kearn. Exsicc.: 07/09/07 Barboot Ranch 1300; 10/11/07 Joe Smith's Ranch 1793.
- \**Lupinus blumeri* Greene *L. neomexicanus* Greene Exsicc.: 09/06/06 Barfoot Park 1357 NMC.
- Lycurus phleoides* Kunth Exsicc.: 09/14/07 Paradise 1682.
- Lythrum californicum* Torr. & Gray Exsicc.: 10/09/07 Joe Smith's Ranch 1789.
- \**Machaeranthera bigelovii* (Gray) Greene Exsicc.: 10/01/07 Paradise 1748.
- Machaeranthera tanacetifolia* (Kunth) Nees Exsicc.: 10/03/06 Barfoot Park 1444; 10/17/06 Pine Canyon 1482.
- Malva parviflora* L. Exsicc.: 07/29/07 Barfoot Park 1569.
- Margaranthus solanaceus* Schlecht. Exsicc.: 09/07/07 Paradise 1655
- Marilaunidium angustifolium* (Gray) Kuntze → ? 09/24/07 Paradise 1722.
- Marrubium vulgare* L. Exsicc.: 09/15/06 Barfoot Park 1383.
- Maurandia antirrhiniflora* (Por.) Willd. → *M. antirrhiniflora* (Humb. & Bonpl. ex Willd.) Rothm. Exsicc.: 10/21/07 Chiricahua Mine 1805.
- Medicago sativa* L. Exsicc.: 07/26/07 Barfoot Park 1563.
- Meibomia arizonica* (S. Wats.) Vail → *Desmodium arizonicum* S. Wats. Exsicc.: 08/31/06 Barfoot Park 1346.
- Meibomia bigelovii* (Gray) Kuntze → *Desmodium neomexicanum* Gray Exsicc.: 09/02/07 Shelter Cove, N. Wilgus Ranch 1641; 09/17/07 Paradise 1675.
- Meibomia exigua* (Gray) Kuntze? → *Desmodium procumbens* (P. Mill.) A.S. Hitchc. Exsicc.: 10/24/07 Walker's Garden, Paradise 1809.
- Meibomia grahamii* (Gray) Kuntze → *Desmodium grahamii* Gray Exsicc.: 09/26/06 Barfoot Park 1425.
- Meibomia neo-mexicana* (Gray) Kuntze → *Desmodium neomexicanum* Gray Exsicc.: Exsicc.: 09/17/07 Paradise 1674.
- Melampodium longicorne* Gray Exsicc.: 09/18/07 Paradise 1665.
- Melica parviflora* (Porter) Scribn. → *M. porteri* Scribn. Exsicc.: 10/24/06 Chaparon Canyon 1494.
- Melilotus albus* Desv. → *M. officinalis* (L.) Lam. Exsicc.: 10/22/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1493.
- Mentzelia aspera* L. Exsicc.: 09/19/07 Paradise 1669.
- Mentzelia multiflora* (Nutt.) Gray Exsicc.: 11/10/06 Ridge W. of Chiricahua Mine 1509.
- Mentzelia wrightii* Gray → ? Exsicc.: 07/30/07 Gooseneck, Paradise 1609.
- Microspora* sp. → ? Exsicc.: 08/07/07 Barfoot Park 1577.
- Milla biflora* Cav. Exsicc.: 08/26/07 Shaw's Ranch 1628.
- Mimulus cardinalis* Dougl. ex Benth. Exsicc.: 07/01/07 Chaperon Canyon 1551.
- Mimulus guttatus* DC. Exsicc.: 09/19/06 Barfoot Park 1399.
- Monarda citriodora* Cerv. ex Lag. → *M. citriodora* Cerv. ex Lag. ssp. *austromontana* (Epling) Scora Exsicc.: 08/10/07 Barfoot Park 1582; 08/10/07 Barfoot Park 1581; 09/15/06 Barfoot Park 1382.
- Monarda scabra* Beck. → *M. fistulosa* var. *mollis* (L.) Benth. Exsicc.: 06/26/07 Pine Canyon 1544.
- Monnina wrightii* Gray Exsicc.: 09/13/07 Paradise 1659.
- Muhlenbergia affinis* Trin. → *M. rigida* (Kunth) Trin. Exsicc.: 10/08/07 Shelter Cove, Wilgus Ranch 1785.
- Muhlenbergia gracilis* Trin. → *M. montana* (Nutt.) A.S. Hitchc. Exsicc.: 10/06/06 Rustler Peak Spring 1468.
- Muhlenbergia mexicana* (L.) Trin. Exsicc.: 10/12/07 Wilgus Ranch (W. Turkey Cr.) 1784.
- Muhlenbergia monticola* Buckl. → *M. tenuifolia* (Kunth) Trin. Exsicc.: 09/12/07 Paradise 1687.
- Muhlenbergia schaffneri* Fourn. → *M. depauperata* Scribn. Exsicc.: 09/24/07 Paradise 1721.
- Muhlenbergia vaseyana* Scribn. → *Muhlenbergia emersleyi* Vasey Exsicc.: 09/16/07 Paradise 1698.

- Nazia aliena* auct. non (Spreng.) Scribn. → *Tragus berteronianus* J.A. Schultes Exsicc.: 09/20/07 Paradise 1707.
- Nicotiana attenuata* Torr. ex S. Wats. Exsicc.: 07/19/07 Paradise 1605.
- Nicotiana trigonophylla* Dunal Exsicc.: 09/30/07 Paradise 1745.
- Notholaena dealbata* (Pursh) Kuntze → *Argyrochosma dealbata* (Pursh) Windham Exsicc.: 12/20/06 Hands Trail 1526.
- \**Notholaena sinuata* (Lag. ex Sw.) Kaulfuss → *Astrolepis sinuata* (Lag. ex Sw.) Benham & Windham ssp. *sinuata* Exsicc.: 12/20/06 Hands Trail 1530; 12/20/06; Hands Trail 1527; 12/12/06 Between Walnut and Silver creeks 1522.
- Oenothera hookeri* (Torr. & Gray) Small → *O. elata* ssp. *hookeri* (Torr. & Gray) W.dietr. & W.L. Wagner Exsicc.: 09/25/06 Barfoot Park 1420.
- Oenothera mexicana* Spach. Exsicc.: 07/05/07 Barfoot Park 1559.
- \**Onosmodium thurberi* Gray → *Macromeria viridiflora* DC. Exsicc.: 07/03/07 Chaperon Canyon 1817.
- Oxalis wrightii* Gray → *O. albicans* Kunth ssp. *albicans* Exsicc.: 06/28/07 Reed Ranch (SWRS) 1547.
- Panicum bulbosum* Kunth Exsicc.: 08/31/06 Barfoot Park 1341.
- Panicum hallii* Vasey Exsicc.: 09/14/07 Paradise 1683.
- Panicum obtusum* Kunth Exsicc.: 09/27/07 Paradise 1734.
- Pappophorum wrightii* S. Wats. → *Enneapogon desvauxii* Beauv. Exsicc.: 09/28/07 Paradise 1737.
- Parmelia conspersa* → ? Exsicc.: 10/08/06 Barfoot Peak 1469.
- Parosela albiflora* (Gray) Vail → *Dalea albiflora* Gray 10/15/06 Road, Paradise to sawmill 1476.
- Parosela dalea* (L.) Britt. → ? Exsicc.: 09/18/06 Barfoot Park 1394; 10/08/07 Wilgus Ranch 1775.
- Parosela filiformis* (Gray) Heller → *Dalea filiformia* Gray Exsicc.: 09/02/07 Shelter Cove, N. Wilgus Ranch 1638.
- Parosela pogonanthera* Gray → *Dalea pogonathera* Gray Exsicc.: 10/02/07 Bernoudy's Mine, Maxons's Peak 1757.
- Parosela polygonoides* (Gray) Vail → *Dalea polygonoides* Gray Exsicc.: 09/10/07 Grand View 1652.
- Parosela rubescens* (S. Wats.) Vail → ? Exsicc.: 09/25/07 Paradise 1728.
- Parosela wislizeni* (Gray) Vail → *Dalea versicolor* Zucc. Exsicc.: 10/15/06 Road, Paradise to sawmill 1477.
- Parthenium incanum* Kunth Exsicc.: 09/12/07 Mt. Desert 1819.
- Pectis filipes* Harv. & Gray Exsicc.: 09/21/07 Cedar Gulch, Paradise 1708.
- Pedicularis grayi* A. Nels. *P. procera* Gray Exsicc.: 07/05/07 Barfoot Park 1561.
- Pellaea intermedia* Mett. ex Kuhn Exsicc.: 12/20/06 Hands Trail 1528.
- Peltigera canina* (L.) Hoffm. → ? Exsicc.: 10/02/06 Monument Peak 1455.
- Penstemon pinifolius* Greene Exsicc.: 06/25/07 Barfoot Peak 1541.
- Penstemon spectabilis* Thurb. ex Gray Exsicc.: 11/15/06 Head of Wood Canyon 1536.
- \**Pentstemon stenophyllus* Gray → *P. stenophyllus* (Gray) T.J. Howell Exsicc.: 07/19/07 Paradise 1604.
- Pentstemon torreyi* Benth. → *P. barbatus* (Cav.) Roth ssp. *torreyi* (Benth.) Keck Exsicc.: 08/02/07 Barfoot Park 1575; Barfoot Park 09/14/06 1376.
- Perezia thurberi* Gray → *Acourtia thurberi* (Gray) Reveal & King Exsicc.: 10/07/07 Shelter Cove, Wilgus Ranch 1771.
- Pericome caudata* Gray Exsicc.: 10/08/06 Barfoot Peak 1470.
- Persicaria* sp. → *Polygonum lapathifolium* L. Exsicc.: 10/10/07 Wilgus Ranch 1778.
- Phacelia heterophylla* Pursh. Exsicc.: 10/13/06 Pine Canyon 1474.; 10/08/06 Barfoot Peak 1471
- Phaseolus acutifolius* → *P. acutifolius* Gray var. *tenuifolius* Gray Exsicc.: 09/17/07 Paradise 1676
- Phaseolus parvulus* Greene Exsicc.: 09/04/06 Barfoot Park 1351.
- Phaseolus* sp. → ? Exsicc.: 09/06/06 Barfoot Park 1356.
- \**Phaseolus wrightii* Gray → *P. filiformis* Benth. Exsicc.: 09/01/06 Barfoot Park 1347.
- Philibertia hartweggi heterophylla* (Engelm.) Vail? → *Sarcostemma cynanchoides* ssp. *hartwegii* (Vail) R. Holm Exsicc.: 10/31/06 Miss Rhoda Riggs' Ranch 1499.
- Phoradendron bolleanum* Eichler → *P. bolleanum* (Seem.) Eichler ssp. *pauciflorum* (Torr.) Wiens Exsicc.: 12/18/06 Paradise 1524.

- Phoradendron flavescens* Nutt. ex Engelm. → *P. leucarpum* (Raf.) Reveal & M.C. Johnston Exsicc.: 12/22/06  
 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1523; 11/26/06 Miss Rhoda Riggs' Ranch (Pinery Canyon)  
 1520; 11/22/06 Joe Smith's Ranch 1517; 12/25/06 Wilgus Ranch 1535; 12/25/06 Wilgus Ranch 1534;  
 12/23/06 Amalong Ranch 1533.
- Phoradendron flavescens* Nutt. ex Engelm. var. *orbiculatum* (Engelm.) Engelm. → *P. leucarpum* (Raf.) Reveal  
 Exsicc.: 11/16/06 Pedistal Rock 1514.
- Phoradendron flavescens* Nutt. ex Engelm var. *villosum* (Nutt.) Engelm. → *P. villosum* (Nutt.) Nutt. ssp. *villosum*  
 Exsicc.: 12/14/06 foothills between Tex Canyon and Price Canyon 1521; 11/01/06 Ericson's Ranch (W.  
 Turkey Creek) 1516; 12/22/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1531.
- Phoradendron juniperinum* Engelm. Exsicc: 12/18/06 Paradise 1525; 12/22/06 Miss Rhoda Riggs' Ranch (Pinery  
 Canyon) 1532.
- Pinaropappus foliosus* Heller → *P. roseus* (Less.) Less. var. *foliosus* (Heller) Shinners Exsicc.:  
 10/13/06 Barfoot Park 1448; 07/30/07 Barfoot Park 1571.
- Pinaropappus* sp. nov. → *Pinaropappus roseus* (Less.) Less. var. *foliosus* (Heller) Shinners  
*Plantago major* L. Exsicc.: 10/12/07 Wilgus Ranch (W. Turkey Cr.) 1781.
- Pohlia elongata* Hedw. → ? Exsicc.: 09/24/06 Barfoot Park 1418.
- Polanisia uniglandulosa* DC. → *Polanisia uniglandulosa* (Cav.) DC. Exsicc.: 09/12/07 Paradise 1688; 10/02/07  
 Bernoudy's Mine, Maxon's Peak 1756.
- Polemonium filicinum* Greene → *Polemonium foliossum* Gray var. *flavum* (Greene) Anway 10/13/06 Pine Canyon  
 1472; 07/12/07 Head of Chaparone Canyon 1614.
- Polemonium pauciflorum* S. Wats. → *P. pauciflorum* S. Wats. ssp. *hinckleyi* (Standl.) Wherry Exsicc.: 08/25/07  
 Chaperon Canyon 1626.
- Polygala puberula* (?) Trel. → *P. obscura* Benth. Exsicc.: 08/20/06 Whitetail/Jhus Saddle 1337.
- Polygonum aviculare* L. Exsicc.: 09/22/06 Barfoot Park 1415.
- Polygonum convolvulus* L. Exsicc.: 08/14/07 Barfoot Park 1583.
- Polygonum douglasii* Greene Exsicc.: 08/21/07 Grandview, above Rustler Park 1622.
- Polygonum lapathifolium* L. Exsicc.: 10/22/06 Miss Rhoda Riggs' Ranch 1489.
- \**Polygonum lapathifolium* L. var. *nodosum* (Pers.) Small → *P. lapathifolium* L. var. *lapathifolium*  
 10/09/07 Wilgus Ranch (W. Turkey Cr.) 1777.
- Polygonum littorale* Link → *P. buxiforme* Small Exsicc.: 07/26/07 Barfoot Park 1562.
- Polypogon monspeliensis* (L.) Desf. Exsicc.: 08/10/07 Barfoot Park 1580.
- Potentilla thurberi* Gray Exsicc.: 09/13/06 Barfoot Park 1371.
- Primula rusbyi* Greene Exsicc.: 06/25/07 Barfoot Peak 1539.
- Pseudocymopteris montanus* (Gray) Coulter. & Rose var. *purpureus* Coulter. & Rose → *Pseudocymopteris*  
*montana*(Gray) Coulter. & Rose Exsicc.: 09/12/06 Barfoot Park 1365.
- Pseudocymopteris montanus* (Gray) Coulter. & Rose var. *tenuifolius* (S. Wats.) Coulter. & Rose → *Pseudocymopteris*  
*montanus* (Gray) Coulter. & Rose Exsicc.: 09/12/06 Barfoot Park 1366.
- Psilotrophe tagetina* DC. → *P. tagetina* (Nutt.) Greene Exsicc.: 09/21/07 Cedar Gulch, Paradise 1709.
- Pteridium aquilinum* (L.) Kuhn. var. *pubescens* Underw. Exsicc.: 10/19/06 Barfoot Park 1450.
- Pyrola rotundifolia* (?) → *P. chlorantha* Sw. Exsicc.: 08/13/07 Rustler Peak Spring 1618.
- Quamoclit coccinea* (L.) Moench. → *Ipomoea hederifolia* L. Exsicc.: 10/24/07 Walker's Garden,  
 Paradise 1808.
- Ranunculus hydrocharoides* Gray Exsicc.: 07/02/07 Barefoot Park 1555.
- Razoumofskya robusta* (Engelm.) Kuntze → *Arceuthobium gillii* Hawksworth & Weins Exsicc.:  
 10/30/06 Barfoot Park 1452 ARIZ; 07/05/07 Pine Canyon 1557 ARIZ.
- Razoumofskya vaginata* (Eichler) Kuntze → *Arceuthobium vaginatum* (Willd.) Presl. Exsicc.:  
 11/16/06 Pedital Pass 1515
- Rhynchosstegium rusciforme* (Neck.) Sch. & Br. → ? Exsicc.: 08/10/06 Paradise Falls 1331.
- Roripa nasturtium-aquaticum* (L.) Rusby → *R. nasturtium-aquaticum* (L.) Hayek Exsicc.: 10/22/06 Miss Rhoda  
 Riggs' Ranch 1492.
- Rumex obtusifolius* L. Exsicc.: 08/02/07 Barfoot Park 1576.
- \**Rumex occidentalis* S. Wats. → *R. aquaticus* L. var. *fenestratus* (Greene) Dorn Exsicc.: 10/19/06 Barfoot Park  
 1449.

- Salvia blumeri* Greene → ? Exsicc.: 09/24/07 Paradise 1726.
- Salvia columbariae* Benth. Exsicc.: 07/05/07 Barfoot Park 1560.
- Salvia lemonii* Gray Exsicc.: 10/04/07 Gooseneck, Paradise 1762.
- Salvia subincisa* Benth. Exsicc.: 09/30/07 Paradise 1741.
- Samolus decumbens* Greene sp. n. → *S. vagans* Greene Exsicc.: 06/28/07 Reed Ranch (SWRS) 1546
- Saracha sessilis* Greene → *Jaltomata procumbens* (Cav.) J.L. Gentry Exsicc.: 09/02/07 Shelter Cove, N. Wilgus Ranch 1637; 09/23/07 Paradise 1718.
- Schkuhria* sp. Exsicc.: 08/31/07 Between Rock Creek & W. Turkey Creek 1634.
- Schkuhria hopkirkia* Gray → *S. wislizenii* Gray Exsicc.: 08/31/07 Between Rock Creek & W. Turkey Creek 1635.
- Scirpus atrovirens* Willd. var. *pallidus* Britt. → *S. pallidus* (Britt.) Fern. Exsicc.: 07/01/07 Chaperon Canyon 1552.
- Sedum griffithsii* Rose → *S. cockerellii* Britt. Exsicc.: 10/06/06 Rustler Peak Spring 1466.
- Senecio blumeri* Greene sp. n. → *S. neomexicanus* Gray Exsicc.: 07/01/07 Barfoot Park 1553.
- Senecio douglasii* DC. Exsicc.: 11/09/06 Paradise 1511.
- Senecio eremophilus* Richards. Exsicc.: 10/24/06 Chaperon Canyon 1484
- Senecio eremophilus* Richards. → *S. eremophilus* Richards. var. *macdougalii* (Heller) Cronq. 09/18/06 Barfoot Park 1390.
- Senecio rusbyi* Greene → ? Exsicc.: 09/18/06 Barfoot Park 1391.
- Senecio wootonii* Greene Exsicc.: 09/17/06 Barfoot Park 1388.
- Sicyos angulatus* L. Exsicc.: 09/23/07 Paradise 1719.
- Sida diffusa* Kunth → ? Exsicc.: 09/26/07 Paradise 1692.
- Sida lepidota* Gray → *Malvella lepidota* (Gray) Fryxell Exsicc.: 09/10/07 Paradise 1689
- Silene laciniata* ssp. *greggii* (Gray) S. Wats. → *Silene laciniata* Cav. ssp. *greggii* (Gray) C.L. Hitchc. & Maguire Exsicc.: 09/11/06 Barfoot Park 1362.
- Sitanion brevifolium* J. G. Smith → ? Exsicc.: 10/31/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1501.
- Solanum douglasii* Dunal Exsicc.: 10/17/07 Paradise 1797; 10/05/07 Paradise 1768; 11/14/06 Cardwell's Cabin, Wood Canyon 1512.
- Solanum elaeagnifolium* Cav. Exsicc.: 09/27/07 Paradise 1732.
- Solanum triflorum* Nutt. Exsicc.: 09/07/07 Paradise 1656.
- \**Solanum tuberosum* L. Exsicc.: 08/10/07 Barfoot Park 1579; 07/29/07 Barfoot Park 1566; 09/27/06 Barfoot Park 1432.
- Solidago bigelovii* Gray var. *wrightii* (Gray) Gray → *S. wrightii* Gray var. *wrightii* Exsicc.: 09/24/06 Barfoot Park 1416.
- Solidago californica* Nutt. Exsicc.: 10/15/06 Road, Rustler Park 1479
- Sonchus asper* (L.) Hill Exsicc.: 08/10/07 Barfoot Park 1578; 07/30/07 Barfoot Park 1570.
- Sphaeralcea pedata* Torr. → *S. wrightii* Gray Exsicc.: 10/21/07 Between Chiricahua Mine and Reed Ranch 1806.
- Spirogyra* sp. → ? Exsicc.: 10/03/06 Barfoot Park 1445.
- Sporobolus confusus* auct. non (Fourn.) Vasey → *Muhlenbergia minutissima* (Steud.) Swallen Exsicc.: 09/18/06 Barfoot Park 1392; 09/18/06; Barfoot Park 1393.
- Stenophyllus capillaris* (L.) Britt. → *Bulbostylis capillaris* (L.) Kunth ex C.B. Clarke ssp. *capillaris* Exsicc.: 09/03/07 Shelter Cove, N. Wilgus Ranch 1645.
- Stenophyllus ciliatifolius* (Ell.) C. Mohr → *Bulbostylis ciliatifolia* (Ell.) Fern. var. *ciliatifolia* Exsicc.: 09/03/07 Shelter Cove, N. Wilgus Ranch 1649.
- Stenophyllus diphylla* Pers. → ? Exsicc.: 09/03/07 Shelter Cove, N. Wilgus Ranch 1646.
- Stevia plummerae* Gray Exsicc.: 08/31/06 Barfoot Park 1344.
- Stevia serrata* Cav. Exsicc.: 10/15/06 Road, Rustler Park 1478.
- Stipa pringlei* (Beal) Scribn. → *Piptochaetium pringlei* (Beal) Parodi Exsicc.: 09/20/06 Barfoot Park 1405.
- Syntherisma sanguinalis* (L.) Dulac. → *Digitaria sanguinalis* (L.) Scop. Exsicc.: 10/01/07 Paradise 1749.
- Tagetes micrantha* Cav. Exsicc.: 09/02/07 Shelter Cove, N. Wilgus Ranch 1640.
- Tetragonanthus rothrockii* (Gray) Heller → *Halenia recurva* (J.E. Smith) Allen Exsicc.: 09/08/06 Barfoot Park 1359.
- Thalesia fasciculata* (Nutt.) Britt. → *Orobanche fasciculata* Nutt. Exsicc.: 07/07/07 Barfoot Park 1564.

- Thalictrum fendleri* Engelm ex Gray var. *wrightii* (Gray) Trel. Exsicc.: 08/24/06 Barfoot Park 1339.
- Thelesperma longipes* Gray Exsicc.: 09/18/07 Paradise 1686.
- Thelypodium linearifolium* (Gray) S. Wats. → ? Exsicc.: 09/12/06 Barfoot Park 1363; 07/19/07 Stephens' Ranch (Pinery Canyon) 1811.
- Thelypodium longifolium* (Benth.) S. Wats. → *Pennelia micrantha* (Gray) Nieuwl. Exsicc.: 09/12/06 Barfoot Park 1364.
- Thermopsis montana* Nutt. → *T. rhombifolia* (Nutt. ex Pursh) Nutt. ex Richards. var. *montana* (Nutt.) Isely ex Torr. & Gray Exsicc.: 08/19/07 Barfoot Park 1590.
- Trachypogon secundus* (J. Presl.) Scribn. Exsicc.: 10/07/07 Shelter Cove, Wilgus Ranch 1770.
- Tragia ramosa* Torr. Exsicc.: 09/30/07 Paradise 1746.
- Trichostema arizonicum* Gray Exsicc.: 08/20/06 Whitetail/Jhus Saddle 1336.
- Trifolium pinetorum* Greene Exsicc.: 09/19/06 Barfoot Park 1396.
- Triodia mutica* (Torr.) Scribn. → *Tridens muticus* (Torr.) Nash var. *muticus* Exsicc.: 09/14/07 Paradise 1680.
- Triodia pilosa* Buckl. → *Erioneuron pilosum* (Buckl.) Nash Exsicc.: 09/14/07 Paradise 1681
- Triodia pulchella* Kunth → *Erioneuron pulchellum* (Kunth) Tateoka Exsicc.: 09/25/07 Paradise 1729.
- Trixis angustifolia latiuscula* Gray → ? Exsicc.: 11/05/06 Fort Bowie 1507.
- Unidentified collection. → *Abies concolor* (Gord. & Glend.) Hoopes Exsicc.: 10/20/06 Barfoot Park 1288.
- Unidentified collection. → *Anisacanthus thurberi* (Torr.) Gray Exsicc.: 10/27/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1304 ARIZ.
- Unidentified collection. *Anthemis cotula* L. Exsicc.: 10/18/06 Barfoot Park 1870 ARIZ.
- Unidentified collection. *Cupressus arizonica* Greene Exsicc.: 11/02/06 Bonita Canyon 1231
- Unidentified collection. *Echeandia flavescens* (J.A. & J.H. Schultes) Cruden Exsicc.: 08/31/07 West Turkey Creek 2120
- Unidentified collection. *Eriogonum alatum* Torr. Exsicc.: 09/05/07 Locality unknown 2161 ARIZ.
- Unidentified collection. *Juniperus erythrocarpa* Cory. Exsicc.: 12/13/06 Rustler Canyon 1277; 12/18/06 Paradise 1249.
- Unidentified collection. *Pinus arizonica* Engelm. Exsicc.: 09/29/06 Barfoot Park 1312; 11/27/06 Big Mesa 1951.
- Unidentified collection. *Pinus discolor* D.K Bailey Exsicc.: 11/26/06 Jhus Canyon 1822 ARIZ; 12/18/06 Paradise 2002
- Unidentified collection. *Pinus edulis* Engelm. Exsicc.: 11/05/06 Fort Bowie 1251
- Unidentified collection. *Quercus chrysolepis* Liebm. Exsicc.: 12/14/06 Bonita Canyon 2310
- Unidentified collection. *Quercus rugosa* N\_e Exsicc.: 11/01/06 Bonita Canyon 1309; 09/11/06 Pine Canyon 1294; 12/13/06 Shake Gulch 1960; 11/14/06 Wood Canyon Park 1921.
- Unidentified collection. *Quercus toumeyi* Sarg. Exsicc.: 11/27/06 Bonita Canyon 1924
- Unidentified collection. *Rhamnus californica* Eschsch. Exsicc.: 08/28/06 Paradise 1290 ARIZ.
- Unidentified collection. *Sonchus oleraceus* L. Exsicc.: 09/30/07 Paradise U.184 ARIZ.
- Unidentified collection. ? Exsicc.: 08/19/07 Barfoot Park 1990.
- Unidentified collection. ? Exsicc.: 11/14/06 Cochise Head 2003.
- Unidentified collection. ? Exsicc.: 10/10/06 Fly Peak 1260.
- Unidentified collection. ? Exsicc.: 11/05/06 Fort Bowie 2298.
- Unidentified collection. ? Exsicc.: 10/22/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 2292
- Unidentified collection. ? Exsicc.: 12/21/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1314.
- Unidentified collection. ? Exsicc.: 10/11/06 Monument Peak 1278.
- Unidentified collection. ? Exsicc.: 06/24/07 Monument Peak 1265.
- Unidentified collection. ? Exsicc.: 10/15/06 Paradise 1287
- Unidentified collection. ? Exsicc.: 12/18/06 Paradise 1256.
- Unidentified collection. ? Exsicc.: 09/18/07 Paradise 1884.
- Unidentified collection. ? Exsicc.: 10/22/07 Paradise 2267.
- Unidentified collection. ? Exsicc.: 11/16/06 Pedistal Rock 1280.
- Unidentified collection. ? Exsicc.: 10/05/06 Pine Canyon 1310.
- Unidentified collection. ? Exsicc.: 06/26/07 Pine Canyon 1264.
- Unidentified collection. ? Exsicc.: 10/08/07 Shelter Cove, Wilgus Ranch 1886.
- Unidentified collection. *Rumex crispus* L. Exsicc.: 10/22/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1895.
- Unidentified collection. *Solidago parryi* (Gray) Greene Exsicc.: 09/26/06 Barfoot Park 1427.

*Uritica gracilenta* Greene → Exsicc.: 07/12/07 Head of Chaparone Canyon 1615.  
*Uritica gracilis* Ait. → *Uritica dioica* L. ssp. *gracilis* (Ait.) Seland. → Exsicc.: 07/12/07 Head of Chaparone Canyon 1616.  
*Usnea barbata* Fr. → ? Exsicc.: 09/27/06 Barfoot Park 1430.  
*Vagnera racemosa* (L.) Moronq. → *Smilacina racemosa* (L.) Desf. Exsicc.: 06/24/07 Monument Peak 1537.  
*Valeriana edulis* Nutt. ex Torr. & Gray Exsicc.: 09/05/06 Barfoot Park 1353.  
*Verbascum blattaria* L. → *Verbascum virginatum* Stokes Exsicc.: 10/17/06 Pine Canyon 1481.  
*Verbascum thapsus* L. Exsicc.: 07/05/07 Pine Canyon 1611.  
*Verbena canescens* var. *neo-mexicana* Gray → *Verbena neomexicana* (Gray) Small Exsicc.: 10/21/07 Chiricahua Mine 1804  
*Verbena remota* Benth. → ? Exsicc.: 07/05/07 Pine Canyon 1612.  
*Verbena urticifolia* L. Exsicc.: 10/12/07 Wilgus Ranch (W. Turkey Cr.) 1783.  
*Verbena wrightii* Gray → *Glandularia wrightii* (Gray) Umber Exsicc.: 08/31/06 Barfoot Park 1345.  
*Verbesina longifolia* (Gray) Gray Exsicc.: 09/17/06 Barfoot Park 1387.  
*Vicia americana* Muhl. ex Willd. Exsicc.: 09/01/06 Barfoot Park 1348.  
*Vicia leucophaea* Greene Exsicc.: 09/06/06 Barfoot Park 1358.  
*Vicia pulchella* Kunth Exsicc.: 09/01/06 Barfoot Park 1350.  
*Viguiera cordifolia* Gray Exsicc.: 09/22/06 Barfoot Park 1412.  
*Viguiera helianthoides* Kunth → ? Exsicc.: 09/16/07 Paradise 1662.  
*Viola canadensis* L. ssp. *rydbergii* (Greene) House → *Viola canadensis* L. var. *corymbosa* Nutt. ex Torr. & Gray Exsicc.: 09/27/06 Barfoot Park 1431.  
\**Wedelia glabra* (Choisy) Standl. → *Allionia choisyi* Standl. Exsicc.: 10/02/07 Paradise 1695.  
*Wedelia incarnata* (L.) Kuntze → ? Exsicc.: 10/02/07 Paradise 1694.  
*Wedelia incarnata* (L.) Kuntze var. *villosa* Standl. → ? Exsicc.: 10/01/07 Paradise 1696.  
*Xanthium canadense* P. Mill. → *Xanthium strumarium* var. *canadense* (P. Mill) Torr. & Gray Exsicc.: 10/22/06 Miss Rhoda Riggs' Ranch (Pinery Canyon) 1487.  
*Zauschneria californica* Presl. → *Epilobium canum* (Greene) Raven ssp. *angustifolium* (Keck)  
Raven Exsicc.: 09/29/07 Paradise 1736; 10/04/07 Paradise Falls 1760; 10/15/07 Sawmill Setting, Pine Canyon 1803.  
*Zornia diphylla* Pers. Exsicc.: 09/03/07 Shelter Cove, N. Wilgus Ranch 1648.