



# **Vascular Flora**

**Santa Rosa, California**

**Greg de Nevers**

Third Edition, 2013

Revised January 2016

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First edition published 1985, California Academy of Sciences, Golden Gate Park, San Francisco, California 94118.

Second edition published 2006, Pepperwood Foundation, 3450 Franz Valley Road, Santa Rosa, California 95404.

Third edition published 2013, Pepperwood Foundation, 2130 Pepperwood Preserve Road, Santa Rosa, California 95404.

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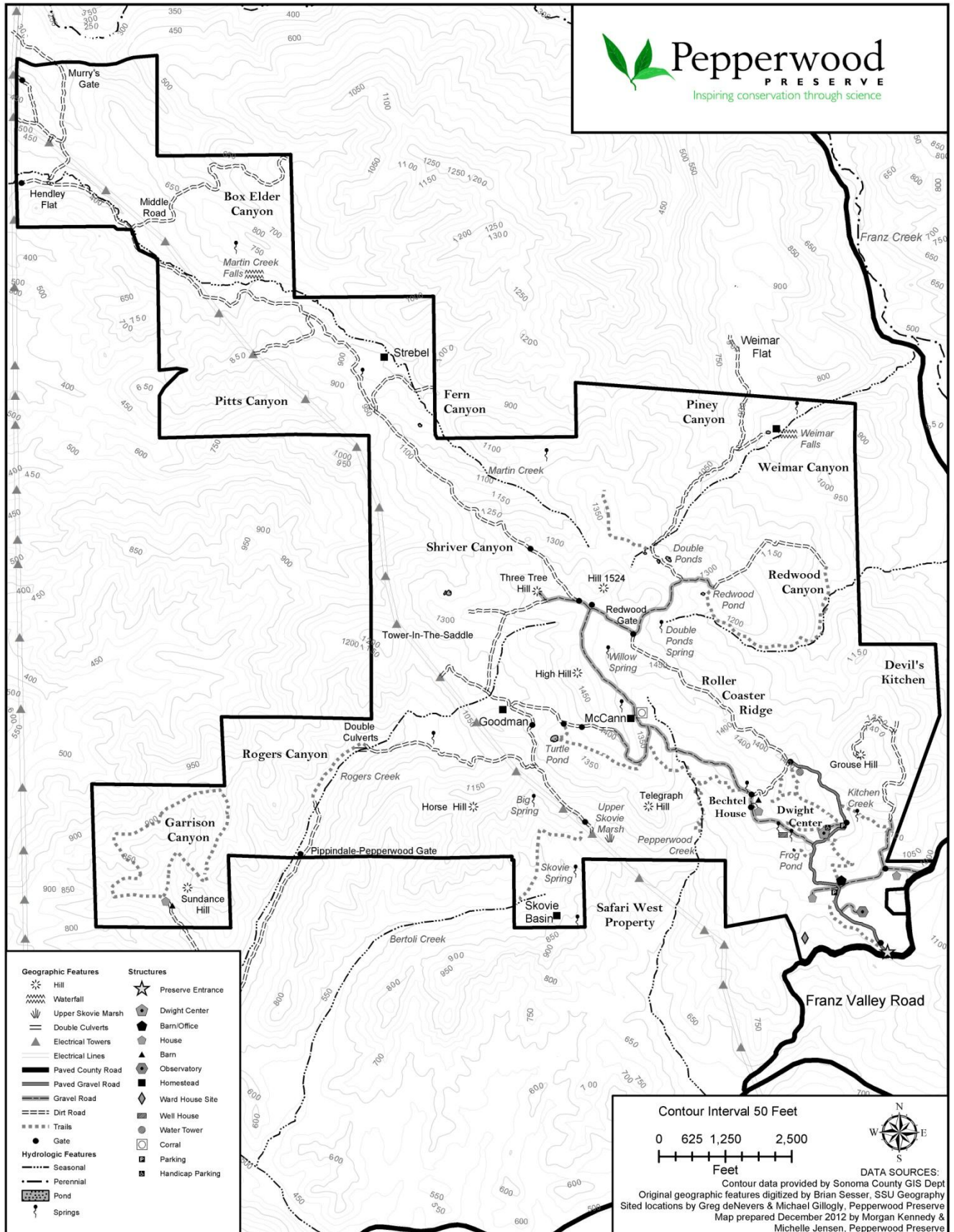
## Acknowledgments

The author, Mr. Greg de Nevers, would like to thank George Lindsay for having the vision to see this project started and the commitment to see it finished. Thanks to Tom Howell for enduring unending interruptions with the same question—“Tom, do you recognize this plant?”—and for identifying *Carex* specimens. Mr. de Nevers thanks all the people at the Botany Department of the California Academy of Sciences for their support, encouragement, and material aid. Thanks to Mary Susan Taylor for her suggestions and for typing the original manuscript. Thanks to Dan Warrick for carefully editing the original manuscript. Thanks to Michael Gillogly for coordinating the production of the second edition, including digitizing the manuscript, entering additions, and changing names to conform to *The Jepson Manual* (Hickman 1993). Thanks to Gary Hundt for producing the index. Thanks to Ann Howald for many helpful corrections and suggestions. Lastly, Mr. de Nevers would like to thank Maggie and David Cavagnaro who helped him get started with flowers by handing him a dissecting scope and a copy of Munz and Keck (1958) instead of telling him the names of plants.

## 2013 Editor Revisions

The publication of the Pepperwood vascular flora, 3<sup>rd</sup> edition, was primarily spurred by the arrival of *The Jepson Manual, Second Edition* (Baldwin et al. 2012), which included extensive taxonomic revisions and additions to the California Flora. It was the goal of the editors to conserve the botanical and natural history information included in the previous flora editions. The current edition has been revised to reflect updated place name information, to include species that have been observed since 2006 and only those that are found on the preserve. A preserve map with place names is included on page v. Included in the back of the flora are appendices listing cultivated taxa associated with the preserve homestead sites (Appendix A), a brief reference to plants found on neighboring properties originally included in the flora (Appendix B), and a list of invasive and noxious weeds found on the preserve (Appendix C).









## Place Names

The northern limit of the study area represented in this document is 38 degrees 37' 0" N latitude. The southern limit is 38 degrees 32' 45" N. The western limit is 122 degrees 44' 45" W longitude. The eastern limit is 122 degrees 40' 0" W.

The entire study area appears on USGS 1:24,000 series topographical map, Mark West Springs quadrangle. Many of the names used in this document appear on the Mark West Springs map and on an unpublished map titled "Pepperwood Ranch," by Ann Herod. Most place names are included on the Pepperwood map contained in this document (page v). All names, synonyms, and localities used in the flora are described alphabetically below.

<b>Name</b>	<b>Locality</b>
Barn	Original preserve headquarters prior to the building of the Dwight Center for Conservation Science; approximately 450 meters from the Preserve Entrance.
Bechtel House	Original vacation home of Kenneth Bechtel. Currently used for boarding or as a facility for education, research, and events.
Bertoli Creek	Creek draining Skovie Basin, running north to south on the eastern side of Horse Hill.
Big Spring	Between the Goodman Homestead and Skovie Basin, near the "T" on the road to Rogers Canyon and Skovie Basin.
Box Elder Canyon	Canyon draining into Franz Creek near Middle Road, named for the abundant Oregon ash trees there.
Devil's Kitchen	Redeposited volcanic ash badlands around Grouse Hill.
Double Culverts	Twin pipes through which Rogers Creek passes in Rogers Canyon. Scheduled to be removed as part of a creek restoration project in 2013.
Double Ponds	Two ponds east of Hill 1524: the large pond is east of the road to Weimar Falls, the small pond is northwest of the large pond. There is also a vernal pool just west of the large Double Pond.
Double Ponds Spring	Major spring just northeast of the Redwood Gate.
Dwight Center for Conservation Science (Dwight Center)	Main education, research and administrative facility completed in 2010.
Fern Canyon	Southeast of the Strebel Homestead, drains to Martin Creek, runs northeast to southwest.

<b>Name</b>	<b>Locality</b>
Frog Pond	Small vernal pond north of the Manager's House and southwest of the Dwight Center.
Garrison Canyon	Box canyon in the southwest corner of Pepperwood.
Garrison House	House owned by the Garrisons between 1940 and 1975, in Garrison Canyon.
Goodman Homestead	Historic homestead with the original chimney still standing, on the flat southwest of High Hill.
Grouse Hill	Hill northwest of the Dwight Center, covered in mature Douglas-fir forest.
Hendley Flat	Wide, flat flood plain along lower Martin Creek at the northwestern boundary of the preserve.
Hill 1524	Second highest hill at Pepperwood east of Three Tree Hill; easily accessed, with a remarkable view.
High Hill	Highest point on the preserve (approximately 1600 feet), southeast of Three Tree Hill.
Hume Observatory	Astronomical observatory near the Preserve Entrance, managed in cooperation with the California Academy of Sciences and Sonoma State University.
Kitchen Creek	Tributary to Franz Creek beginning both at the Barn and the ravine between the Barn and Grouse Hill; and lower, running parallel to Franz Valley Road.
Leopard Lily Spring	Spring northeast of the Dwight Center that drains into Kitchen Creek.
Manager's House	Preserve Manager's house west of the Barn. Originally named the Finnel Cabin or Trapper House for Phil Finnel, friend of Kenneth Bechtel, who sold Pepperwood to him.
Martin Creek	Drains the west slope of Hill 1524 and runs northwest through the length of the preserve.
Martin Creek Falls	Waterfall in Martin Creek between the Strebel Homestead and Hendley Flat.
McCann Homestead	Historic homestead between the Bechtel House and Three Tree Hill, with a red cattle corral, the biggest rock knocker at Pepperwood, and large Monterey cypress trees.
Middle Road	Runs from Martin Creek in a northeast direction, passes north of Box Elder Canyon.
Mountain House	Private residence on the preserve; 4125 Franz Valley Road.
Murry's Gate	Northernmost gate on the preserve.

<b>Name</b>	<b>Locality</b>
Pepperwood Entrance	The marked Pepperwood Entrance, just west of the crest of Franz Valley Road. Also refers to the entire serpentine chaparral stand at the crest of Franz Valley Road.
Pippindale-Pepperwood Gate	An aluminum gate at Pepperwood's southern boundary, along Rogers Creek, on the right-of-way road through Rogers Canyon.
Piney Canyon	Headwaters of the canyon west of Weimar Falls that runs south to north towards Franz Creek, named for the abundant Douglas-fir trees there.
Pitts Canyon	Major east-west canyon southwest of the Strebel Homestead.
Red Corral	McCann Homestead corral.
Pepperwood Creek	Runs southeast from the south slope of Hill 1524, around the east base of Telegraph Hill and south onto Safari West property.
Redwood Canyon	Canyon containing Redwood forest on the eastern boundary of the preserve. "Below Redwoods" refers to the downstream (north) end of the road. "Above Redwoods" and "South of Redwoods" refer to the upstream end.
Redwood Gate	Gate between the Red Corral pasture and the Weimar pasture, about 100 meters southeast of Hill 1524.
Redwood Pond	An agricultural pond south of Double Ponds and west of the Redwood Canyon trail loop.
Road to Grouse Hill	Ranch road running north from the well site into Devil's Kitchen and up to Grouse Hill.
Rogers Canyon	Canyon between Horse Hill and Garrison Canyon, draining the north and west sides of Horse Hill.
Rogers Creek	Tributary to Leslie Creek with its headwaters on High Hill, running through Rogers Canyon.
Rogers Spring	Spring north of the apple orchard in Rogers Canyon, drains into Rogers Creek.
Roller Coaster Ridge	Dirt road that runs from north of the Bechtel House east towards the water tower and then north to Three Tree Hill. The name comes from the undulating ascending and descending ridge top.
Shriver Canyon	Drainage due northwest of Three Tree Hill.
Skovie Spring	Spring at the north (uphill) end of Skovie Basin.
Skovie Basin	Flat marsh between Skovie Spring and Bertoli Creek.

<b>Name</b>	<b>Locality</b>
Skovie Marsh (Upper)	Marsh northeast (uphill) and across the road from Skovie Spring, approximately 15 meters wide; it is in a different drainage than the Skovie Basin, draining through Safari West property.
Strebel Homestead	Historic homestead also known as the Winery with remnant foundations and the only eucalyptus trees on the preserve. "Above Strebel" refers to the orchard and pond below the road (uphill), southeast of Strebel Homestead.
Sundance Hill	Steep grassy hill east of the Garrison House.
Telegraph Hill	Sharp peak west of the Bechtel House.
Tower-in-the-Saddle	Refers to the PG&E power tower southwest of Three Tree Hill.
Three Tree Hill	Hill where Pepperwood Preserve Road terminates, west of Hill 1524.
Turtle Pond	Vernal pond southeast of Goodman Homestead.
Upper Orchard	Orchard at the Goodman Homestead.
Ward House Site	3447 Franz Valley Road, house removed in 2006.
Weimar Canyon	Drains northeast from Hill 1524 and Double Ponds.
Weimar Falls	Waterfall in Weimar Canyon near the end of the right fork in the road to Weimar Flat.
Weimar Flat	Large flat grassland north of Weimar Canyon, not on preserve property.
Willow Spring	Spring about 100 meters northwest of the Red Corral, near the headwaters of Pepperwood Creek.

## Introduction

Pepperwood is a community-supported ecological institute that conducts applied research and provides educational programming with the singular goal of conserving the Bay Area's natural heritage for generations to come. Dedicated to the protection of the region's rich biodiversity represented within its 3,117 acres, Pepperwood provides unique open-space opportunities to nature lovers, volunteers, students of all ages and scientific researchers. Our mission is to advance science-based conservation throughout our region and beyond.

The land that comprises Pepperwood Preserve was donated to the California Academy of Sciences as a preserve in 1979 by Kenneth K. and Nancy Bechtel. In 2005 the Pepperwood Foundation (a 501(c)3 public charity) was established by Jane and Herb Dwight to assume stewardship of the preserve from the Academy. The Pepperwood Foundation hosts on-site programs to enhance the biological diversity of the preserve and to promote natural science education and research. This has been made possible, in part, through the construction and opening of the Dwight Center for Conservation Science in 2010, the dedication of the Stephen J. Barnhart Herbarium in 2012, and through the establishment of the Stephen J. Barnhart Internship fund in 2012 which supports Santa Rosa Junior College students conducting ecological research at the preserve.

Pepperwood is situated in the Mayacamas Range of California's Inner Coast Ranges, northeast of the city of Santa Rosa. The preserve is approximately 25 miles from the coast by air, and is near the eastern extreme of coastal fog penetration. On many summer days, fog comes east up either the Russian River Valley, or through the Petaluma Gap, then north to fill the Santa Rosa Valley, but fails to reach Pepperwood. When fog does reach Pepperwood it most commonly arrives through these two western avenues. On rare days, fog that blows through the Golden Gate continues up the Napa Valley and approaches Pepperwood from the east.

Pepperwood experiences a Mediterranean climate, with a cool wet season from November to March, and a hot dry season from April to October. Important consequences of Mediterranean climate for plants are: germination of annuals in November and December; growth of herbaceous perennials beginning in December; and seed set in May to June, followed by dormancy through November. Additionally, many trees and shrubs have hard, waxy leaves to resist summer drought. Streams are typically intermittent at Pepperwood, with high flows from January to March, and little surface water from June to November.

Pepperwood Preserve's geographic location near the boundaries of the California Floristic Province Inner North Coast Ranges (NCoRI) and Outer North Coast Ranges (NCoRO) subregions (Baldwin et al. 2012) is evident in the preserve's floristic diversity. The preserve is also geographically situated at the north-south and east-west range boundaries of multiple taxa. Combined with its intricate combinations of topography, microclimate and edaphic variation, and its close proximity to urban areas, Pepperwood Preserve is a unique place for promoting habitat conservation, scientific research and community education.

## Plant Communities

Pepperwood's plant communities are an expression of the various species' genetic requirements and tolerances interacting with the local environment. Climate, geology, and interaction with local animals, notably people, influence the local and regional distribution of plants. To accurately document plant species distributions and classify the vegetation communities that occur on the preserve, Pepperwood research staff conducted a vegetation survey in 2012 using a modified version of the California Native Plant Society's rapid assessment protocols. Vegetation alliances were assigned according to *A Manual of California Vegetation, Second Edition* (CNPS MCV) (Sawyer et al. 2009) and mapped using ArcGIS. CNPS MCV vegetation alliances documented on the preserve include: Douglas-fir forest, Redwood forest, Madrone forest, Tanoak forest, California bay forest, California black oak forest, Coast live oak woodland, Blue oak woodland, Valley oak woodland, Oregon white oak woodland, Mixed oak forest, Chamise chaparral, Wedge leaf ceanothus chaparral, Coyote brush scrub, Leather oak chaparral, Wild oats grasslands, California oat grass prairie, Annual dogtail grasslands, Purple needle grass grassland, and Harding grass swards. Provisional alliances were assigned to a subset of vegetation communities that are not contained in the CNPS MCV, but are common plant assemblages at Pepperwood including: Douglas-fir/Mixed hardwood forest, Riparian woodland, Mixed manzanita chaparral, Mixed chaparral, Annual non-native grassland, Medusahead grassland, and Mixed rush wetland.

The plant communities described below represent major classifications that are divided first on the basis of stature (physiognomy), secondly on that of the 2012 vegetation alliances, and third on that of flora. Plants with an asterisk following the Latin name occur infrequently at Pepperwood, usually only in one locality, and are noted as an item of interest occurring within the community.

## **Douglas-fir Forest**

Douglas-fir forest is dominated by cone-bearing trees (conifers), specifically Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*). This vegetation community occurs primarily on north-facing slopes, but sometimes continues around hills to east- and west-facing slopes and ridgetops. The shrubby and herbaceous understory is sparse. Stands of mature Douglas-fir forest occur at Grouse Hill, northwest of the Dwight Center, between Redwood and Weimar Canyons, in Piney Canyon, east of Murry's Gate, on the northern ridge of Rogers Canyon, and in Garrison Canyon.

Vegetation alliances in Sawyer et al. (2009) that are representative of the Douglas-fir forest plant community at Pepperwood include:

- *Pseudotsuga menziesii* Forest Alliance (Douglas-fir forest)

Plants characteristic of Douglas-fir forest at Pepperwood are:

### **Trees**

*Pinus ponderosa*

*Pseudotsuga menziesii* var. *menziesii*

*Umbellularia californica*

### **Shrubs and Vines**

*Rosa gymnocarpa* var. *gymnocarpa*

*Symphoricarpos mollis*

*Toxicodendron diversilobum*

### **Herbs**

*Anisocarpus madioides*

*Dryopteris arguta*

*Hieracium albiflorum*

*Melica californica*

*Pentagramma triangularis* subsp. *triangularis*

*Polystichum californicum*

## **Redwood Forest**

At Pepperwood, the occurrence of coast redwood (*Sequoia sempervirens*) is rather limited, presumably due to summer aridity and limited suitable environmental conditions that support redwood forest communities. Redwood trees and associated herbs in the redwood forest depend on fog-borne moisture in summer and occur in pockets of deep shade and at the sites of perennial springs and streams. Except for occasional stands of isolated trees along the eastern preserve boundary, the only development of redwood forest at Pepperwood is at Redwood Canyon. Tanbark oak (*Notholithocarpus densiflorus* var. *densiflorus*) and California nutmeg (*Torreya californica*) occur in this enclave, as does trail plant (*Adenocaulon bicolor*). This community is largely a floristic variation of the Douglas-fir forest, being physiognomically similar: the redwood forest understory is sparse.

All but a few gnarled individual redwoods at Pepperwood were felled between 1880 and 1930 as part of a local microeconomy. They were cut and split for fence posts, rails, grape stakes and lumber and were sold to the families who grew grapes in the preserve uplands. Wood from these trees rarely went further than ten miles to its use site. The trail used to haul lumber up from Redwood Canyon to Hill 1524 is still traceable through Redwood Canyon. One occasionally finds grape stakes in the meadows between High

Hill and Hill 1524 where freestanding, head-pruned zinfandel grapes once grew. Redwood Canyon is the only place turret spiders are found at Pepperwood, and summer is defined by the nasal honk of the red-breasted nuthatch in the redwood trees.

Vegetation alliances in Sawyer et al. (2009) that are representative of the Redwood forest plant community at Pepperwood include:

- *Sequoia sempervirens* Forest Alliance (Redwood forest)

Plants characteristic of redwood forest at Pepperwood are:

#### **Trees**

*Notholithocarpus densiflorus* var. *densiflorus*  
*Pseudotsuga menziesii* var. *menziesii*  
*Sequoia sempervirens*  
*Torreya californica*  
*Umbellularia californica*

#### **Herbs**

*Adenocaulon bicolor*\*  
*Galium triflorum*  
*Prosartes hookeri*  
*Trientalis latifolia*  
*Trillium albidum*  
*Vancouveria planipetala*

#### **Vines**

*Toxicodendron diversilobum*  
*Whipplea modesta*\*

### **Mixed Hardwood Forest**

Mixed hardwood forest is prevalent across the preserve and is composed of many combinations of hardwood tree species including: oaks (*Quercus* spp. ), madrone (*Arbutus menziesii*), tanbark oak (*Notholithocarpus densiflorus* var. *densiflorus*), California buckeye (*Aesculus californica*), big-leaf maple (*Acer macrophyllum*), and California bay laurel (*Umbellularia californica*). Douglas-fir trees are often present, either in the understory or scattered throughout the canopy. Evidence of succession is captured in the canopy substructure with shrubs of manzanita (*Arctostaphylos* spp.) or chamise (*Adenostoma fasciculatum* var. *fasciculatum*) often found dead or struggling to survive under the shaded overstory.

Stands dominated by a single hardwood species, aside from *Quercus*, are included in the mixed hardwood forest classification. Madrone forests are found in the northwestern arm of the preserve near Hendley Flat and Martin Creek, and north of the fork in the road to Weimar Falls and Weimar Flat. A large stand of tanbark oak is present in Devil's Kitchen, northeast of Grouse Hill. Forest dominated by California bay laurel line the drainages west of the Bechtel House and north of the Goodman Homestead, but the largest California bay forest on the preserve occurs at the Strebel Homestead.

Vegetation alliances in Sawyer et al. (2009) that are representative of the mixed hardwood forest plant community at Pepperwood include:

- *Arbutus menziesii* Forest Alliance (Madrone forest)
- *Notholithocarpus densiflorus* Forest Alliance (Tanoak forest)
- *Umbellularia californica* Forest Alliance (California bay forest)



Provisional vegetation alliances include:

- Douglas-fir/Mixed Hardwood Provisional Alliance

Plants characteristic of mixed hardwood forest at Pepperwood are:

### **Trees**

*Acer macrophyllum*  
*Aesculus californica*  
*Arbutus menziesii*  
*Notholithocarpus densiflorus* var. *densiflorus*  
*Pseudotsuga menziesii* var. *menziesii*  
*Quercus* spp.  
*Umbellularia californica*

### **Herbs**

*Anisocarpus madioides*  
*Chlorogalum pomeridianum* var. *pomeridianum*  
*Hieracium albiflorum*  
*Iris fernaldii*  
*Lathyrus vestitus* var. *vestitus*  
*Osmorhiza berteroi*  
*Sanicula crassicaulis*  
*Sanicula laciniata*

### **Shrubs and Vines**

*Baccharis pilularis* subsp. *consanguinea*  
*Mimulus aurantiacus* var. *aurantiacus*  
*Toxicodendron diversilobum*

## **Oak Woodland**

The oak woodland community at Pepperwood includes both evergreen and deciduous oaks; small shrub oaks and huge trees; oaks that grow in the hottest and driest habitats; and oaks that stand in water for months at Turtle Pond. Oak woodlands range from dense to open canopies. These woodlands have a rich and diverse shrubby and herbaceous understory, harboring a great variety of native herbs that are largely perennial. The acorns produced in these communities are an important food resource for many animals and birds.

Five oak species share dominance in the oak woodlands at Pepperwood, each species sorting out moisture and temperature gradients. Hot, south-facing slopes are often dominated by the evergreen coast live oak (*Quercus agrifolia* var. *agrifolia*). On cooler north-facing slopes, deciduous Oregon oak (*Q. garryana* var. *garryana*) is commonly preponderant. Blue oak (*Q. douglasii*) and black oak (*Q. kelloggii*) often dominate east- and west-facing slopes and valley bottoms, although never so thoroughly as do the north- and south-facing slope oak species. Valley oak (*Quercus lobata*) is sparsely scattered throughout the preserve on deep soils of flats at all elevations.

Oak woodland communities provide a variety of habitats for other plants, including deep shade, light shade, sunny openings between widely spaced trees, seasonal shade below deciduous trees, and branches where epiphytic lichens, mosses, and the hemiparasitic mistletoe (*Phoradendron serotinum* subsp. *tomentosum*) perch.

Oak woodlands are the home of a beautiful grass formation; dense stands of California fescue (*Festuca californica*) occur as an understory to Oregon oaks on north-facing slopes. This formation is a great aid in imagining what California looked like before the introduction of Eurasian annual grasses and grazing mammals. Fescue bunch

grasses can grow up to 2-3 feet in diameter and are best seen in Garrison Canyon, on the north slope of Horse Hill, and along the road to Redwood Canyon.

Oaks are monoecious (separate male and female flowers on the same plant), the male flowers in long strings (catkins) and the female flowers solitary or in small groups in the leaf axils and not readily apparent. The white oak group (Oregon, valley, blue, and scrub oak) hybridizes regularly, with crosses between all pairs producing fertile hybrids. Trees exhibiting characters of blue, Oregon and valley oaks are common, and trees with introgression of all four species may exist west of Goodman Homestead. Sterile hybrids also occur between coast and interior live oaks and California black oak.

Vegetation alliances in Sawyer et al. (2009) that are representative of the oak woodland plant community at Pepperwood include:

- *Quercus agrifolia* Woodland Alliance (Coast live oak woodland)
- *Quercus douglasii* Woodland Alliance (Blue oak woodland)
- *Quercus garryana* Woodland Alliance (Oregon white oak woodland)
- *Quercus kelloggii* Forest Alliance (California black oak forest)
- *Quercus lobata* Woodland Alliance (Valley oak woodland)
- *Quercus (agrifolia, douglasii, garryana, kelloggii, lobata, wislizeni)* Forest Alliance (Mixed oak forest)

Plants characteristic of oak woodlands at Pepperwood are:

#### **Trees**

*Arbutus menziesii*  
*Quercus agrifolia* var. *agrifolia*  
*Quercus douglasii*  
*Quercus garryana* var. *garryana*  
*Quercus kelloggii*  
*Quercus lobata*  
*Quercus wislizeni* var. *wislizeni*  
*Umbellularia californica*

#### **Shrubs and Vines**

*Amorpha californica* var. *napensis*  
*Arctostaphylos manzanita*  
*Holodiscus discolor* var. *discolor*  
*Lonicera hispidula*  
*Phoradendron serotinum* subsp. *tomentosum*  
*Ribes californicum* var. *californicum*  
*Toxicodendron diversilobum*

#### **Herbs**

*Adiantum jordanii*  
*Agoseris grandiflora*  
*Agrostis pallens*  
*Bromus laevipes*

#### **Herbs**

*Dichelostemma congestum*  
*Dodecatheon hendersonii*  
*Drymocallis glandulosa* var. *glandulosa*  
*Elymus glaucus* subsp. *glaucus*  
*Festuca arundinacea*  
*Festuca californica*  
*Fragaria vesca*  
*Galium aparine*  
*Galium porrigens* var. *tenue*  
*Heuchera micrantha*  
*Iris fernaldii*  
*Lathyrus vestitus* var. *vestitus*  
*Lithophragma heterophyllum*  
*Lomatium utriculatum*  
*Luzula comosa* var. *comosa*  
*Melica geyeri*  
*Nemophila heterophylla*  
*Pedicularis densiflora*  
*Poa secunda* subsp. *secunda*\*  
*Ranunculus occidentalis* var. *occidentalis*  
*Sanicula crassicaulis*  
*Senecio aronicoides*  
*Stachys rigida* var. *rigida*

Plants characteristic of oak woodlands at Pepperwood (*continued*):

### Herbs

*Cardamine californica*  
*Cirsium occidentale* var. *venustum*  
*Clarkia gracilis* subsp. *gracilis*  
*Claytonia perfoliata* subsp. *perfoliata*

### Herbs

*Tonella tenella*  
*Toxicoscordion fremontii*  
*Trisetum canescens*  
*Yabea microcarpa*

## Riparian Woodland

Covering the banks of the largest streams in the vicinity of Pepperwood is a plant association determined by the availability of summer water: deciduous riparian woodland dominated by bigleaf maple (*Acer macrophyllum*), white alder (*Alnus rhombifolia*), and willow (*Salix* spp.). There are no perennial streams on Pepperwood; however, Rogers Creek and tributaries to Franz Creek in Redwood and Weimar Canyons retain pools and puddles through summer. Fragments of riparian woodland occur along Rogers Creek and has been regenerating along Martin Creek following the reduction of grazing in this area. The moisture-depedent riparian woodland supports a unique understory of shrubs and herbs.

Based on the 2012 vegetation survey, riparian woodland is not present on the preserve to the extent that it was classified as a dominant vegetation type. However, given that there are areas with relatively greater abundance of riparian species, and perhaps regeneration of historical vegetation, we have retained riparian woodland as a vegetation community of interest.

Plants characteristic of riparian woodlands at Pepperwood are:

### Trees

*Acer macrophyllum*  
*Alnus rhombifolia*\*  
*Juglans hindsii*  
*Salix laevigata*  
*Salix lasiolepis*  
*Umbellularia californica*

### Shrubs and Vines

*Aristolochia californica*\*  
*Calycanthus occidentalis*  
*Oemleria cerasiformis*\*  
*Physocarpus capitatus*  
*Symphoricarpos albus* var. *laevigatus*

### Herbs

*Adiantum jordanii*  
*Dryopteris arguta*  
*Equisetum laevigatum*  
*Equisetum telmateia* subsp. *braunii*  
*Maianthemum stellatum*  
*Micranthes californica*  
*Mimulus cardinalis*  
*Scrophularia californica*  
*Trillium albidum*\*  
*Typha domingensis*  
*Urtica dioica* subsp. *holosericea*

## **Mixed Chaparral**

Mixed chaparral is a scrub community characterized by dense stands of shrubs 3 to 15 feet tall. The shrubs usually grow close together with branches intricately intertwined, making human passage difficult or impossible. However, deer, pigs, coyotes, gray fox, wood rats and rabbits move through chaparral with ease. The herbaceous layer is often depauperate and may be due to dense shrub cover, chemical inhibition, and/or competition for water (Ornduff et al. 2003). Chaparral at Pepperwood is sometimes composed of nearly pure stands of manzanita (*Arctostaphylos* spp.) 8 to 15 feet tall. In other areas the cover is a mix of manzanita, chamise (*Adenostoma fasciculatum* var. *fasciculatum*), wedgeleaf ceanothus (*Ceanothus cuneatus* var. *cuneatus*), and sticky monkey flower (*Mimulus aurantiacus* var. *aurantiacus*). Chamise and sticky monkey flower may also form pure stands. Excellent mature chaparral can be seen on the Manzanita Trail in Garrison Canyon which is a region of the preserve that did not burn in the 1964 Hanley fire (see the *Fire* section below for more information).

Mixed chaparral occurs on hot, south-facing slopes, and on hillsides characterized by impoverished soil such as heavy clay or thin, rocky soil. Mixed chaparral is frequently the aggregation of woody plants that will first colonize a disturbed area, especially after a fire, but is often the final seral stage due to edaphic (e.g. poor soil nutrients) and other restricting environmental conditions (Ornduff et al. 2003). Manzanita seeds are known for their ability to remain viable through long periods of dormancy. In some instances, mature stands of chaparral provide a shaded seedbed for its successors: oak woodland and Douglas-fir forest. Chaparral shrubs, especially chamise, provide excellent deer browse, and their growth is often retarded by the “hedging” effect of this browsing.

The genus *Arctostaphylos* (manzanita) exhibits incomplete reproductive barriers between some species and consequently hybridizes freely. Manzanitas at Pepperwood may exhibit characteristics of two species, making identification a difficult task in some instances. The fruits of manzanita are wonderfully sweet and sour and the urn-shaped flowers provide an abundant nectar source for bumble bees in early January.

Vegetation alliances in Sawyer et al. (2009) that are representative of the mixed chaparral community at Pepperwood include:

- *Adenostoma fasciculatum* Shrubland Alliance (Chamise chaparral)
- *Baccharis pilularis* Shrubland Alliance (Coyote brush scrub)
- *Ceanothus cuneatus* Shrubland Alliance (Wedge leaf ceanothus chaparral, Buck brush chaparral)

Provisional vegetation alliances include:

- Mixed Manzanita Chaparral Provisional Alliance
- Mixed Chaparral Provisional Alliance

Plants characteristic of mixed chaparral at Pepperwood are:

### **Shrubs and Vines**

*Acmispon glaber* var. *glaber*  
*Adenostoma fasciculatum* var. *fasciculatum*  
*Arctostaphylos manzanita* subsp. *manzanita*  
*Arctostaphylos glandulosa*  
*Arctostaphylos stanfordiana* subsp. *stanfordiana*  
*Ceanothus cuneatus* var. *cuneatus*  
*Frangula californica* subsp. *californica*  
*Heteromeles arbutifolia*  
*Mimulus aurantiacus* var. *aurantiacus*  
*Rhamnus crocea*  
*Toxicodendron diversilobum*  
*Umbellularia californica*

### **Herbs**

*Castilleja foliolosa*  
*Daucus pusillus*  
*Hypericum concinnum*  
*Pellaea mucronata* var. *mucronata*  
*Piperia elongata*  
*Polygala californica*  
*Pseudognaphalium californicum*  
*Sanicula laciniata*

## **Serpentine Chaparral**

Serpentine chaparral is an edaphic-based floristic variation on the chaparral theme due to the toxic qualities of the serpentine soil type. Serpentine chaparral at Pepperwood is a dense vegetation type composed of shrub species up to 6 feet tall. The dominant shrubs are leather oak (*Quercus durata* var. *durata*), chamise (*Adenostoma fasciculatum*), and toyon (*Heteromeles arbutifolia*). The occurrence of serpentine chaparral at Pepperwood is restricted to the area between the Pepperwood Entrance and the Dwight Center. Its occurrence throughout Sonoma County is scattered, but frequent with varying degrees of soil toxicity.

Vegetation alliances in Sawyer et al. (2009) that are representative of the serpentine chaparral community at Pepperwood include:

- *Quercus durata* Shrubland Alliance (Leather oak chaparral)

Provisional vegetation alliances include:

- Mixed Chaparral Provisional Alliance

Plants characteristic of serpentine chaparral at Pepperwood are:

### **Trees**

*Pseudotsuga menziesii* var. *menziesii*  
*Umbellularia californica*

### **Shrubs**

*Adenostoma fasciculatum* var. *fasciculatum*  
*Heteromeles arbutifolia*  
*Mimulus aurantiacus* var. *aurantiacus*  
*Quercus durata* var. *durata*  
*Rhamnus californica*  
*Toxicodendron diversilobum*

### **Herbs**

*Calycadenia pauciflora*\*  
*Calystegia collina* subsp. *oxyphylla*  
*Eriophyllum lanatum* var. *achilleoides*  
*Grindelia camporum*  
*Hypericum concinnum*  
*Lomatium dasycarpum* subsp. *dasycarpum*  
*Plantago erecta*  
*Solidago velutina* subsp. *californica*  
*Thermopsis macrophylla*\*

## **Grassland**

Grassland is a widespread association of annual and perennial herbs, usually without shrub or tree cover. This community is abundant at Pepperwood and covers more acres than any other vegetation. Since grassland communities throughout the California Coast Ranges have historically been intertwined with the presence of people, namely cutting or burning brush and trees to open areas for agriculture, historical ecologist Arthur Dawson (2008) conducted a survey of the grasslands at Pepperwood to determine if they were at one time woodlands or shrublands since the beginning of the historical record in 1858. Dawson revisited 35 points on the preserve that were originally censused by the General Land Office between 1858 and 1876. Based on his field observations, and aerial photographs from 1942 and 2000, Dawson estimated that as of 1858 the preserve ridgetops were most likely grasslands and that approximately 12% of preserve grasslands have been lost due to encroachment by woody shrubs and trees. He also noted that the census records do not document the same prevalence of Douglas-fir or California bay laurel trees that are currently found at the sample points.

These findings were supported by soil phytolith analyses conducted by Evett and Bartolome in 2009 and 2010. Phytoliths are small silica bodies produced by plant cells that can persist in the soil, are often unique identifiers of individual taxa, and are used to reconstruct historical vegetation communities. Evett and Bartolome sampled soils from the same 35 points that Dawson surveyed in 2008 and found that most of the grassland sites were historically grasslands (pre-European settlement). They also found that about half of the sites currently classified as oak woodlands or savannahs were historically grasslands, and that there is evidence of recent establishment of Douglas-fir forest into grassland areas (Evett and Bartolome 2009; Figure 2, Table 2).

A few subdivisions of the grassland plant community can be recognized. Introduced annual species make up the majority of grasslands on the preserve, however numerous remnant populations of native grasses persist. Perennial bunch grasses such as *Stipa pulchra*, *Elymus glaucus* subsp. *glaucus*, and *Danthonia californica* can dominate western or northern facing slopes. When grazing by cattle or native mammals is excluded grasslands may become invaded by shrubs and trees, provided local environmental conditions support this succession. Wind-dispersed coyote brush (*Baccharis pilularis* subsp. *consanguinea*) and bird-dispersed poison oak (*Toxicodendron diversilobum*) are often the first colonizers, followed by oaks or Douglas-firs. One of the oldest exclosures illustrating this succession is southeast of the Bechtel House.

Grasslands at Pepperwood support the largest represented genus: *Trifolium* (clovers). The preserve boasts a total of 20 taxa, 12 of which are native species. Roots of *Trifolium* often contain nodules which harbor nitrogen-fixing bacteria, an essential nutrient addition to the soil. These plants are important forage for both native grazers and livestock, inadvertently resulting in the introduction of many non-native species to California through livestock feed. Despite their small stature, most species are easily recognized with some experience and effort, and can even be recognizable when dry in summer.

Grasslands within California are still not well classified. Therefore, to improve our understanding of the mosaic of species that make up the grasslands at Pepperwood, research scientists began monitoring species composition and abundance across the

preserve starting in 2011. Continued long-term monitoring of these systems will allow scientists to detect potential responses of grassland communities to management strategies and climate change over time.

Vegetation alliances in Sawyer et al. (2009) that are representative of the grassland community at Pepperwood include:

- *Avena (barbata, fatua)* Semi-Natural Herbaceous Stands (Wild oats grasslands)
- *Elymus glaucus* Herbaceous Alliance (Blue wild rye meadows)
- *Danthonia californica* Herbaceous Alliance (California oat grass prairie)
- *Cynosurus echinatus* Semi-Natural Herbaceous Stands (Annual dogtail grasslands)
- *Stipa pulchra* Herbaceous Alliance (Purple needle grass grassland)
- *Phalaris aquatica* Semi-Natural Herbaceous Stands (Harding grass swards)

Provisional vegetation alliances include:

- Annual Non-native Grassland Provisional Alliance
- Medusahead (*Elymus caput-medusae*) Grassland Provisional Alliance

Plants characteristic of grasslands at Pepperwood are:

### Shrubs

*Baccharis pilularis* subsp. *consanguinea*

### Grasses

*Avena barbata*

*Briza maxima*

*Briza minor*

*Bromus diandrus*

*Bromus hordeaceus*

*Cynosurus echinatus*

*Danthonia californica*

*Elymus caput-medusae*

*Elymus glaucus* subsp. *glaucus*

*Festuca bromoides*

*Festuca perennis*

*Phalaris aquatica*

*Stipa pulchra*

### Herbs

*Achillea millefolium*

*Agoseris grandiflora*

*Amsinckia intermedia*

*Anthriscus caucalis*

*Brodiaea elegans* subsp. *elegans*

*Calochortus amabilis*

*Calochortus luteus*

*Castilleja attenuata*

### Herbs

*Centromadia fitchii*

*Daucus pusillus*

*Dichelostemma capitatum* subsp. *capitatum*

*Eschscholzia californica*

*Galium aparine*

*Gilia tricolor* subsp. *tricolor*

*Hypochaeris glabra*

*Lasthenia gracilis*

*Leptosiphon jepsonii*

*Lupinus bicolor*

*Lupinus nanus*

*Madia exigua*

*Madia gracilis*

*Parentucellia viscosa*

*Petrorhagia dubia*

*Plantago erecta*

*Ranunculus occidentalis* var. *occidentalis*

*Sanicula bipinnatifida*

*Sidalcea diploscypha*

*Sidalcea malviflora* subsp. *laciniata*

*Silene gallica*

*Sisyrinchium bellum*

*Stellaria media*

*Toxicoscordion fremontii*

*Trifolium microcephalum*

*Triteleia laxa*

## Additional Plant Habitats

### Rock Outcrops

Rock outcrops, both natural and those exposed by road cuts and quarries, provide a unique set of environmental conditions for plant growth. Lack of soil development on rocks makes water and mineral nutrients scarce. A unique group of plants have adapted to these rigorous conditions and two subgroups can be recognized: those on rocks and road cuts and those largely restricted to serpentine. Rock outcrops occur sporadically at Pepperwood. “Knockers” are isolated rocks exposed in meadows or woodlands. The largest, and perhaps most impressive rocks at Pepperwood, are a group of three huge knockers along Pepperwood Creek near the McCann Homestead. Knockers are common along the road from the Barn to Three Tree Hill and beyond. The only cliff rock exposure is the north slope of Telegraph Hill. Rock-hard redeposited volcanic ash occurs along the road to Grouse Hill, along Roller Coaster Ridge, and in Rogers Canyon.

Plants characteristic of rock outcrops at Pepperwood are:

#### **Herbs**

*Aspidotis densa*\*  
*Chorizanthe membranacea*  
*Dudleya cymosa* subsp. *cymosa*  
*Gilia capitata* subsp. *capitata*  
*Minuartia douglasii*  
*Pellaea andromedaefolia*  
*Phacelia distans*  
*Phacelia imbricata* subsp. *imbricata*  
*Polypodium californicum*  
*Thysanocarpus curvipes*

#### **Shrubs**

*Arctostaphylos stanfordiana* subsp. *stanfordiana*  
*Epilobium minutum*  
*Hesperolinon spergulinum*

#### **Herbs of Serpentine Rock Outcrops**

*Antirrhinum vexillocalyculatum* subsp. *breweri*  
*Bromus laevipes*  
*Claytonia gypsophiloides*  
*Pellaea mucronata* var. *mucronata*

### Springs

Pepperwood is home to a number of perennial springs. The continuous water source in an otherwise seasonally arid environment creates habitat for a unique group of moisture-dependent or tolerant plants. The perennial springs that occur at Pepperwood include: Big Spring, Skovie Spring, Rogers Spring, Red Corral Spring, and Leopard Lily Spring. Various seasonal springs also occur, notably between the Barn and the Bechtel House.

Plants characteristic of springs at Pepperwood are:

#### **Shrubs**

*Baccharis glutinosa*

#### **Herbs**

*Epilobium densiflorum*  
*Equisetum telmateia* subsp. *braunii*

#### **Herbs**

*Hypericum anagalloides*\*  
*Juncus effusus* subsp. *pacificus*  
*Juncus patens*  
*Micranthes californica*  
*Mimulus cardinalis*



Plants characteristic of springs at Pepperwood (*continued*):

### **Herbs**

*Mimulus guttatus*  
*Nasturtium officinale*\*  
*Oenanthe sarmentosa*\*  
*Polypogon interruptus*\*

### **Herbs**

*Polypogon monspeliensis*\*  
*Ranunculus orthorhynchus* var. *bloomeri*\*  
*Urtica dioica* subsp. *holosericea*\*  
*Woodwardia fimbriata*

## **Marshes**

Marshes are areas where the runoff from a spring or drainage spreads out and saturates the ground, enabling the growth of a particular herbaceous plant assemblage that is usually dominated by rushes (*Juncus* spp.) and sedges (*Carex* spp.). Marshes might be described as a subdivision of springs because they provide habitat for similar plant species. Springs are characterized by open water in summer, whereas the water in marshes percolates through the ground, remaining saturated in sub-surface soils. The four largest marshes at Pepperwood are at the Goodman Homestead, Rogers Spring, Skovie Basin, and at the Upper Skovie Marsh.

Plants characteristic of marshes at Pepperwood are:

### **Shrubs**

*Rosa californica*

### **Herbs**

*Carex densa*  
*Epilobium densiflorum*  
*Holcus lanatus*  
*Juncus effusus* subsp. *pacificus*  
*Juncus patens*

### **Herbs**

*Juncus phaeocephalus* var. *paniculatus*  
*Mentha pulegium*  
*Myosotis discolor*\*  
*Nemophila menziesii* var. *atomaria*\*  
*Polypogon monspeliensis*  
*Stachys albens*  
*Stachys stricta*\*  
*Urtica dioica* subsp. *holosericea*

## **Ponds**

Pepperwood has a number of artificial and natural ponds that fill with water during winter rains, then evaporate through the dry season. While most of Pepperwood's ponds are ephemeral (dry up every summer), some routinely keep water all year: the largest of the Double Ponds, Redwood Pond, and Turtle Pond.

Most ponds in lowland California were created by people as water sources for cattle or horses (Double Ponds, Redwood Pond, above Strebel Homestead) or augmented by people (Frog Pond). However, Pepperwood is graced with one of the most remarkable natural ponds in California: Turtle Pond. This feature is the intermediate scarp of a land slide. It is home to the most successfully reproducing population of Western pond turtles (*Clemmys marmorata*) in the area, perhaps in Sonoma County. It is also home to large numbers of California newts, western toads, Pacific tree frogs, the occasional Pacific

giant salamander, many species of dragonflies and damselflies, and other water-loving creatures.

The banks of the ponds, the mud exposed as they dry (strand), and the water itself support a particular flora. Plants characteristic of ponds at Pepperwood are:

#### **Trees**

*Quercus lobata*

#### **Herbs**

*Alisma triviale*

*Azolla filiculoides*

*Cotula coronopifolia*

*Deschampsia danthonioides*

*Eleocharis macrostachya*

*Epilobium campestre*\*

*Epilobium pallidum*

*Eryngium aristulatum* var. *aristulatum*

*Glyceria x occidentalis*

*Helenium puberulum*

#### **Herbs**

*Holcus lanatus*

*Isoetes howellii*

*Juncus bufonius*

*Juncus patens*

*Lythrum hyssopifolia*

*Mentha pulegium*

*Polypogon monspeliensis*

*Potamogeton nodosus*

*Potamogeton pusillus*

*Rorippa curvisiliqua*

*Ranunculus lobbii*

*Triglochin scilloides*

*Veronica peregrina* subsp. *xalapensis*

### **Vernal Pools**

Vernal pools are shallow troughs or depressions which hold water in winter and spring, and dry up in the summer. This is often because they are underlain with a slow-draining clay soil. The most obvious vernal pools at Pepperwood occur in the big landslide west of Three Tree Hill, west of the largest Double Pond, and in the Barn Meadow.

The characteristic annual plants of vernal pools that occur in the Santa Rosa Valley, Sonoma Valley, and the Central Valley are largely absent at Pepperwood. Pepperwood's larger vernal pools (west of Three Tree Hill and west of Double Pond) seem to be an unrecognized type of vernal pool dominated by perennials and depauperate in annuals.

Plants characteristic of vernal pools at Pepperwood are:

#### **Herbs**

*Alisma triviale*

*Cyperus eragrostis*

*Deschampsia danthonioides*

*Eleocharis macrostachya*

*Eryngium aristulatum* var. *aristulatum*

*Mentha pulegium*

#### **Herbs**

*Pleuropogon californicus* var. *californicus*

*Potamogeton nodosus*

*Potamogeton pusillus*

*Ranunculus lobbii*\*

*Rumex crispus*

## **Disturbed Areas**

Disturbed areas are any lands where the ground has been disturbed or is continually disturbed. This can be a natural occurrence, such as a landslide or the annual mayhem visited upon a creek bed by high winter flows. It can also be a disturbance at the hand of people, such as roads, stables, gardens, homes, and grazed areas. The list of taxa is extensive and many subdivisions could be recognized. Only one will be discussed here: creek beds.

Creek beds are of interest because they exhibit characteristics of two habitats: riparian woodland and disturbed areas. They are also notable for the large number of plants that occur only in that restricted niche, which is characterized by cyclic disturbance coupled with summer moisture in an environment otherwise dry in summer.

Plants characteristic of disturbed areas at Pepperwood are:

### **Shrubs**

*Baccharis pilularis* subsp. *consanguinea*

### **Herbs**

*Acmispon brachycarpus*

*Acmispon parviflorus*

*Aira caryophyllea*

*Aira elegans*

*Amaranthus albus*

*Anagallis arvensis*

*Bromus diandrus*

*Cerastium glomeratum*

*Convolvulus arvensis*

*Croton setigerus*

*Echinochloa crus-galli*

*Elymus multisetus*

*Eragrostis mexicana* subsp. *virescens*

*Erigeron bonariensis*

*Erodium brachycarpum*

*Erodium cicutarium*

*Euphorbia peplus*

*Foeniculum vulgare*

*Festuca bromoides*

*Galium parisiense*

*Gastidium phleoides*

*Geranium molle*

### **Herbs**

*Gamochaeta ustulata*

*Hedypnois cretica*

*Hesperis matronalis* var. *sparsiflora*

*Lactuca serriola*

*Lamium amplexicaule*

*Lepidium lasiocarpum*

*Leptosiphon jepsonii*

*Medicago polymorpha*

*Micropus californicus*

*Oxalis corniculata*

*Plantago lanceolata*

*Poa annua*

*Portulaca oleracea*

*Ranunculus muricatus*

*Rumex acetosella*

*Rumex crispus*

*Scandix pecten-veneris*

*Solanum americanum*

*Sonchus oleraceus*

*Sonchus asper* subsp. *asper*

*Spergula arvensis*

*Taraxia ovata*

*Torilis arvensis*

*Trifolium subterraneum*

Plants characteristic of creek beds specifically at Pepperwood are:

### **Herbs**

*Carex nudata*

*Chamaesyce maculata*

### **Herbs**

*Chenopodium murale*

*Croton setigerus*

Plants characteristic of creek beds specifically at Pepperwood (*continued*):

### **Herbs**

*Datisca glomerata*\*  
*Epilobium canum* supsp. *canum*  
*Heterotheca oregona*\*  
*Kickxia spuria*  
*Melilotus albus*\*  
*Nicotiana acuminata* var. *multiflora*  
*Paspalum dilatatum*\*  
*Petrorhagia dubia*

### **Herbs**

*Pseudognaphalium beneolens*  
*Rumex crispus*  
*Scirpus* spp.\*  
*Solanum americanum*  
*Stachys albens*  
*Trichostema lanceolatum*  
*Verbascum thapsus*  
*Xanthium strumarium*

## **Homesteads**

Historic homesteads are scattered across the preserve. Evidence of former inhabitants include a standing chimney, foundation blocks, artifacts, and the cultivated taxa that persist (see Appendix A). When the Pepperwood uplands are grazed and the light is low at morning or evening, plow lines from pre-Prohibition vineyards can be discerned. One occasionally finds redwood grape stakes in the grasslands, historical artifacts of previous lives.

Cultivated plants found at each of the Pepperwood homesteads includes:

### **Goodman**

*Amaryllis belladonna*  
*Ficus carica*  
*Juglans nigra*  
*Leucojum aestivum*  
*Malus pumila*  
*Populus fremontii* subsp. *fremontii*  
*Prunus armeniaca*  
*Prunus domestica*  
*Prunus* spp.  
*Pyrus communis*

### **Strebel**

*Agave americana*  
*Amaryllis belladonna*  
*Eucalyptus globulus*  
*Ficus carica*  
*Juglans nigra*  
*Malus pumila*  
*Narcissus pseudonarcissus*  
*Populus nigra*  
*Prunus avium*  
*Prunus domestica*

### **McCann**

*Agave americana*  
*Amaryllis belladonna*  
*Ficus carica*  
*Hesperocyparis macrocarpa*  
*Juglans regia*  
*Malus pumila*  
*Prunus avium*  
*Prunus cerasifera*  
*Prunus dulcis*  
*Prunus persica*

### **Manager's House**

*Carya illinoensis*  
*Diospyros lotus*  
*Ficus carica*  
*Juglans regia*  
*Malus pumila*  
*Populus fremontii*  
*Prunus cerasifera*  
*Prunus dulcis*  
*Pyrus communis*

Cultivated plants found at each of the Pepperwood homesteads (*continued*):

**Above Strebel**

*Juglans regia*

*Malus pumila*

*Prunus armeniaca*

**Garrison**

*Juglans regia*

*Malus pumila*

*Prunus cerasifera*

*Prunus domestica*

## Fire

The location and seral stage of plant communities at Pepperwood are strongly influenced by fire. The most recent landscape-altering fire at Pepperwood was the “Hanley Fire” that burned in September 1964. A total of about 52,000 acres burned, driven by Santa Ana winds (hot, dry, southeast winds). Governor Pat Brown came to Santa Rosa to declare a State of Emergency; 156 homes and about 150 other structures burned and the town of Santa Rosa was being evacuated when the fog came in and enabled the fire to be controlled. Perhaps half of the oak trees at Pepperwood bear scars from this blaze. Many Douglas-fir trees were killed with some still standing as snags. Most stands of chaparral were renewed and their age can be safely estimated to date from 1964. The Garrison Canyon did not burn, although there is a bulldozer scar on the ridge east of the Garrison house from protection efforts. Many madrone and bay stands at Pepperwood are also stump sprouts initiated after the 1964 fire.

Lightning is rare at Pepperwood, but is an important ignition source. A lightning strike during an early morning rain storm on September 16, 1989 exploded a tree just above the cattle gate on the road to the Bechtel House, throwing bark and wood up to 56 meters away. A fire in September 1965 burned the length of the northwestern arm and the Bald Hills on the neighboring property, ending just north of Martin Creek. A 17-acre grass fire burned the area around Three Tree Hill on July 4, 1995. About two acres of serpentine chaparral at the Pepperwood Entrance burned in August 2001.

One of the notable phenomena associated with fire in California is the appearance of “fire followers,” which are annual plants whose seeds lay dormant in the soil for up to 80 years between fires; no fire followers are documented at Pepperwood. The fire followers *Calandrinia breweri* and *Phacelia suaveolens* have each been collected a few hundred meters east of the Preserve Entrance following a 1996 fire and may reasonably be expected to occur here.

Suppression of natural fires across California have altered the structure and composition of oak woodlands, chaparral, grassland, and other communities. The understories of oak woodland and chaparral communities on the preserve are often thick with Douglas-fir saplings. The Douglas-fir trees rapidly overtop the canopy layer of oak woodlands and chaparral, eventually shading out and killing the species beneath. Encroachment by Douglas-fir trees also increases the amount of woody debris and fuel in the understory, which can exacerbate the effects of fire. Pepperwood has been removing Douglas-fir saplings and small trees from oak woodland and chaparral communities since 2006.

## Rare Plants

Fourteen plants at Pepperwood are listed in the California Native Plant Society's *Inventory of Rare and Endangered Vascular Plants of California* (online edition, v8-01a), as of August 2012.

CNPS Rank 1B – Rare, threatened, or endangered in CA and elsewhere

Napa false indigo (*Amorpha californica* var. *napensis*, Fabaceae)

Narrow-flowered California brodiaea (*Brodiaea leptandra*, Themidaceae)

Calistoga ceanothus (*Ceanothus divergens*, Rhamnaceae)

Cobb Mountain lupine (*Lupinus sericatus*, Fabaceae)

Jepson's leptosiphon (*Leptosiphon jepsonii*, Polemoniaceae)

CNPS Rank 2 – Rare, threatened, or endangered in CA, but more common elsewhere

Oval-leaved viburnum (*Viburnum ellipticum*, Adoxaceae)

CNPS Rank 4 – Limited distribution, a watch list

Carlotta Hall's lace fern (*Aspidotis carlotta-halliae*, Pteridaceae)

Mount St. Helena morning glory (*Calystegia collina* subsp. *oxyphylla*, Convolvulaceae)

Nodding harmonia (*Harmonia nutans*, Asteraceae)

Chaparral or redwood lily (*Lilium rubescens*, Liliaceae)

Broad lobed leptosiphon (*Leptosiphon latisectus*, Polemoniaceae)

Napa biscuitroot (*Lomatium repostum*, Apiaceae)

Green monardella (*Monardella viridis*, Lamiaceae)

Lobb's aquatic buttercup (*Ranunculus lobbii*, Ranunculaceae)

## Species Accounts

In the following annotated species list, the names of plants are grouped in the following order: lycophytes; ferns and fern allies; conifers; flowering plants. Within these major groups families are alphabetized and genera are alphabetized within families. Taxonomic nomenclature follows Hickman (1993), except where superceded by more recent publications (e.g. Baldwin et al. 2012). Common names are taken from *The Jepson Manual, Second Edition* (Baldwin et al. 2012) and the Jepson eFlora (Jepson Flora Project 2012). Although the *Second Edition* of *The Jepson Manual* no longer includes the named oak hybrids occurring at Pepperwood, they have been retained within this flora. Cultivated taxa are listed in Appendix A. Taxa that have not been found on Pepperwood, but occur close by and are expected to be found at Pepperwood are listed in Appendix B. Lastly, invasive and noxious weeds that occur at Pepperwood are listed in Appendix C.

Formatting protocol is as follows:

- Native species indicated by bolded binomials
- Unknown varieties or subspecies are indicated by “unknown”
- Area of origin for exotic plants in parentheses ( )
- Peak flowering times are included in brackets [ ]

### Lycophytes

#### **Isoetaceae (Quillwort family)**

***Isoetes howellii*** Engelm. QUILLWORT. Perennial.  
Inconspicuous, in ponds.

#### **Selaginellaceae (Spike-moss family)**

***Selaginella wallacei*** Hieron. SPIKE-MOSS. Perennial.  
Rock outcrops, Devil's Kitchen.

### Ferns

#### **Azollaceae (Mosquito Fern family)**

***Azolla filiculoides*** Lam. Perennial.  
Ponds, green or sometimes maroon colored.



**Blechnaceae (Deer Fern family)**

*Woodwardia fimbriata* Sm. GIANT CHAIN FERN. Perennial.

Springs and streams, spring north of the Bechtel House, Big Spring, Skovie Spring, Redwood Canyon, below Rogers Spring, Box Elder Canyon, McCann Spring, Piney Canyon, Weimar Canyon. Plant large, sometimes to 8 feet, sori oblong, appearing like chains. Native Californians pounded the stipe and removed two thick, brown fibers for use in basketry.

**Dennstaedtiaceae (Bracken family)**

*Pteridium aquilinum* (L.) Kuhn. var. *pubescens* Underw. BRACKEN, BRAKE. Perennial.

Grassy hills, forming large patches through asexual reproduction. Fertile fronds are rare, usually appearing after disturbance, such as fire.

**Dryopteridaceae (Wood Fern family)**

*Dryopteris arguta* (Kaulf.) Maxon. WOOD FERN. Perennial.

Cool woods, north slopes, along streams.

*Polystichum californicum* (D.C. Eaton) Diels. SWORD FERN. Perennial.

Woods and along streams.

*Polystichum munitum* x *californicum*

Hybrid found in Redwood Canyon.

*Polystichum munitum* (Kaulf.) C. Presl. WESTERN SWORD FERN. Perennial.

North slopes and in moist areas, Rogers Canyon, Garrison Canyon.

**Equisetaceae (Horsetail family)**

*Equisetum* x *ferrissii* Clute. FERRISS' HORSETAIL. Perennial.

Skovie Spring. Sterile hybrid, only reproducing herbaceously.

*Equisetum laevigatum* A. Braun. SMOOTH SCOURING RUSH. Perennial.

Springs, creekbeds and marshes. Stems die-back annually, branches zero.

*Equisetum telmateia* Ehrh. subsp. *braunii* (J. Milde.) Hauke. GIANT HORSETAIL. Perennial.

Springs, creeks and marshes. Stems die-back annually, sterile with branches, fertile unbranched.

**Polypodiaceae (Polypody family)**

*Polypodium californicum* Kaulf. CALIFORNIA POLYPODY. Perennial.

Woods and on rock outcrops. Leaves summer deciduous.

**Pteridaceae (Brake family)**

*Adiantum aleuticum* (Rupr.) C.A. Paris. FIVE-FINGER FERN. Perennial.

Redwood Canyon on a bank of redeposited volcanic ash.

***Adiantum jordanii*** Müll. Hal. CALIFORNIA MAIDENHAIR. Perennial.

Shaded woods or on moist banks.

***Aspidotis carlotta-halliae*** (W.H. Wagner & E.F. Gilbert) Lellinger. CARLOTTA HALL'S LACE FERN. CNPS Rank 4.2. Perennial.

Serpentine slopes and outcrops; fertile hybrid between *A. californica* and *A. densa*.

***Aspidotis densa*** (Brack.) Lellinger. DENSE LACE FERN. Perennial.

Serpentine, redeposited volcanic ash, rock outcrops, along road to Bechtel House, road to Grouse Hill.

***Pellaea andromedifolia*** (Kaulf.) Fée. COFFEE FERN. Perennial.

Dry slopes, scree, and rock outcrops.

***Pellaea mucronata*** (D.C. Eaton) D.C. Eaton var. ***mucronata***. BIRD'S-FOOT FERN. Perennial.

Rocky slopes and in chaparral.

***Pentagramma triangularis*** (Kaulf.) Yatsk. et al. subsp. ***triangularis***. GOLDBACK FERN. Perennial.

Cool moist woods and on north-facing slopes. Leaves 8-10cm, triangular, spores gold, coating underside.

### **Woodsiaceae (Cliff Fern family)**

***Cystopteris fragilis*** (L.) Bernh. FRAGILE FERN. Perennial.

Seasonal springs, Garrison Canyon, road to Grouse Hill.

## **Gymnosperms**

### **Cupressaceae (Cypress family)**

***Sequoia sempervirens*** (D. Don) Endl. REDWOOD. Evergreen tree.

Redwood Canyon, Devil's Kitchen, Weimar Canyon. Pepperwood Preserve is near the easternmost locality for redwoods.

### **Pinaceae (Pine family)**

***Pinus attenuata*** Lemmon. KNOBCONE PINE. Evergreen tree.

Garrison Canyon, uphill of the cattleguard east of the Bechtel House, Devil's Kitchen, on the middle ridge of Redwood Canyon, on the flat south of Weimar Canyon near Musante's fenceline, along road to Skovie Basin, ridge between Redwood Canyon and Weimar Canyon, northeast corner of the preserve. Generally reproducing only after fires; the Devil's Kitchen and Bechtel House trees probably germinated after the 1964 Hanley Fire. The trees are attacked by feral pigs who girdle them to make sap ooze. The pigs rub in the sap to remove ectoparasites. This often results in the death of the tree.

***Pinus ponderosa*** Lawson & C. Lawson var. unknown. PONDEROSA PINE. Evergreen tree.

Garrison Canyon, along the ridge between Garrison Canyon and Three Tree Hill, above the Bechtel House, south base of Telegraph Hill. This tree is common on Mt.

St. Helena. Pepperwood Preserve seems to be at the margin of its distributional range in the Inner Coast Range.

*Pseudotsuga menziesii* (Mirb.) Franco var. *menziesii*. DOUGLAS-FIR. Evergreen tree.

Mostly on cooler sites, north slopes, ravines, or emerging through understory of oak woodlands and chaparral.

### **Taxaceae (Yew family)**

*Torreya californica* Torr. CALIFORNIA-NUTMEG. Evergreen tree.

Between Redwood Canyon and Grouse Hill. Cones a fleshy aril (resembling the spice nutmeg), needles very sharp-pointed.

## **Flowering Plants: Magnoliids**

### **Aristolochiaceae (Pipevine family)**

*Aristolochia californica* Torr. PIPEVINE, BIRTHWORT. Deciduous vine. [Jan-Apr]

Planted at the Manager's House. Flowers, sepals three, greenish white to mauve, shaped like an inflated Sherlock Holmes pipe, petals zero. Host plant for pipevine swallowtail caterpillars (*Battus philenor*). Pipevine planted at the Manager's House attracted egg-laying swallowtails the second year.

### **Calycanthaceae (Sweet-shrub family)**

*Calycanthus occidentalis* Hook. & Arn. SPICEBUSH, SWEET-SHRUB. Deciduous shrub. [Mar-Aug]

Along Rogers Creek, spring feeding into Pepperwood Creek downstream of the Bechtel House, Redwood Canyon and Garrison Canyon. The leaves have a spicy aroma when crushed. The red flowers have numerous spirally arranged petals and stamens on the rim of a receptacle which becomes a woody urn-shaped fruit that harbors the one-seeded fruits (achenes).

### **Lauraceae (Laurel family)**

*Umbellularia californica* (Hook. & Arn.) Nutt. PEPPERWOOD, CALIFORNIA BAY, CALIFORNIA LAUREL. Evergreen tree. [Nov-May]

Woodland and chaparral, forming pure stands in some places. There is a huge bay near the High Hill which may be as old as 1,000 years; a bigger one SW of Strebel Homestead is 20.05 meters in circumference. The fruits of this avocado relative are perfect miniature avocados, except in flavor. The leaves emerge red, then turn green as the defensive chemicals that give the leaves their unique odor are produced (Kepner et. al. 1974). Deer browse red bay leaves, forcing seedlings and saplings into tightly branched topiary mounds. The flowers are 3-merous; the stamens have trap-doors to release the pollen, another unusual feature. The dead wood is consumed by tiny wood-boring beetles of the genus *Ips*. The frass produced by the beetle larvae

is abundant from August to October, collecting in characteristic mounds on and below dead branches.

### **Flowering Plants: Ceratophyllales**

#### **Ceratophyllaceae (Hornwort family)**

*Ceratophyllum demersum* L. HORNWORT. Perennial. [Jun-Aug]

Found at the largest of the Double Ponds.

### **Flowering Plants: Eudicots**

#### **Adoxaceae (Muskroot family)**

*Sambucus nigra* L. subsp. *caerulea* (Raf.) Bolli. BLUE ELDERBERRY. Deciduous shrub. [Mar-Sep]

Found in ± moist areas, Turtle Pond, Rogers Canyon, Red Corral, High Hill. The stems are used by native Californians for whistles and other musical instruments. Leaves pinnately compound, inflorescence flat, berries glaucous blue-black.

*Viburnum ellipticum* Hook. OVAL-LEAVED VIBURNUM. CNPS Rank 2.3. Shrub. [Jun-Aug]

Known from Garrison Canyon, Shriver Canyon, and Pitts Canyon. This northern shrub reaches its southern limit of range near Mt. Diablo. It is uncommon in the Bay Area, and more common in summer rain areas of Oregon and Washington. The fruits are bird-dispersed and take two or more years to germinate.

#### **Amaranthaceae (Amaranth family)**

*Amaranthus albus* L. TUMBLEWEED. (c N.Am). Annual. [Jun-Oct]

A weed in gardens, stables and other disturbed areas.

*Amaranthus retroflexus* L. REDROOT PIGWEED. (c&e N.Am). Annual. [Jun-Nov]

A weed in gardens, stables, creekbeds and other disturbed areas.

#### **Anacardiaceae (Sumac or Cashew Family)**

*Toxicodendron diversilobum* (Torr. & A. Gray) Greene. WESTERN POISON OAK. Deciduous vine or shrub. [Apr-Jun]

One of our most ecologically tolerant species occurring in grassland, oak woodland, Douglas-fir forest, chaparral and riparian habitats. Leaves with three leaflets, becoming bright red in late summer to early fall. Essential oils cause an annoying dermatitis in some people. Winter stems can be identified by the black sap (look on broken twigs) and adventitious roots (roots on the stem). The white berries, with delicate black lines, are an important food for winter resident birds (towhees, juncos, chickadees, sparrows).

**Apiaceae (Umbelliferae, Carrot family)**

***Angelica tomentosa*** S.Watson. CALIFORNIA ANGELICA. Perennial. [Jun-Aug]

Found in Weimar Canyon, and Kitchen Creek just north of the Mountain House.  
Uncommon at Pepperwood.

***Anthriscus caucalis*** M. Bieb. BUR-CHERVIL. (Eurasia). Annual. [Apr-Jun]

Oak woodland and grassland.

***Daucus carota*** L. CARROT, QUEEN ANNE'S LACE. (Eur). Biennial. [May-Sep]

Found near the Pepperwood Entrance. This is also the carrot of commerce.

***Daucus pusillus*** Michx. RATTLESNAKE CARROT. Annual. [Apr-Jun]

Grassland and chaparral. A frequent after-hike inhabitant of socks, the seeds are ideally designed for dispersal by mammals.

***Eryngium aristulatum*** Jeps. var. ***aristulatum***. VERNAL POOL BUTTON CELERY. Perennial. [May-Aug]

Found in Turtle Pond, the vernal pools west of Three Tree Hill, and the Double Ponds vernal pool, where it is locally abundant. The taproot is submerged in winter, the leaves emerge under water, elongate when the receding water line exposes the bank, and the plant flowers on the drying strand, ringing the pond each year with spiny beauty. Look for three kinds of leaves, the tubular, *Eleocharis*-like underwater leaves, the flat strand leaves, and the spiny leaves of the flowering stage. The seeds are covered in styrofoam-like processes to facilitate floating.

***Foeniculum vulgare*** Mill. FENNEL. Invasive weed (s Eur). Perennial. [May-Sep]

Found at the Ward House Site, below the Manager's House, and north of the Bechtel House. The seeds are used as spice and the leaves are good in salad. This is an alternate host plant of the anise swallowtail butterfly (*Papilio zelicaon*) and the spread of fennel in California has precipitated a population increase of this wonderful insect far beyond its native range and abundance.

***Lomatium dasycarpum*** (Torr. & A. Gray) J.M. Coult. & Rose subsp. ***dasycarpum***.

Perennial. [Mar-Jun]

Pepperwood Entrance on serpentine, serpentine chaparral above Barn, and serpentine outcrops past the Bechtel House.

***Lomatium macrocarpum*** (Torr. & A. Gray) J.M. Coult. & Rose. Perennial. [Apr-Jun]

Large roadcut below the Ward House Site.

***Lomatium repostum*** (Jeps.) Mathias. NAPA LOMATIUM. CNPS Rank 4. Perennial. [Apr-May]

Along the road to Grouse Hill on redeposited volcanic ash.

***Lomatium utriculatum*** (Torr. & A. Gray) J.M. Coult. & Rose. Perennial. [Feb-May]

Grassland. Flowers bright yellow.

***Oenanthe sarmentosa*** DC. Perennial. [Jun-Oct]

The spring and stream between the apple trees at Rogers Canyon, and Skovie Basin.

***Osmorhiza berteroi* DC. SWEET CICELY. Perennial. [Apr-Jun]**

Shady woods, Douglas-fir forest, oak woodland. The long, narrow, black, barbed seeds are prominent hanging on the dried plant all summer.

***Perideridia kelloggii* (A. Gray) Mathias. KELLOGG'S YAMPA. Perennial. [Jul-Aug]**

Northwest slope of High Hill, Garrison Canyon, Weimar Falls, road near Big Spring. Native Californians regarded the seeds as an important spice and dug the roots to eat in the wet season. The flowers bloom after the grassland has dried and are a favorite haunt of the Pacific ambush bug (*Phymata pacifica*).

***Sanicula bipinnata* Hook & Arn. POISON SANICLE. Biennial, perennial. [Apr-May]**

Grassland and open oak woodland. Stem leafy, flowers inconspicuous, corolla yellow..

***Sanicula bipinnatifida* Hook. PURPLE SANICLE, SHOE BUTTONS. Biennial, perennial. [Mar-May]**

Grassland and open oak woodland. Leaves mostly basal, silvery blue-green. Long flower stalks tipped with deep rose-pink, spheric heads about 1 cm in diameter, the stamens well exerted, appearing like a pincushion.

***Sanicula crassicaulis* DC. Biennial, perennial. [Mar-May]**

Oak woodland. Flowers 1-2 mm, yellow, in dense heads.

***Sanicula laciniata* Hook. & Arn. Biennial, perennial. [Mar-May]**

Below manzanitas in chaparral.

***Sanicula tuberosa* Torr. Perennial. [Mar-Jul]**

Oak woodland and grassland, along the fenceline northwest of Pitts Canyon, Devil's Kitchen, along the ridge from Three Tree Hill to Garrison Canyon, west slope of Hill 1524, and along Martin Creek. Cilantro-scented.

***Scandix pecten-veneris* L. VENUS' NEEDLE. (Medit). Annual. [Apr-Jun]**

Disturbed areas and grassland. Leaves alternate, finely pinnately dissected. Flowers few, small, white. Readily identified by the clusters of long, needle-like fruits.

***Tauschia kelloggii* (A.Gray) J. F. Macbr. Perennial. [Apr-Jun]**

Oak woodland, Redwood Canyon, and Garrison Canyon. Yellow-flowered.

***Torilis arvensis* (Huds.) Link. TALL SOCK DESTROYER. Invasive weed (s&c Eur). Annual. [Apr-Jul]**

Disturbed areas and oak woodland.

***Torilis nodosa* (L.) Gaertn. SHORT SOCK DESTROYER. (Eurasia). Annual. [Apr-Jun]**

Grassland at the top of Telegraph Hill.

***Yabea microcarpa* (Hook. & Arn.) Koso-Pol. Annual. [Apr-Jun]**

Oak woodland and grassland.

### **Apocynaceae (Dogbane family)**

***Apocynum androsaemifolium* L. BITTER DOGBANE. Perennial. [May-Oct]**

Rogers Canyon. The stems were an important source of fiber for native Californians. Recognized by opposite leaves and white latex.

***Asclepias fascicularis*** Decne. NARROW-LEAF MILKWEED. Perennial. [May-Oct]  
Occurs in moist areas at Turtle Pond, Skovie Basin, Rogers Creek upstream of Rogers Canyon, and Martin Creek. Foodplant for the Monarch butterfly caterpillar (*Danaus plexippus*). Look for narrow, whorled leaves and white latex.

***Vinca major*** L. GREATER PERIWINKLE. Invasive weed (Eur). Perennial. [May-Jun]  
Found in the creekbed east of Goodman Homestead, in the Goodman Meadow, and at the Ward House Site. Invasive in moist areas. The white latex is toxic if ingested, the nectar at the base of the flower is sweet and harmless, the style and stigma make nice hair ornaments.

### **Araliaceae (Ginseng family)**

***Aralia californica*** S.Watson. ELK CLOVER. Perennial. [Jun-Aug]  
Along the stream in Piney Canyon. Leaves 1-3 pinnate, large, to 2 meters. Inflorescence a panicle with many terminal spheric clusters composed of many 1-4 mm white flowers.

***Hedera helix*** L. ENGLISH IVY. Invasive weed (Eur). Vine. [Aug-Nov]  
Skovie Basin. Ivy is one of the most despised wildland weeds in the Pacific Northwest (cause of the formation of the “No Ivy League”), but barely survives at Pepperwood, presumably due to aridity. The few plants found at the Skovie Basin were far from known habitation sites and presumably are seedlings resulting from dispersal by birds.

### **Asteraceae (Sunflower family)**

***Achillea millefolium*** L. YARROW. Perennial. [Apr-Sep]  
Grasslands. Yarrow was used in early biosystematic studies in California by Clausen, Keck and Heisey demonstrating that ecogeographic variability is genetically controlled, not environmentally induced.

***Achyraea mollis*** Schauer. BLOW WIVES. Annual. [Mar-Jun]  
Grasslands. This strange “dandelion” is far more prominent in fruit than in flower.

***Adenocaulon bicolor*** Hook. TRAIL PLANT. Perennial. [Jun-Oct]  
Redwood Canyon. Turn the leaves over to see the silver arrowhead that points the trail. Fruits small, papillate, club-shaped, appearing like miniature pickles.

***Agoseris grandiflora*** (Nutt.) Greene var. ***leptophylla*** G.I Baird. Perennial. [Apr-Jun]  
Grassland and oak woodland. Leaves basal, linear with few long, narrow, upwardly pointing lobes. Flower heads with dense, short, white hairs at base, solitary on long scapose stalks, petals yellow. Fruiting heads dandelion-like with long-beaked, feathery-tufted pappus.

***Agoseris heterophylla*** (Nutt.) Greene var. unknown. Annual. [May-Jun]  
Grassland and rocky slopes.

***Ancistrocarphus filagineus*** A. Gray. WOOLLY FISHHOOKS. Annual. [Mar-Jun]  
Thin soils.

***Anisocarpus madioides*** Nutt. WOODLAND MADIA. Perennial. [Apr-Sep]

Douglas-fir forest. Leaves coarse to soft hairy, lower opposite, upper becoming alternate.

***Anthemis cotula*** L. MAYWEED. (Eur). Annual. [Apr-Aug]

Manager's House, paved road east of the Dwight Center, Roller Coaster Ridge, drainage north of the Mountain House, and along the dirt road near Murry's Gate.

***Arnica discoidea*** Benth. RAYLESS ARNICA. Perennial. [May-Jul]

Plant long-hairy, short glandular.

***Artemisia douglasiana*** Besser. MUGWORT. Perennial. [May-Nov]

Wide ecological tolerance, in moist or shaded situations along Rogers Creek, Martin Creek, and on a hot sunny road shoulder at the Pepperwood Entrance. Leaves strongly aromatic, densely white-hairy below, dull gray-green above, and were used in sweat baths and "dream pillows" by native Californians.

***Baccharis glutinosa*** Pers. MARSH BACCHARIS. Perennial. [Jul-Oct]

Skovie Spring and Skovie Basin.

***Baccharis pilularis*** DC. subsp. ***consanguinea*** (DC.) C.B. Wolfe. COYOTE BRUSH.

Evergreen shrub. [Jul-Dec]

An important native invader of disturbed areas, landslides, roadcuts, gopher mounds. The prominent first step in the transition of grasslands to woody vegetation. In September, look for our biggest tachinid fly, the brown bomber (*Paradejeania rutilioides*), on the female (pistillate) flowers.

***Baccharis salicifolia*** (Ruiz & Pav.) Pers. subsp. ***salicifolia***. MULE FAT. Evergreen shrub. [Jan-Dec]

Martin Creek and Shriver Canyon.

***Calycadenia multiglandulosa*** DC. Annual. [May-Oct]

Serpentine chaparral and grasslands at the Pepperwood Entrance.

***Calycadenia pauciflora*** A. Gray. Annual. [Apr-Sep]

Serpentine chaparral at the Pepperwood Entrance and north of the Barn.

***Calycadenia truncata*** DC. ROSIN WEED. Annual. [May-Oct]

Devil's Kitchen.

***Carduus acanthoides*** L. subsp. ***acanthoides***. PLUMELESS THISTLE. Noxious weed (Eur).

Biennial. [Jul-Nov]

Ridge above the Bechtel House.

***Carduus pycnocephalus*** L. subsp. ***pycnocephalus***. ITALIAN THISTLE. Noxious weed (Medit). Annual. [Mar-Jul]

Disturbed areas. Stems conspicuously spiny-winged, the wings extensions of the spiny-lobed, decurrent leaves which are densely white-hairy below. Flowers purple. The leaves and seed heads are attacked by two different beetles introduced from Europe as biological control agents. The flower heads are a favorite nectar source of checkerspot butterflies (*Occidryas chalcidona*).



*Carthamus lanatus* L. WOOLLY DISTAFF THISTLE. Noxious weed (Medit). Annual. [May-Sep]

Road on the ridge south of Pitts Canyon.

*Centaurea melitensis* L. TOCALOTE. Noxious weed (s Eur). Annual. [Apr-Jul]

Grassland and disturbed areas.

*Centaurea solstitialis* L. YELLOW STAR-THISTLE. Noxious weed (s Eur). Annual. [May-Oct]

Disturbed areas. A prime nectar source for European honeybees, much of the honey produced in the Central Valley of California is yellow star thistle honey. The young plant is chemically protected before spines develop. Crush a leaf, then lick your finger to taste extreme bitter. Keep water handy to rinse your mouth. The flower heads are protected by spines. The USDA has worked on a biological control, and released two agents at Pepperwood: a beetle (*Bangasternus*), and a fly (Fornasari and Sobhain 1993, Maddox et al. 1986).

*Centromadia fitchii* (A. Gray) Greene. SPIKEWEED. Annual. [May-Nov]

Grassland and along dirt roads. Plant spiny, lemon-scented. It was tested to extract insecticidal chemicals after it was noticed that vernal pools with much of this taxon had few or no mosquitos (Klocke et. al. 1985).

*Chondrilla juncea* L. SKELETON WEED. Noxious weed (w Eurasia, Medit, nw Afr).

Biennial, perennial. [Jun-Jan]

First Sonoma County record on Roller Coaster Ridge in 2007. Road to the Strebel Homestead, serpentine outcrop near Three Tree Hill, Pepperwood Creek, and grassland east of Telegraph Hill. The populations are managed in cooperation with the Sonoma County Agricultural Commission.

*Cichorium intybus* L. CHICORY. (Eur). Perennial. [Apr-Oct]

Along roads, Red Corral, McCann Homestead, Manager's House, Strebel Homestead, near the PG&E tower south of the Tower-in-the-Saddle, and Martin Creek at Middle Road. Heads lateral, sessile, petals blue. The soft, new, second year leaves are "endive." The root can be used as a coffee alternative.

*Cirsium arvense* (L.) Scop. CANADA THISTLE. Noxious weed (Eur). Perennial. [Jun-Sep]

Near the Mountain House, Garrison and Rogers Canyons.

*Cirsium occidentale* (Nutt.) Jeps. var. **venustum** (Greene) Jeps. VENUS THISTLE. Biennial. [May-Jul]

Oak woodland, grassland, and rock outcrops. This spectacular thistle was far more common before an ill-advised biocontrol program in the 1950's introduced a thistle-eating beetle to control bull thistle and devastated the population of Venus thistle (Turner et al. 1987).

*Cirsium remotifolium* (Hook.) DC. var. **odontolepis** Petr. PACIFIC FRINGED THISTLE.

Biennial, perennial. [Jun-Sep]

The chaparral-covered slope on the southeast side of Horse Hill.

*Cirsium remotifolium* (Hook.) DC. var. **remotifolium**. REMOTE-LEAVED THISTLE. Biennial, perennial. [May-Aug]

The chaparral-covered slope on the southeast side of Horse Hill.

- Cirsium vulgare* (Savi) Ten. BULL THISTLE. Noxious weed (Eur). Biennial. [May-Oct]  
Originally found in the meadow next to the Goodman Homestead. Now present throughout the preserve, disturbed areas, wet meadows.
- Cotula australis* (Spreng.) Hook. f. AUSTRALIAN COTULA. (Aus). Annual. [Jan-May]  
Bechtel House.
- Cotula coronopifolia* L. BRASS-BUTTONS. Invasive weed (s Afr). Perennial. [Mar-Dec]  
Skovie Spring, on the edges of receding ponds, and at the Barn.
- Dittrichia graveolens* (L.) Greuter. STINKWORT. Invasive weed (w Eur, Medit, sw Asia). Annual. [Sep-Nov]  
First detected in 2012, near the water tower.
- Ericameria arborescens* (A. Gray) Greene. GOLDEN-FLEECE. Evergreen shrub. [Aug-Nov]  
Fire-induced chaparral in Devil's Kitchen. This plant responds vigorously after fire and must have been abundant for 10-20 years after the 1964 fire. It declines as the chaparral it inhabits matures.
- Erigeron bonariensis* L. FLAX-LEAVED HORSEWEED. (S.Am). Annual. [Jan-Dec]  
Disturbed areas.
- Erigeron reductus* (Cronquist) G.L. Nesom var. *angustatus* (A. Gray) G.L. Nesom. LITTLE RAYLESS FLEABANE. Perennial. [Jun-Aug]  
Serpentine at the Pepperwood Entrance.
- Erigeron* sp. FLEABANE. ( ). Perennial. [ ]  
Skovie Spring and Skovie Basin.
- Eriophyllum lanatum* (Pursh) J. Forbes var. *achilleoides* (DC.) Jeps. COMMON WOOLLY SUNFLOWER. Subshrub. [Apr-Aug]  
Subshrub of serpentine chaparral, Pepperwood Entrance, and Rogers Canyon.
- Eurybia radulina* (A. Gray) G.L. Nesom. ASTER. Perennial. [Jul-Sep]  
Oak woodland or Douglas-fir forest, Rogers Canyon, Devil's Kitchen, and a shaded road cut above Strebel Homestead.
- Euthamia occidentalis* Nutt. WESTERN GOLDENROD. Perennial. [Jul-Nov]  
Upper Skovie Marsh.
- Gamochaeta ustulata* (Nutt.) Holub. CUDWEED. Annual, biennial. [Apr-Jul]  
Disturbed areas.
- Grindelia camporum* Greene. GUMPLANT. Perennial. [May-Nov]  
Serpentine chaparral and grassland.
- Grindelia hirsutula* Hook. & Arn. GUMPLANT. Perennial. [Apr-Jun]  
Grassland at top of Three Tree Hill, High Hill and Hill 1524.
- Harmonia nutans* (Greene) B.G. Baldwin. NODDING MADIA. CNPS Rank 4.3. Annual. [Apr-Jun]  
Found on serpentine soils.

*Hedypnois rhagadioloides* (L.) F.W. Schmidt. CRETIAN DANDELION. (Medit). Annual. [Feb-Jun]

Disturbed grassland. The seeds are of three shapes, for three dispersal strategies: curved and barbed, straight with a low crown and straight with bristles.

*Helenium puberulum* DC. SNEEZE WEED. Perennial. [Jun-Aug]

Moist situations. The round, yellow heads bloom in rows, the stems are winged.

*Helianthella californica* A. Gray var. *californica*. Perennial. [Apr-Jun]

Oak woodland, Redwood Canyon, road to Grouse Hill.

*Helminthotheca echinoides* (L.) Holub. PRICKLY OX TONGUE. Invasive weed (Eur). Biennial. [Jan-Dec]

Disturbed grasslands near Three Tree Hill and the Bechtel House.

*Hemizonia congesta* DC. subsp. *clevelandii* (Greene) Babco. & H.M. Hall. HAYFIELD TARWEED. Annual. [Jun-Nov]

Barn Meadow grassland. Heads sessile along branches. Ray flowers white.

*Hemizonia congesta* DC. subsp. *lutescens* (Greene) Babco. & H.M. Hall. HAYFIELD TARWEED. Annual. [Apr-Dec]

Grassland. Flowers yellow.

*Hesperevax sparsiflora* (A. Gray) Greene var. *sparsiflora*. ERECT EVAX. Annual. [Mar-Jun]

Disturbed areas.

*Heterotheca oregana* (Nutt.) Shinnars var. unknown. RAYLESS GOLDENASTER. Perennial. [Jul-Oct]

Rogers Canyon.

*Hieracium albiflorum* Hook. WHITE HAWKWEED. Perennial. [May-Sep]

Douglas-fir forest. Leaves mostly a basal rosette with long, straight white hairs, flowers few, small, white, in open raceme.

*Holocarpha virgata* (A. Gray) D.D. Keck subsp. *virgata*. TARWEED, TARPLANT. Annual. [May-Nov]

Double Ponds.

*Hypochaeris glabra* L. SMOOTH CAT'S EAR. Invasive weed (Eur). Annual. [Mar-Jun]

Grassland. Leaves basal, glabrous, flower heads usually one per scapose stalk, petals yellow.

*Hypochaeris radicata* L. HAIRY CAT'S EAR. Invasive weed (Eur). Perennial. [Apr-Jul]

Oak woodland and disturbed areas. Leaves basal, roughly hairy, yellow flowers on candlelabra shaped scapose stalk, often with swollen areas on the stem caused by a stem gall fly that apparently survived the transit from Europe with its host, an extremely rare event.

*Lactuca saligna* L. WILD LETTUCE. (Eur). Annual. [Jul-Nov]

Eroded serpentine slope west of Three Tree Hill.

*Lactuca serriola* L. PRICKLY LETTUCE. (Eur). Annual. [May-Oct]

Disturbed areas.

***Lagophylla ramosissima*** Nutt. HARE-LEAF. Annual. [Apr-Oct]

Grassland, Garrison Canyon, creekbed in Rogers Creek.

***Lasthenia californica*** Lindl. subsp. ***californica***. CALIFORNIA GOLDFIELDS, SUNSHINE. Annual. [Feb-Jun]

Serpentine grassland. *Lasthenia* sp. is found near the Barn Meadow, serpentine outcrop west of Three Tree Hill, and along Roller Coaster Ridge. Distributions of *L. californica* and *L. gracilis* at the preserve need to be further explored since the treatment for *L. gracilis* is a recent addition to *The Jepson Manual* and plants that previously were identified as *L. californica* are likely to be *L. gracilis* in this area. *L. californica* is distinguished from *L. gracilis* by shape of pappus (when present): pappus linear to awl-like awn-tipped scales.

***Lasthenia gracilis*** (DC.) Greene. COMMON GOLDFIELDS. Annual. [Feb-Jun]

Serpentine grassland. Pappus lance-ovate scales.

***Leontodon saxatilis*** Lam. subsp. ***longirostis*** (Finch & P.D. Sell) P. Silva. HAIRY HAWKBIT. (Eur). Perennial. [Jun-Oct]

Disturbed grassland, Oregon oak hills.

***Leontodon saxatilis*** Lam. subsp. ***saxatilis***. HAIRY HAWKBIT. (Eur). Perennial. [Jun-Oct]

Disturbed grassland, north of Double Ponds, north of Hendley Flat.

***Logfia filaginoides*** (Hook. & Arn.) Morefield. CALIFORNIA COTTONROSE. Annual. [Feb-May]

On scree in serpentine chaparral.

***Logfia gallica*** (L.) Coss. & Germ. DAGGERLEAF COTTONROSE. (Medit). Annual. [Mar-Jul]

Along roadsides, in grazed grassland and other disturbed areas.

***Madia anomala*** Greene. TARWEED, TARPLANT. Annual. [Apr-Jun]

Annual of grassland.

***Madia exigua*** (Sm.) A. Gray. TARWEED, TARPLANT. Annual. [Apr-Jul]

Grassland and disturbed areas.

***Madia gracilis*** (Sm.) Applegate. GUMWEED. Annual. [Apr-Aug]

Creek beds, serpentine road cut near the Pepperwood Entrance, Rogers Creek.

***Madia sativa*** Molina. COAST TARWEED. Annual. [May-Oct]

Dry stream banks west of Three Tree Hill and the Pepperwood Entrance.

***Matricaria discoidea*** DC. PINEAPPLE WEED, RAYLESS CHAMOMILE. (nw N.Am, ne Asia). Annual. [Feb-Aug]

Disturbed areas, road to Grouse Hill. Crushed flowering heads smell like pineapple.

***Micropus californicus*** Fisch. & C.A. Mey. var. ***californicus***. COTTONTOP. Annual. [Mar-Jul]

Poor soil and disturbed areas.

***Micropus californicus*** Fisch. & C.A. Mey. var. ***subvestitus*** Gray. Q-TIPS. Annual. [Apr-Jun]

Roadside below Strebel Homestead.

***Microseris douglasii*** (DC) Sch. Bip. subsp. unknown. Annual. [Mar-Jun]  
Grassland. Fruits with silvery awns.

***Onopordum illyricum*** L. ILLYRIAN THISTLE. Noxious weed (se Eur). Biennial. [Jun-Jul]  
Under PG&E tower near Hendley Flat. First documented in 2011 and verified by the Sonoma County Agricultural Commissioner. Only one other population has been documented in the U.S. in Santa Clara County.

***Pseudognaphalium beneolens*** (Davidson) Anderb. CUDWEED, EVERLASTING. Perennial.  
[Jun-Oct]  
Garrison and Rogers Canyons.

***Pseudognaphalium californicum*** (DC.) Anderb. CUDWEED, EVERLASTING. Perennial.  
[Apr-Jul]  
Chaparral, oak woodland, and Douglas-fir forest; Redwood Canyon.

***Pseudognaphalium luteoalbum*** (L.) Hilliard & B.L. Burt. CUDWEED, EVERLASTING.  
(Eurasia). Annual. [Apr-Aug]  
Disturbed areas.

***Pseudognaphalium stramineum*** (Kunth) Anderb. CUDWEED, EVERLASTING. Biennial.  
[Mar-Aug]  
Disturbed areas in Garrison Canyon.

***Psilocarphus chilensis*** A. Gray. ROUND WOOLLYMARBLES. Annual. [Mar-Jul]  
Garrison Canyon.

***Rigiopappus leptocladus*** A. Gray. Annual. [Apr-Jul]  
Grassland, Garrison Canyon.

***Senecio aronicoides*** DC. RAYLESS RAGWORT. Perennial. [Apr-Jul]  
Oak woodland, along creek near Mountain House, Redwood Canyon.

***Senecio vulgaris*** L. COMMON GROUNDSEL. (Eurasia). Annual. [Feb-Jul]  
Disturbed areas.

***Silybum marianum*** (L.) Gaertn. MILK THISTLE. Invasive weed (Medit). Biennial. [Feb-Jun]  
Grasslands, under oak tree canopies, along the road by the Red Corral. Leaves large, spiny-edged, mottled green and white, flower heads large (to 6 cm), purple-flowered, spiny bracted.

***Solidago velutina*** DC. subsp. ***californica*** (Nutt.) Semple. CALIFORNIA GOLDENROD.  
Perennial. [May-Nov]  
Serpentine chaparral, grassland and oak woodland, above the Barn, below the Big Spring.

***Soliva sessilis*** Ruiz & Pav. Annual. (S.Am). [Apr-Jul]  
Grazed grassland and disturbed areas. Plants low growing, leaves feathery-divided, fruits with sharp, hardened style pointed upward.

*Sonchus asper* (L.) Hill subsp. *asper*. PRICKLY SOW THISTLE. (Eur). Annual. [Jan-Dec]  
Disturbed areas, grasslands, Barn Meadow. Plants vary greatly in size, from small (1 dm) to robust (1.2 m) with sometimes reddish stems. Leaves alternate, lobed, basal lobes rounded, clasping the stems.

*Stephanomeria exigua* Nutt. subsp. *coronaria* (Greene) Gottlieb. Annual. [Jun-Nov]  
Along Rogers Canyon road and along a creek in Devil's Kitchen.

*Symphotrichium chilense* (Nees) G. L. Nesom. AMERICAN-ASTER. Perennial. [Jun-Oct]  
Grassland.

*Taraxacum officinale* F. H. Wigg. COMMON DANDELION. (Eur). Perennial. [Jan-Dec]  
Near the Barn. Plant deeply tap rooted, leaves basal with sharply backward-pointing lobes, inflorescence scapose, sap milky.

*Tolpis barbata* (L.) Gaertn. (s Eur). Annual. [Apr-Jun]  
Ridge north of Martin Creek, Double Ponds.

*Tragopogon dubius* Scop. GOAT'S BEARD, SALSIFY, OYSTER PLANT. (Eur). Annual, biennial. [May-Sep]  
Badger meadow, Oregon oak hills. Flowers yellow, head flat. In fruit, forming a large, round feathery white ball.

*Tragopogon porrifolius* L. SALSIFY, OYSTER PLANT. (Eur). Biennial. [Mar-Nov]  
Grasslands. Flowers purple, head flat. In fruit, forming a large, round feathery white ball. The root is edible, the latex brown.

*Uropappus lindleyi* (DC.) Nutt. SILVERPUFFS. Annual. [Mar-May]  
On road cuts, above Strebel Homestead.

*Wyethia angustifolia* (DC.) Nutt. MULE'S EARS. Perennial. [Apr-Aug]  
Along road from the Barn to Devil's Kitchen. Leaves, narrow, lance-linear.

*Wyethia glabra* A. Gray. MULE'S EARS. Perennial. [Mar-Jun]  
Grassland and oak woodland, Garrison Canyon, road to Grouse Hill, east slope of Horse Hill, roadcut along Franz Valley Road near the Ward House Site, grassland near Turtle Pond. Leaves ovate to obovate.

*Xanthium strumarium* L. COCKLEBUR. Annual. [Jul-Oct]  
Near the Pepperwood Entrance along the Franz Valley Road drainage.

### **Berberidaceae (Barberry family)**

*Vancouveria planipetala* Calloni. REDWOOD IVY. Perennial. [Apr-Jul]  
Moist creekbanks in the Redwood Canyon, and the north slope of the Garrison Canyon Douglas-fir forest. The seeds are embedded in a white food body (*eliasome*) that attracts ants, who disperse the seeds, eating the oil-rich food body and discarding the seed.

### **Betulaceae (Birch family)**

*Alnus rhombifolia* Nutt. WHITE ALDER. Deciduous tree. [Jan-Apr]  
Rogers Creek and Bertoli Creek between the Big Spring and Skovie Basin. The roots harbor nitrogen-fixing bacteria in root nodules. The plant is attacked by a fungus

(*Taphrina occidentalis*) that enters through the roots, grows up through the vascular system, and fruits as a tongue gall on the cones.

***Corylus cornuta*** Marshall subsp. ***californica*** (A. DC.) E. Murray. CALIFORNIA HAZEL. Deciduous shrub. [Jan-Mar]

Douglas-fir forest, north slope of Garrison Canyon, Redwood Canyon. Leaves round-ovate, soft hairy with prominent veins. Male flowers in catkins, female flowers small with red stigmas.

### **Boraginaceae (Borage family)**

***Amsinckia intermedia*** Fisch. & C.A. Mey. COMMON FIDDLENECK. Annual. [Mar-Jun]  
Grassland.

***Cryptantha flaccida*** (Lehm.) Greene. WEAK-STEMMED OR PALE CRYPTANTHA. Annual. [Apr-Jun]

Thin soils and creekbeds, Bertoli Creek, Rogers Creek.

***Cynoglossum grande*** Lehm. GRAND HOUND'S TONGUE. Perennial. [Feb-May]

Oak woodland. The large, blue "forget-me-not" like flowers of hound's tongue are pollinated by bumble bees. The ovary is composed of four separate nutlets, but all four seldom develop into the red, dog tongue-like, bristly-warty fruits.

***Echium plantagineum*** L. SALVATION JANE. Invasive weed (s Eur). Annual. [May-Jul]  
Skovie Basin and below the Three Tree Hill vernal pools.

***Eriodictyon californicum*** (Hook. & Arn.) Torr. CALIFORNIA YERBA SANTA. Shrub. [Apr-Jul]

Chaparral along the road to Grouse Hill and Devil's Kitchen. Leaves dark green, sticky, veins prominent underneath, margins rolled under.

***Myosotis discolor*** Pers. CHANGING FORGET-ME-NOT. (Eur). Annual. [Apr-Jul]  
Moist grasslands, Upper Skovie Marsh.

***Myosotis latifolia*** Poir. BROADLEAVED FORGET-ME-NOT. Invasive weed (nw Afr). Perennial. [Feb-Jul]  
Garrison Canyon.

***Nemophila heterophylla*** Fisch. & C.A. Mey. Annual. [Feb-Jun]  
Shady oak woodland.

***Nemophila menziesii*** Hook. & Arn. var. ***atomaria*** (Fisch. & C.A. Mey.). BABY BLUE EYES. Annual. [Feb-Jun]

The marsh near the spring in Rogers Canyon. Flowers white with black dots.

***Nemophila menziesii*** Hook. & Arn var. ***menziesii***. BABY BLUE EYES. Annual. [Feb-May]  
Grassland. Flowers bright blue with lighter center, sometimes black-dotted.

***Pectocarya pusilla*** (A. DC.) A. Gray. LITTLE PECTOCARYA. Annual. [Mar-Jun]  
Thin soils along Martin Creek, Devil's Kitchen.

***Phacelia distans*** Benth. Annual. [Mar-May]  
Rock outcrops.

***Phacelia imbricata*** Greene subsp. ***imbricata***. Perennial. [Apr-Jul]

On shallow soil and rock or clay outcrops.

***Plagiobothrys bracteatus*** (Howell) I.M. Johnst. BRACKETED POPCORN FLOWER. Annual. [Apr-Jun]

Grassland, in places that are wet in the spring.

***Plagiobothrys nothofulvus*** (A. Gray) A. Gray. RUSTY POPCORN FLOWER, FOOTHILL SNOWDROPS. Annual. [Mar-May]

Grassland, poor soil and disturbed areas. The fuzzy, brown calyx is circumscissile: it separates cleanly about half way up, making it easily separable from other popcorn flowers.

***Plagiobothrys reticulatus*** (Piper) I.M. Johnst. var. ***reticulatus***. TRACY'S POPCORN FLOWER. Annual. [May-Jul]

Vernally wet areas.

***Plagiobothrys tenellus*** (Hook.) A. Gray. PACIFIC POPCORN FLOWER. Annual. [Mar-Jun]

Grassland, Redwood Canyon, Rogers Canyon.

### **Brassicaceae (Cruciferae, Mustard family)**

***Athysanus pusillus*** (Hook.) Greene. Annual. [Feb-Jun]

Oak woodland, Rogers Canyon, road cut below the Ward House Site.

***Brassica nigra*** (L.) W.D.J. Koch. BLACK MUSTARD. Invasive weed (Eur). Annual. [Apr-Sep]

Road cut below the Ward House Site, Three Tree Hill.

***Brassica rapa*** L. FIELD MUSTARD, TURNIP. Invasive weed (Eur). Annual. [Jan-May]

Grassland, Rogers Canyon, Red Corral.

***Capsella bursa-pastoris*** (L.) Medik. SHEPHERD'S PURSE. (Eurasia). Annual. [Jun-Oct]

Grassland and disturbed areas.

***Cardamine californica*** (Nutt.) Greene. MILK MAIDS, TOOTH WORT. Perennial. [Jan-May]

Oak woodland. One of the first flowers of spring, flowers four-petaled, white to pale pink. The leaves are trimorphic: large round ones at ground level, three-lobed ones low on the stem and simple leaves higher on the flower stalk. This is the food plant for the veined white butterfly (*Artogeia napi*).

***Cardamine oligosperma*** Nutt. BITTER CRESS. Annual. [Mar-Jul]

Garrison Canyon. Plant often quite delicate, basal leaves pinnately compound, leaflets 5-9, round, flowers white, small (2-4 cm).

***Lepidium campestre*** (L.) W.T. Aiton. PEPPERGRASS, PEPPERCRESS. Invasive weed (Eur). Annual. [May-Jul]

Garrison Canyon garden.

***Lepidium draba*** L. HEART-PODDED HOARY CRESS. Noxious weed (Eurasia). Perennial. [Apr-Aug]

Manager's House.



***Lepidium nitidum*** Nutt. PEPPERGRASS, PEPPERCRESS. Annual. [Feb-Mar]  
Grazed grassland.

***Nasturtium officinale*** W. T. Aiton. WATERCRESS. Annual. [Mar-Nov]  
Springs, Red Corral Spring, Skovie Spring.

***Raphanus sativus*** L. RADISH. Invasive weed (Medit). Biennial. [May-Jul]  
Grassland.

***Rorippa curvisiliqua*** (Hook.) Britton. YELLOW CRESS. Biennial. [May-Oct]  
Seeps and springs, Turtle Pond, and the vernal pools west of Three Tree Hill.

***Sisymbrium officinale*** (L.) Scop. HEDGE MUSTARD. (Eurasia). Annual. [Apr-Sep]  
Grassland. Most easily identified by the multiple spreading branches of the inflorescence with the many 1.5cm, appressed, awl-shaped fruits.

***Thysanocarpus curvipes*** Hook. LACE POD, FRINGE POD. Annual. [Feb-Jun]  
Rock outcrops and thin soils.

***Turritis glabra*** L. TOWER MUSTARD. Biennial. [Apr-Jul]  
Garrison Canyon and west of Three Tree Hill. Flower white.

#### Campanulaceae (Bellflower family)

***Asyneuma prenanthoides*** (Durand) McVaugh. HAREBELL. Perennial. [Jun-Sep]  
Redwood Canyon.

***Githopsis specularioides*** Nutt. BLUECUP. Annual. [Apr-May]  
Depauperate soils, Horse Hill.

***Heterocodon rariflorum*** Nutt. Annual. [Apr-Jul]  
Wet, mossy seeps among rocks on Martin Creek and Devil's Kitchen.

#### Caprifoliaceae (Honeysuckle family)

***Lonicera hispidula*** (Lindl.) Torr. & A. Gray. HONEYSUCKLE. Twining shrub. [May-Jun]  
Oak woodland. Leaves hairy, opposite, the uppermost fused around stems. Flowers two-lipped, pink. Fruit shiny red, an important fall bird food.

***Symphoricarpos albus*** (L.) S.F. Blake var. *laevigatus* (Fernald) S.F. Blake. SNOWBERRY. Shrub. [May-Jul]

Forest understory, riparian areas, springs, oak woodland, Douglas-fir forest. The tiny white flowers are hairy within to deter nectar thievery by small bees. They produce surprisingly abundant nectar, and attract hummingbirds. The white fruits are an important food for winter resident birds.

***Symphoricarpos mollis*** Nutt. CREEPING SNOWBERRY, TRIP VINE. Shrub. [Apr-May]  
Oak woodland, Douglas-fir forest and chaparral.

#### Caryophyllaceae (Pink family)

***Cerastium glomeratum*** Thuill. STICKY MOUSE-EAR CHICKWEED. (Eur). Annual. [Mar-May]  
Grassland and disturbed areas. Leaves opposite, sticky-hairy.

*Dianthus armeria* L. subsp. *armeria*. GRASS PINK, DEPTFORD PINK. (Eur, c&sw Asia).  
Biennial. [Mar-Sep]

Rogers Canyon apple orchard.

*Minuartia californica* (A. Gray) Mattf. CALIFORNIA SANDWORT. Annual. [Mar-Sep]  
Murry's Gate.

*Minuartia douglasii* (Torr. & A. Gray.) Mattf. DOUGLAS' STITCHWORT. Annual. [Mar-Jul]  
Rock outcrops, Pepperwood Entrance, between the Barn and Dwight Center, east of the Redwood Gate.

*Petrorhagia dubia* (Raf.) G. López & Romo. PROLIFEROUS PINK. (s Eur, n Afr). Annual.  
[Mar-Jun]  
Grassland, serpentine at the Preserve Entrance and north of the Barn, and creek beds.

*Sagina apetala* Ard. DWARF PEARLWORT. (Eur). Annual. [Mar-Jun]  
Double Ponds. Plant minute, inconspicuous.

*Scleranthus annuus* L. subsp. *annuus*. KNAWEL. (Eur). Annual. [Jan-Dec]  
Rogers Canyon.

*Silene gallica* L. SMALL-FLOWER CATCHFLY, WINDMILL PINK. (Eur). Annual. [Feb-Jul]  
Grassland and disturbed areas.

*Silene laciniata* Cav. subsp. *californica* (Durand) J. K. Morton. CALIFORNIA PINK.  
Perennial. [Apr-Aug]  
Chaparral, oak woodland, and Douglas-fir forest. The fire-engine red blooms are spectacular after the herbaceous layer dries brown.

*Spergula arvensis* L. STICKWORT, STARWORT. (Eur). Annual. [Feb-Jun]  
Grazed grassland and roadsides.

*Spergularia rubra* (L.) J. Presl & C. Presl. RED SAND-SPURREY. (Medit, Asia). Annual.  
[Apr-Sep]  
Disturbed areas, often where it gets summer water.

*Stellaria media* (L.) Vill. COMMON CHICKWEED. (sw Eur). Annual. [Feb-Sep]  
Grassland, often in grazed areas.

*Stellaria nitens* Nutt. SHINING CHICKWEED. Annual. [Mar-May]  
Grassland, Rogers Canyon, Hendley Flat and Weimar Canyon.

### **Chenopodiaceae (Goosefoot family)**

*Chenopodium murale* L. PIGWEED, GOOSEFOOT. (Eur). Annual. [Jan-Dec]  
Disturbed areas.

### **Convolvulaceae (Morning glory family)**

*Calystegia collina* (Greene) Brummitt subsp. *oxyphylla* Brummitt. MOUNT SAINT HELENA  
MORNING-GLORY. CNPS Rank 4. Perennial. [Apr-Jun]  
Serpentine chaparral and serpentine grassland, Barn area, Pepperwood Entrance,  
Three Tree Hill, Telegraph Hill.

***Calystegia occidentalis*** (A. Gray) Brummitt subsp. unknown. MORNING-GLORY. Twining perennial. [May-Aug]

Creeks and wet meadows, Weimar Canyon, below the Double Culverts in Rogers Creek, and Bertoli Creek.

***Convolvulus arvensis*** L. BINDWEED, ORCHARD MORNING-GLORY. Noxious weed (Eur). Twining perennial. [Mar-Oct]

Disturbed areas and grassland.

***Cuscuta californica*** Hook. & Arn. var. unknown. CHAPARRAL DODDER. Annual vine. [May-Sep]

Parasitic plant, stems orange, without chlorophyll. Known from the Pepperwood Entrance where its host is *Perideridia kelloggii*, and along roads where it attacks yellow starthistle (*Centaurea solstitialis*).

### Crassulaceae (Stonecrop family)

***Crassula aquatica*** (L.) Schönl. Annual. [Mar-Jul]

Vernal wetlands, wetland depressions in the road to Weimar Flat, Double Ponds.

***Crassula connata*** (Ruiz & Pav.) A. Berger. PIGMY-WEED. Annual. [Feb-May]

Packed, depauperate soil and rock outcrops.

***Crassula tillaea*** Lest.- Garl. (Medit). Annual. [Feb-May]

***Dudleya cymosa*** (Lem.) Britton & Rose subsp. *cymosa*. DUDLEYA, LIVEFOREVER. Perennial. [May-Jul]

Rock outcrops, south slopes of Telegraph Hill and Three Tree Hill, and on most knockers. Plant succulent.

***Sedum radiatum*** S. Watson. COAST RANGE STONECROP. Biennial. [Apr-Jul]

Rock outcrops, northwest corner of Pepperwood and Devil's Kitchen.

***Sedum spathulifolium*** Hook. BROADLEAF STONECROP. Perennial. [Apr-Aug]

Known from a rubble wall of Glen Ellen Formation in Rogers Canyon, the north slope of the Garrison Canyon Douglas-fir forest in deep shade, on Glen Ellen Formation along the creek in Shriver Canyon, Devil's Kitchen. Plant succulent.

### Cucurbitaceae (Gourd Family)

***Marah fabacea*** (Naudin) Greene. CALIFORNIA MAN-ROOT. Perennial vine. [Feb-Apr]

Chaparral, south slope of Telegraph Hill, oak woodland north and grassland east of Three Tree Hill, Douglas-fir/mixed hardwood western most hill in Redwood canyon region. .

### Datisceae (Datisca family)

***Datisca glomerata*** (C. Presl) Baill. DURANGO ROOT. Perennial. [May-Jul]

Along streams, Piney Canyon. All parts of plant toxic.

### Dipsacaceae (Teasel family)

*Dipsacus fullonum* L. WILD TEASEL. Invasive weed (Eur). Biennial. [Apr-Aug]  
North and west of the Manager's House (where it is abundant), west of the Bechtel House.

### Ericaceae (Heath family)

*Allotropa virgata* Torr. & A. Gray. SUGAR STICK. Perennial. [Jun-Aug]  
Devil's Kitchen. Plant nongreen, mycoparasitic.

*Arbutus menziesii* Pursh. PACIFIC MADRONE. Evergreen tree. [Mar-May]  
Oak woodland, mixed hardwood forest, thick forest southwest of Hendley Flat. Bark reddish brown, peeling. Leaves broad, ovate, dark shiny green on top. The red, edible berries are highly sought by bandtailed pigeons, robins, varied thrushes and other birds. Madrones are easily top-killed by fire and resprout with multiple stems. The leaves are conspicuously mined by madrone leaf miners (*Marmara arbutiella*). Madrones host abundant and diverse crops of edible mushrooms. Queen boletes (*Boletus aureus*) are often associated with madrone at Pepperwood.

*Arctostaphylos glandulosa* Eastw. subsp. unknown. MANZANITA. Evergreen shrub. [Jan-Apr]  
Devil's Kitchen, Garrison Canyon. A burl former that resprouts after fire.

*Arctostaphylos manzanita* Parry subsp. *manzanita*. PARRY MANZANITA. Evergreen shrub. [Feb-May]  
Chaparral. A non-burl former that reproduces abundantly after fire, but reproduces exclusively by seed.

*Arctostaphylos stanfordiana* Parry subsp. *stanfordiana*. MANZANITA. Evergreen shrub. [Feb-Apr]  
Devil's Kitchen. Non-burl forming.

*Pyrola picta* Sm. WHITE-VEINED WINTERGREEN. Perennial. [Jun-Aug]  
Headwaters of Redwood Canyon. Plants sometimes leafless.

### Euphorbiaceae (Spurge family)

*Chamaesyce maculata* (L.) Small. SPOTTED SPURGE. (e U.S.). Annual. [Apr-Oct]  
Disturbed areas.

*Croton setigerus* Hook. TURKEY-MULLEIN. Annual. [May-Oct]  
Disturbed sites, grassland. The turkey-mullein sprouts in June in dry, compacted soil, pig plows, road banks, grassland and even underwater in ponds where it flowers and fruits as the water recedes. Used by Native Americans to stun fish. The stems and leaves have three kinds of irritating hairs: simple, branched and stellate. The seeds are sought by band-tailed pigeons and mourning doves.

*Euphorbia oblongata* Griseb. SPURGE. Noxious Weed (Eur). Perennial. [Jun-Aug]  
Leaves sessile, oblong to lanceolate.

*Euphorbia peplus* L. PETTY SPURGE. (Eur). Annual. [Feb-Aug]  
Disturbed areas and grassland.

***Euphorbia spathulata*** Lam. SPURGE. Annual. [Mar-Jun]

Disturbed areas and grassland.

### Fabaceae (Leguminosae, Pea family)

***Acmispon americanus*** (Nutt.) Rydb. var. ***americanus***. DEERVETCH, DEERWEED. Annual.

[May-Oct]

Disturbed areas.

***Acmispon brachycarpus*** (Benth.) D.D. Sokoloff. DEERVETCH, DEERWEED. Annual. [Mar-

Jun]

Thin soils and road cuts, often serpentine.

***Acmispon glaber*** (Vogel) Brouillet var. ***glaber***. CALIFORNIA BROOM, DEERWEED. Subshrub.

[Mar-Aug]

Chaparral. An important deer browse plant.

***Acmispon parviflorus*** (Benth.) D.D. Sokoloff. DEERVETCH, DEERWEED. Annual. [Mar-

May]

Road cuts, thin soil and grassland.

***Acmispon wrangelianus*** (Fisch. & C.A. Mey.) D.D. Sokoloff. DEERVETCH, DEERWEED.

Annual. [Mar-June]

Preserve Entrance.

***Amorpha californica*** Nutt. var. ***napensis*** Jeps. NAPA FALSE INDIGO. CNPS Rank 1B.2.

Shrub. [May-Jul]

Rare plant, but common in Oregon oak woodland on the preserve, north slope of Horse Hill, Devil's Kitchen, Garrison Canyon, northern preserve boundary. This strongly scented shrub (crush a leaf) has beautiful, diminutive purple petals and yellow stamens. The one-seeded fruits are sometimes attacked by a weevil and it may be difficult to find a competent seed. This is the host plant for the California dogface (*Colias eurydice*), the state butterfly.

***Astragalus gambelianus*** E. Sheld. GAMBEL MILKVETCH, LITTLE BLUE LOCO WEED. Annual.

[Mar-Jun]

On scree slopes, rock outcrops and depauperate soil, Pepperwood Entrance serpentine chaparral, west of the Bechtel House, and serpentine west of Three Tree Hill, west slope of Telegraph Hill.

***Cytisus scoparius*** (L.) Link. SCOTCH BROOM. Noxious weed (s Eur, n Afr). Shrub. [Apr-

Jul]

First spotted in Garrison Canyon in 2012 under *Quercus garryana* var. *garryana*.

***Genista monspessulana*** (L.) L.A.S. Johnson. FRENCH BROOM. Noxious Weed (Medit,

Azores, Canary Island). Shrub. [Mar-Jun]

Mountain House, road end at Redwood Canyon, Horse Hill, Garrison Canyon, Devil's Kitchen. One of the worst weeds in California, the seeds persist in soil 70 to 80 years (Bossard et al. 2000). Difficult to burn, fire retardant/resistant. The seeds have eliasomes (food bodies) attached to one end and are dispersed by ants.

- Lathyrus angulatus* L. WILD PEA. (Eur). Annual. [Apr-Jun]  
Grassland, east slope of Three Tree Hill, below Strebel Homestead. Inflorescence one-flowered, flowers lavender to purple.
- Lathyrus hirsutus* L. CALEY PEA. (Eur). Annual. [May-Aug]  
Oregon oak hills. Stem winged, inflorescence 1-2 flowered, flowers pink to purple, fruit hairy.
- Lathyrus latifolius* L. PERENNIAL WILD PEA. (Eur). Perennial. [Apr-May]  
Pepperwood Entrance. Inflorescence 4-15 flowered, flowers pink to purple.
- Lathyrus sphaericus* Retz. WILD PEA. (Eurasia, Afr). Annual. [Apr-May]  
Grassland and woodland borders. Inflorescence one flowered, flowers red-orange.
- Lathyrus vestitus* Nutt. var. *vestitus*. WILD PEA. Perennial. [Feb-Jul]  
Oak woodland.
- Lotus corniculatus* L. BIRD'S-FOOT TREFOIL. (Eurasia). Perennial. [Jun-Sep]  
Disturbed areas.
- Lupinus albifrons* Benth. var. *albifrons*. LUPINE. Shrub. [Mar-Jun]  
Rock outcrops and road cuts, Martin Creek Falls, road to Weimar Canyon, upper Rogers Canyon near PG&E tower.
- Lupinus bicolor* Lindl. MINIATURE LUPINE. Annual. [Mar-Jun]  
Grassland.
- Lupinus microcarpus* Sims var. *densiflorus* (Benth.) Jeps. CHICK LUPINE. Annual. [Apr-June]  
Road cuts, in a wet swale above the Manager's House. Flowers white to yellow, sometimes tinged purple.
- Lupinus nanus* Benth. LUPINE. Annual. [Mar-Jun]  
Grassland.
- Lupinus sericatus* Kellogg. COBB MOUNTAIN LUPINE. CNPS Rank 1B.2. Perennial. [Mar-Jun]  
Rare plant, Devil's Kitchen. Plant silvery to gray-green, flowers purple to violet.
- Medicago polymorpha* L. CALIFORNIA BUR-CLOVER. Invasive weed (Medit). Annual. [Mar-June]  
Disturbed grassland. Flowers yellow, fruits coiled, prickly.
- Medicago sativa* L. ALFALFA. (Eurasia). Perennial. [Apr-Oct]  
Road cut north of the Mountain House.
- Melilotus albus* Medik. WHITE SWEET CLOVER. (Eurasia). Perennial. [May-Dec]  
Along road at Preserve Entrance.
- Melilotus indicus* (L.) All. SOUR CLOVER. (Medit.). Annual. [Apr-Oct]  
Preserve Entrance along roadway. First spotted in 2014.

- Pickeringia montana*** Nutt. var. ***montana***. CHAPARRAL PEA. Shrub. [May-Aug]  
Devil's Kitchen, chaparral ridge east of Redwood Canyon, northeast corner of Pepperwood, ridge between Three Tree Hill and Garrison Canyon. Branches end in thorns, flowers pink to purple.
- Rupertia physodes*** (Douglas) J. W. Grimes. RUPERT'S SCURF-PEA. Perennial. [May-Sep]  
Mountain House, Rogers Canyon, roadcut before fork to Weimar Falls.
- Thermopsis macrophylla*** Hook. & Arn. FALSE LUPINE. Perennial. [May-Jun]  
Serpentine chaparral south of the Barn (last seen in 2003 after a fire), and Rogers Canyon east of the apple orchard. This yellow-flowered perennial is distinctive among perennial peas. It spreads by underground stems and forms large patches of genetically identical individuals. Although it blooms prolifically each year it rarely develops fruits.
- Trifolium albopurpureum*** Torr. & A. Gray. CLOVER. Annual. [Mar-Jun]  
Grassland and disturbed areas. Flowers bi-colored, purple and white.
- Trifolium angustifolium*** L. NARROW-LEAVED CLOVER. (Medit). Annual. [May-June]  
Grassland. Flowers pale pink, elongated inflorescence.
- Trifolium bifidum*** A. Gray var. ***decipiens*** Greene. PINOLE CLOVER. Annual. [Apr-Jun]  
Grassland below Strebel Homestead, Preserve Entrance. Flowers dull yellow to pink-purple.
- Trifolium campestre*** Schreb. HOP CLOVER. (Eur). Annual. [Apr-May]  
Grassland. Flowers bright yellow, striate, quickly browning.
- Trifolium ciliolatum*** Benth. FOOTHILL CLOVER. Annual. [Mar-Jun]  
Grassland. Flowers pink to purple.
- Trifolium depauperatum*** Desv. var. ***depauperatum***. DWARF SACK CLOVER. Annual. [Mar-May]  
Grassland. Involucre vestigial, flower pink-purple, white tipped, banner petal inflated in fruit.
- Trifolium depauperatum*** Desv. var. ***truncatum*** (Greene) Isely. TRUNCATE SAC CLOVER. Annual. [Mar-May]  
Grassland. Involucre present, flower pink-purple, white tipped, banner petal inflated in fruit.
- Trifolium dichotomum*** Hook. & Arn. CLOVER. Annual. [Apr-Jun]  
Grassland. Flowers bi-colored, purple and white, distinguished from *T. albopurpureum* by corollas exceeding calyx.
- Trifolium dubium*** Sibth. LITTLE HOP CLOVER. (Eur). Annual. [Apr-Jun]  
Grassland. Flower bright yellow.
- Trifolium fragiferum*** L. STRAWBERRY CLOVER. (Eur, Afr). Perennial. [May-Aug]  
Manager's House, Double Ponds. Flower pink, calyx hairy, quickly inflated.
- Trifolium fucatum*** Lindl. BULL CLOVER. Annual. [Apr-Jun]  
Disturbed areas, creek beds. Flower dull white to yellow, banner inflated in fruit.

***Trifolium gracilentum*** Torr. & A. Gray. PINPOINT CLOVER. Annual. [Mar-Jun]

One collection on Horse Hill. Flower pink to pink-purple.

***Trifolium hirtum*** All. ROSE CLOVER. Invasive weed (Eurasia, n Afr). Annual. [Apr-May]

Grassland. Plant hairy, calyx plumose, flowers rose-pink. Plant appearing fuzzy-gray in age.

***Trifolium incarnatum*** L. CRIMSON CLOVER. Annual. [May-Aug]

McCann corral along roadway. Flowers crimson to white. First spotted in 2014.

***Trifolium microcephalum*** Pursh. SMALL-HEAD CLOVER. Annual. [Apr-Aug]

Grassland. Flowers pink to lavender.

***Trifolium microdon*** Hook. & Arn. THIMBLE CLOVER. Annual. [Mar-Jun]

Grassland. Flowers white to pink.

***Trifolium oliganthum*** Steud. FEW-FLOWERED CLOVER. Annual. [Mar-Jun]

Shady oak woodland.

***Trifolium repens*** L. WHITE CLOVER. (Eurasia). Annual. [Feb-Dec]

Mountain House. Flowers white.

***Trifolium striatum*** L. KNOTTED CLOVER. (Eur, n Afr). Annual. [May-Jun]

Flowers pink.

***Trifolium subterraneum*** L. SUBTERRANEAN CLOVER. (s Eur). Annual. [Mar-Apr]

Grazed grassland, Barn Meadow, edges of the Barn parking lot. Plant prostrate, mat forming. Inflorescence bur-like, recurved in fruit, self planting. Calyx with purple band, flowers +/- white.

***Trifolium variegatum*** Nutt. var. ***variegatum***. VARIEGATED CLOVER. Annual. [Apr-Jul]

Garrison Canyon. Inflorescence generally few-flowered, flowers lavender to purple, white-tipped.

***Trifolium willdenovii*** Spreng. TOMCAT CLOVER. Annual. [Mar-Jun]

Grassland. Inflorescence generally few-flowered, flowers lavender to purple, white-tipped.

***Vicia americana*** Willd. subsp. ***americana***. AMERICAN VETCH. Perennial. [Mar-Jun]

Oak woodland, climbing on shrubs and encircling trees. Older individuals develop a woody stem. Flowers blue-purple to lavender.

***Vicia lathyroides*** L. VETCH. (Eur). Annual. [Jun]

Grassland and oak woodland along Martin Creek. Considered a waif in Jepson on-line 2<sup>nd</sup> edition (Jepson Flora Project 2012), not naturalized.

***Vicia lutea*** L. YELLOW VETCH. (Eur). Annual. [May-Jul]

Along the road to Redwood Canyon and at the Mountain House. Flower yellow, purple-tinged.

***Vicia sativa*** L. subsp. ***nigra*** (L.) Erhart. NARROW-LEAVED VETCH. (Eur). Annual. [Mar-Jun]

Grassland. Flowers pink-purple to whitish.



*Vicia villosa* Roth subsp. unknown. HAIRY VETCH, WINTER VETCH. (Eur). Annual. [May-Jul]

Grassland.

### Fagaceae (Beech family)

*Notholithocarpus densiflorus* (Hook. & Arn.) Mano et al. var. *densiflorus*. TAN OAK, TANBARK OAK. Evergreen tree. [Jun-Oct]

Redwood Canyon where it is locally common, eastern slope of Grouse Hill, Devil's Kitchen, and the north slope of the Garrison Canyon Douglas-fir Forest. Tan oak is very susceptible to the water mold *Phytophthora ramorum*, the cause of "sudden oak death," leading to the death of many trees at Pepperwood. The spiny acorn cap and erect catkins of *Notholithocarpus* separates it from the "true" oaks (*Quercus*). The staminate catkins of tan oak are erect and strongly aromatic, perfuming the entire forest in June to attract pollinators, a sharp contrast to the pendant, unscented, wind pollinated *Quercus*. Leaves are strongly veined, the lower surface fine, white-woolly. Acorns mature in two years.

*Quercus agrifolia* Née var. *agrifolia*. COAST LIVE OAK. Evergreen tree. [Mar-Apr]

Hot, dry slopes with deep soils. Leaves shiny dark green on the upper surface, thick, convex, margins toothed. Acorns mature in one year. Live oaks are defoliated every few years by the California oak moth (*Phryganidia californica*). Live oaks are the most common food plant of the California sister butterfly (*Adelpha bredowi*).

*Quercus berberidifolia* Liebm. SCRUB OAK. Evergreen shrub. [Feb-Apr]

Chaparral. Leaves flat, upper surface +/- shiny green, spiny-toothed. Acorns mature in one year.

*Quercus x chasei* McMinn, Babcock & Righter. (*Q. agrifolia* x *Q. kelloggii*)

Semideciduous tree known as Chase or Oracle oak (Munz and Keck 1958). Garrison Canyon.

*Quercus chrysolepis* Liebm. CANYON LIVE OAK, MAUL OAK. Evergreen tree. [Apr-May]

Devil's Kitchen, top of Telegraph Hill, Weimar Canyon northeast of Weimar Falls, road to Turtle Pond, and Shriver Canyon. Twigs, leaf undersides and acorn cups initially golden-tomentose. Acorns mature in two years.

*Quercus douglasii* Hook. & Arn. BLUE OAK. Deciduous tree. [Apr-May]

Oak of the hottest and driest areas, south of Weimar Flat and north of Hendley Flat. The host of our most spectacular leaf galls. Leaves blue-green, entire to wavy or shallowly lobed. Acorn matures in one year.

*Quercus durata* Jeps. var. *durata*. LEATHER OAK. Evergreen shrub. [Apr-May]

Serpentine endemic. Serpentine chaparral; between the Pepperwood Entrance and the Bechtel House leather oak is the dominant shrub. Leaves dull gray-green, strongly convex, margin inrolled, toothed. Acorn matures in one year.

*Quercus x eplingii* C.H. Mull. (*Q. douglasii* x *Q. garryana*)

Deciduous tree (Munz and Keck 1958), Redwood Canyon, Roller Coaster Ridge.

***Quercus garryana*** Hook. var. ***garryana***. OREGON OAK. Deciduous tree. [Apr-Jun]  
Cool north slopes. Leaves shiny dark green on upper surface, short hairy dull green on lower. Margins deeply 5-7 lobed without spines. Acorns mature in one year.

***Quercus x howellii*** Tucker (*Q. berberidifolia* x *Q. garryana*)  
Semideciduous shrub or small tree. This name applies to a wide genetic range of individuals (Munz and Keck 1958). Some are intermediate between the parents, others show repeated backcrossing to one or another of the parents. Some are arborescent and almost totally deciduous like *Q. garryana*, and some are small shrubs with mostly evergreen leaves like *Q. berberidifolia*. Wonderful spreads of characters can be seen in the hybrid swarms that line E-W trending ridgetops or canyon bottoms where the parents meet, for instance in the canyon west of the Garrison House and along the ridge north of there.

***Quercus kelloggii*** Newb. CALIFORNIA BLACK OAK. Deciduous tree. [Apr-May]  
Mixed oak woodland. New leaves magenta, mature leaves broadly elliptic to round, bright green, lobed with bristle-tipped teeth. Acorns mature in two years.

***Quercus lobata*** Née. VALLEY OAK, ROBLE. Deciduous tree. [Mar-Apr]  
Above Rogers Canyon, at Turtle Pond, Hendley Flat, Martin Creek, south of the Manager's House. Valley oaks are the most flood-tolerant oak in California and are often found growing in floodplains. The big valley oaks at Turtle Pond stand with their lower trunks under water for months at a time each wet season. Leaves obovate, dark green above, pale below, lobes 6-10 per leaf, deep, obtuse. Acorns mature in one year.

***Quercus x subconvexa*** Tucker (*Q. durata* x *Q. douglasii* or *garryana*)  
Small semideciduous tree. The cross (Munz and Keck 1958) occurs only on the slope and ridge above the Bechtel House.

***Quercus wislizeni*** A. DC. var. ***wislizeni***. INTERIOR LIVE OAK. Evergreen tree. [Mar-May]  
On hot, dry slopes. Leaf upper surface dark green, lower shiny yellow-green, entire to spine-toothed. Acorns mature in two years.

### Garryaceae (Silktassel family)

***Garrya fremontii*** Torr. SILKTASSEL BUSH. Shrub. [Jan-Apr]  
A few senescent individuals in Garrison Canyon. Plant dioecious, flowers in catkins.

### Gentianaceae (Gentian family)

***Centaureum tenuiflorum*** (Hoffmans. & Link) Janch. SLENDER CENTAURY. (Eurasia).  
Annual. [Mar-May]  
Grassland.

***Cicendia quadrangularis*** (Lam.) Griseb. TIMWORT. Annual. [Mar-May]  
Depauperate soil, known from Double Ponds and the wetland depressions in the road to Weimar Flat.

***Zeltnera davyi*** (Jeps.) G. Mans. DAVY'S CENTAURY. Annual. [May-Aug]  
Grassland, especially in depauperate soil.

***Zeltnera muehlenbergii*** (Griseb.) G. Mans. MONTEREY CENTAURY. Annual. [Jun-Aug]  
Grassland, south of the Dwight Center.

### **Geraniaceae (Geranium family)**

***Erodium botrys*** (Cav.) Bertol. STORKSBILL, FILAREE. (s Eur). Annual. [Mar-Jul]  
Grazed grassland and disturbed areas.

***Erodium brachycarpum*** (Godr.) Thell. FILAREE, STORKSBILL. (s Eur). Annual. [Mar-Jul]  
Grazed grassland and disturbed areas.

***Erodium cicutarium*** (L.) Aiton. REDSTEM FILAREE. Invasive weed (Eurasia). Annual.  
[Feb-Sep]  
Grazed grassland and disturbed areas.

***Geranium bicknellii*** Britton. CRANESBILL, GERANIUM. Annual. [Jan-Aug]  
Grassland, Horse Hill.

***Geranium carolinianum*** L. CRANESBILL, GERANIUM. Annual. [Feb-Aug]  
Garrison Canyon.

***Geranium dissectum*** L. CRANESBILL, GERANIUM. Invasive weed (Eur, n Afr, w Asia).  
Annual. [Mar-Jul]  
Disturbed areas.

***Geranium molle*** L. COMMON GERANIUM. (Eur, n Afr, w Asia). Annual. [Feb-Aug]  
Grassland, grazed and disturbed areas.

### **Grossulariaceae (Gooseberry family)**

***Ribes californicum*** Hook. & Arn. var. *californicum*. HILLSIDE GOOSEBERRY. Shrub. [Feb-Mar]  
Oak woodland. The greenish-red fruits are spiny, but edible and quite tasty.

### **Haloragaceae (Water-Milfoil family)**

***Myriophyllum hippuroides*** Torr. & A. Gray. WESTERN WATER-MILFOIL. Perennial. [Jul-Sep]  
Submersed aquatic, the largest Double Pond.

### **Hydrangeaceae (Hydrangea family)**

***Whipplea modesta*** Torr. MODESTY. Subshrub. [Mar-Jul]  
Redwood Canyon, Horse Hill and Shriver Canyon.

### **Hypericaceae (St. John's wort family)**

***Hypericum anagalloides*** Cham. & Schltdl. TINKER'S PENNY. Perennial. [May-Sep]  
Along the stream at Skovie Basin, upper Skovie Spring and at the marsh above Turtle Pond.

***Hypericum concinnum*** Benth. GOLD WIRE. Perennial. [May-Aug]  
Chaparral and serpentine chaparral.

*Hypericum perforatum* L. subsp. *perforatum*. KLAMATH WEED. Noxious weed (Eur).  
Perennial. [Mar-Aug]

Disturbed areas, grasslands and woodlands, Double Ponds, east of Roller Coaster Ridge, Redwood Canyon. The presence of *H. perforatum* increased dramatically in 2011. A year later, beetles originally introduced by the USDA in the 1950s as a form of biocontrol (*Chrysolina* sp.) were spotted at Pepperwood and dispersed among the larger patches to encourage plant population control.

### **Juglandaceae (Walnut family)**

*Juglans hindsii* R.E. Sm. NORTHERN CALIFORNIA BLACK WALNUT. Deciduous tree. [Apr-May]

Along streams, Garrison Canyon, Rogers Canyon, Goodman Homestead.

### **Lamiaceae (Labiatae, Mint family)**

*Clinopodium douglasii* (Benth.) Kuntze. YERBA BUENA. Perennial. [Apr-Sep]

Cool shady woodlands, road to Grouse Hill, road's end past the well site.

*Lamium amplexicaule* L. HENBIT. (Eurasia). Annual. [Apr-Sep]

Disturbed areas, especially cultivated places, Garrison Canyon.

*Lamium purpureum* L. DEAD NETTLE. (Eur). Annual. [Apr-Sep]

Disturbed areas, Garrison Canyon.

*Marrubium vulgare* L. HOREHOUND. Invasive weed (Eur). Perennial. [Mar-Nov]

Disturbed areas, Strebel Homestead, Rogers Canyon. Plant silver-gray.

*Mentha* sp. MINT. ( ). Perennial.

Herb, growing downstream of Redwood Canyon. Possibly bergamot or lemon balm.

*Mentha pulegium* L. PENNYROYAL. Invasive weed (Eur). Perennial. [Jul-Oct]

Around ponds, springs, streams, wet drainages, and wet meadows. The volatile oil is used as an insecticide and can cause liver damage. This is one of the worst wetland weeds at Pepperwood.

*Monardella villosa* Benth. subsp. *villosa*. COYOTE MINT. Subshrub. [May-Aug]

Grassland, chaparral, woodland, Telegraph Hill, Rogers Canyon, Garrison Canyon.

*Monardella viridis* Jeps. GREEN MONARDELLA. CNPS Rank 4.3. Subshrub. [Jun-Aug]

Rare plant, collected once on Grouse Hill (Knight & Edwards 5528). Mixed chaparral near the Dwight Center and on Grouse Hill.

*Pogogyne serpylloides* (Torr.) A. Gray. THYMELEAF BEARDSTYLE. Annual. [Mar-Jun]

Roadbed vernal pools on Weimer Flat.

*Salvia columbariae* Benth. CHIA. Annual. [Mar-Jun]

Rock outcrops, top of Telegraph Hill.

*Salvia sonomensis* Greene. SONOMA SAGE. Subshrub. [Mar-Jul]

Chaparral near Wiemer Falls and Devil's Kitchen where it is abundant. Plant fragrant, prostrate, leaves gray-green, puckered. Inflorescence scapose, flowers blue to lilac.

***Scutellaria californica*** A. Gray. SKULLCAP. Perennial. [Jun-Jul]

Rock outcrops or depauperate soil, Garrison Canyon, Rogers Canyon, road to Grouse Hill, road from the Barn towards Grouse Hill, eastern section of Redwood Canyon Trail with California buckeye. The hump in the calyx marks this genus, even in fruit.

***Stachys albens*** A. Gray. HEDGE-NETTLE. Perennial. [May-Oct]

Marshes and springs, Barn Meadow, Skovie Spring. Plant densely cobbwebby hairy.

***Stachys rigida*** Benth. var. ***rigida***. HEDGE-NETTLE. Perennial. [Jul-Aug]

Woodlands, in light shade. Plant stems and leaves +/- spreading hairy, scent unpleasant.

***Stachys stricta*** Greene. HEDGE-NETTLE. Perennial. [Jun-Oct]

Upper Skovie Marsh.

***Trichostema lanceolatum*** Benth. VINEGAR WEED. Annual. [Jun-Oct]

Creek beds and around ponds, dirt roads, road cut along Preserve Entrance, Roller Coaster Ridge. Leaves strongly vinegar scented.

### **Limnanthaceae (Meadowfoam family)**

***Limnanthes douglasii*** R. Br. subsp. ***douglasii***. MEADOWFOAM. Annual. [Mar-May]

Wet swale in the upper meadow at Rogers Canyon and just west of the Bechtel House.

***Limnanthes douglasii*** R. Br. subsp. ***nivea*** (C.T. Mason) C.T. Mason. MEADOWFOAM. Annual. [Mar-May]

Vernal pools and wet meadows, Barn.

### **Linaceae (Flax family)**

***Hesperolinon spergulinum*** (A. Gray) Small. WESTERN FLAX. Annual. [May-Aug]

Serpentine between the Pepperwood Entrance and Dwight Center. Flowers white to pale pink, dark-veined, anthers pink to red-purple.

***Linum bienne*** Mill. FLAX. (Eurasia). Biennial. [Mar-Jun]

Grassland. The seeds are edible and mucilaginous, and the stems provide fibers for linen. Flowers light blue.

### **Lythraceae (Loosestrife family)**

***Lythrum hyssopifolia*** L. LOOSESTRIFE. Invasive weed (Eur). Annual. [Apr-Oct]

Pond edges and other wetlands.

### **Malvaceae (Mallow family)**

***Abutilon theophrasti*** Medik. VELVET-LEAF. (s Asia). Annual. [Jul-Sep]

Ward House Site.

***Malva nicaeensis*** All. BULL MALLOW. (Eur, Asia Minor, Medit). Biennial. [Mar-Jun]

The Barn and the Manager's House.

***Malva parviflora*** L. CHEESEWEED. (Eur, Medit, India). Annual. [Mar-May]

Disturbed areas.

*Sidalcea diploscypha* (Torr. & A. Gray) A. Gray. FRINGED CHECKERBLOOM. Annual. [Apr-May]

Grassland.

*Sidalcea malviflora* (DC.) A. Gray subsp. *laciniata* C.L. Hitchc. GERANIUM-LEAVED CHECKERBLOOM. Perennial. [Mar-Jun]

Grassland.

### Montiaceae (Miner's Lettuce family)

*Calandrinia ciliata* (Ruiz. & Pav.) DC. RED MAIDS. Annual. [Feb-May]

Disturbed areas, or burned areas, Rogers Canyon road, Barn Meadow, Three Tree Hill.

*Claytonia exigua* Torr. & A. Gray subsp. *exigua*. Annual. [Apr-July]

Three Tree Hill serpentine grassland. Plant glaucous.

*Claytonia gypsophiloides* Fisch. & C.A. Mey. Annual. [Mar-May]

On scree, especially on serpentine. This wonderful plant is a tiny pink version of miner's lettuce. Even the stems and leaves are pinkish.

*Claytonia parviflora* Hook. subsp. *parviflora*. Annual. [Mar-Jun]

Moist shady oak woodland, east slope of Telegraph Hill. Distinguished from *C. perfoliata* by linear to narrowly oblanceolate basal leaves. Like most members of this family the seeds are a lustrous, shiny black.

*Claytonia perfoliata* Willd. subsp. *perfoliata*. MINER'S LETTUCE. Annual. [Jan-May]

Shady grassland and oak woodland, often ringing live oak trees. The leaves and stems are edible. Like most members of this family the seeds are a lustrous, shiny black. Distinguished from *C. parviflora* by elliptic to reniform blades with linear petioles on basal leaves.

*Montia fontana* L. WATER CHICKWEED, BLINKS. Annual. [Jul-Aug]

Wet meadows and vernal pools.

### Myrsinaceae (Myrsine family)

*Anagallis minima* (L.) E.H.L. Krause. CHAFFWEED. Annual. [Mar-May]

Double Ponds, vernal pools west of Three Tree Hill, and wetland depressions in the road to Weimar Flat. Flowers sessile, pink.

*Lysimachia arvensis* (L) U. Manns & Anderb. SCARLET PIMPERNEL. (Eur). Annual. [Mar-May]

Disturbed areas and grassland. Flowers salmon colored, rarely blue.

*Trientalis latifolia* Hook. STARFLOWER. Perennial. [Apr-Jul]

Deep shade, Redwood Canyon, Garrison Canyon. Flowers (white) pink to rose on long pedicels above +/- whorled leaves.

### Oleaceae (Olive family)

*Fraxinus latifolia* Benth. OREGON ASH. Deciduous tree. [Mar-May]

Riparian areas, Rogers Creek, Box Elder Canyon.

*Olea europaea* L. OLIVE. Invasive weed (w Asia). Tree. [Feb-Jun]  
Quarry above the Ward House Site.

### Onagraceae (Evening primrose family)

*Clarkia concinna* (Fisch. & C.A. Mey.) Greene subsp. *concinna*. RED RIBBONS. Annual. [Apr-Jul]

Road cuts. Petals bright pink, deeply lobed.

*Clarkia gracilis* (Piper) A. Nelson & J.F. Macbr. subsp. *gracilis*. Annual. [Apr-Jul]  
Oak woodland. Petals pink to lavender, no spot.

*Clarkia gracilis* (Piper) A. Nelson & J.F. Macbr. subsp. *sonomensis* (C.L. Hitchc.) H. Lewis & M. Lewis. Annual. [May-Jun]

Shady situations. Petals pink-lavender shading to white, red spot near middle.

*Clarkia purpurea* (Curtis) A. Nelson & J.F. Macbr. subsp. *quadrivulnera* (Lindl.) H. Lewis & M. Lewis. FOUR-SPOT. Annual. [Apr-Aug]

Sunny banks, road cuts, Redwood Canyon, below Strebel Homestead. Petals lavender to dark wine-red with purple spot.

*Clarkia unguiculata* Lindl. Annual. [Apr-Sep]

Road cuts. Petals lavender-pink to salmon or dark purple, long clawed.

*Epilobium brachycarpum* C. Presl. WILLOWHERB. Annual. [Jun-Sep]

Disturbed areas, Garrison Canyon, dry stream banks west of Three Tree Hill.

*Epilobium campestre* (Jeps.) Hoch & W.L. Wagner. WILLOWHERB. Annual. [May-Sep]  
Turtle Pond.

*Epilobium canum* (Greene) P.H. Raven subsp. *canum*. CALIFORNIA FUCHSIA, ZAUSCHNERIA. Subshrub. [Jun-Dec]

Creek beds. Red, tubular flowers are hummingbird pollinated.

*Epilobium ciliatum* Raf. subsp. *ciliatum*. WILLOWHERB. Perennial. [Jun-Oct]

Wet situations, Bertoli Creek bed at Skovie Basin.

*Epilobium densiflorum* (Lindl.) Hoch & P. H. Raven. WILLOWHERB. Annual. [May-Oct]  
Streams, marshes and ponds.

*Epilobium minutum* Lindl. WILLOWHERB. Annual. [Apr-Sep]

Frequent in serpentine chaparral, serpentine rock outcrops and road cuts.

*Epilobium pallidum* (Eastw.) Hoch & P.H. Raven. WILLOWHERB. Annual. [May-Aug]

*Epilobium torreyi* (S. Watson) Hoch & P. H. Raven. LARGE-FLOWERED WILLOWHERB. Annual. [May-Aug]

Moist ground, ponds.

*Taraxia ovata* (Torr. & A.Gray) Small. Perennial. [Mar-Jun]

Disturbed grassland, especially roadways. The lovely yellow bowls of suncups offer a mystery: find the ovary. The long floral tube leads to an ovary buried in the ground. This adaptation to thrive under strong grazing pressure indicates the preference of this lovely wildflower: it declines and disappears in ungrazed areas. The seeds are dispersed by soil disturbance events, especially gopher activity.

***Tetrapteron graciliflorum*** (Hook. & Arn.) W.L. Warner & Hoch. HILL SUN CUP. Annual. [Mar-Apr]

Pepperwood is at the western extreme of its range.

### Orobanchaceae (Broomrape family)

***Bellardia trixago*** (L.) All. MEDITERRANEAN LINSEED. Invasive weed (Medit). Annual. [Apr-Jun]

Root parasite in grassland, especially near the Red Corral.

***Castilleja affinis*** Hook. & Arn. subsp. ***affinis***. PAINTBRUSH. Perennial. [Mar-Jun]  
Along the road to Devil's Kitchen.

***Castilleja attenuata*** (A. Gray) T.I. Chuang & Heckard. VALLEY TASSELS. Annual. [Mar-May]  
Grassland.

***Castilleja densiflora*** (Benth.) T.I. Chuang & Heckard subsp. ***densiflora***. OWL'S CLOVER. Annual. [Mar-May]  
Grassland.

***Castilleja foliolosa*** Hook. & Arn. WOOLLY PAINTBRUSH. Subshrub. [Mar-Jun]  
Chaparral.

***Castilleja rubicundula*** (Jeps.) T.I. Chuang & Heckard subsp. ***lithospermoides*** (Benth.) Chuang & Heckard. CREAM SACS. Annual. [Apr-Jun]  
Grassland.

***Cordylanthus pilosus*** A. Gray subsp. ***pilosus***. BIRD'S BEAK. Annual. [Jul-Sep]  
Top of Telegraph Hill, north of the Mountain House, along the Preserve Entrance road.

***Orobanche californica*** Cham. & Schltdl. subsp. ***jepsonii*** (Munz) Heckard. BROOMRAPE. Perennial. [Jul-Sep]  
Beneath a live oak on High Hill, Horse Hill. Plant non-green, parasitic.

***Orobanche fasciculata*** Nutt. CLUSTERED BROOMRAPE. Perennial. [Apr-Jul]  
Thin soils on the south slope of the knob north of the High Hill. Plant non-green, parasitic.

***Orobanche uniflora*** L. NAKED BROOMRAPE. Perennial. [Apr-Jul]  
West slope of the High Hill. Plant non-green, parasitic.

***Parentucellia viscosa*** (L.) Caruel. Invasive weed (Eur). Annual. [Apr-Jun]  
Grassland.

***Pedicularis densiflora*** Hook. WARRIOR'S PLUME. Perennial. [Mar-May]  
Oak woodland, along Manzanita Trail in Garrison Canyon. This remarkable plant is the only hummingbird-pollinated member of a genus of more than 500 species, the others being bee-pollinated, mostly in arctic or alpine areas (Sprague 1962a). The shift to hummingbird pollination probably accompanied invasion of lowlands. The nature of parasitism in *Pedicularis densiflora* is of interest in that the main element gained may be water (Sprague 1962b).



***Triphysaria pusilla*** (Benth.) T.I. Chuang & Heckard. Annual. [Apr-Jun]  
Disturbed areas.

***Triphysaria versicolor*** Fisch. & C. A. Mey. subsp. unknown. Annual. [ ]  
Wet meadows, vernal pools.

### **Oxalidaceae (Wood sorrel family)**

***Oxalis corniculata*** L. (Medit). Perennial. [Jan-Dec]  
A weed in gardens.

***Oxalis pes-caprae*** L. BERMUDA BUTTERCUP. Invasive weed (s Afr). Perennial. [Jan-May]  
Originally found in the Goodman Homestead. Additional populations at the fork in Pepperwood Road to Turtle Pond, Strebel Homestead and Goodman Homestead adjacent to the fireplace.

### **Papaveraceae (Poppy family)**

***Eschscholzia caespitosa*** Benth. Annual. [Mar-Jun]  
Grassland. Outer receptacle rim and petals smaller than California poppy.

***Eschscholzia californica*** Cham. CALIFORNIA POPPY. Annual. [Feb-Sep]  
Grassland. Plants occasionally perennial.

***Platystemon californicus*** Benth. CREAM CUPS. Annual. [Mar-May]  
Grassland, Bechtel House, Barn Meadow. The genus name derives from the flattened stamen filaments. The ovary is unique, like five socks filled with tennis balls, in miniature.

### **Phrymaceae (Lopseed family)**

***Mimulus aurantiacus*** Curtis var. *aurantiacus*. STICKY MONKEYFLOWER. Shrub. [Mar-Jun]  
Chaparral. The leaves are chemically protected from herbivory with sticky glandular secretions. The bilobed stigma is mobile, closing when touched to prevent the exiting pollinator from depositing self pollen on the stigma. This is the food plant of the chalcid checkerspot butterfly (*Occidryas chalcidona*).

***Mimulus cardinalis*** Benth. MONKEYFLOWER. Perennial. [May-Sep]  
Springs and creeks, Skovie Spring.

***Mimulus congdonii*** B.L. Rob. MONKEYFLOWER. Annual. [Mar-May]  
On volcanic soils.

***Mimulus douglasii*** (Benth. ) A. Gray. MONKEYFLOWER. Annual. [Feb-Apr]  
Rocky ground at Bechtel House.

***Mimulus guttatus*** DC. MONKEYFLOWER. Perennial. [Mar-Aug]  
Moist situations.

### **Plantaginaceae (Plantain family)**

***Antirrhinum vexillocalyculatum*** Kellogg subsp. *breweri* (A. Gray) D.M. Thomps.  
SNAPDRAGON. Annual. [Jun-Sep]  
On serpentine and on rock outcrops along Roller Coaster Ridge.

***Callitriche marginata*** Torr. WATER-STARWORT. Annual. [Mar-Jun]  
Roadbed in Fern Canyon.

***Callitriche trochlearis*** Fassett. WATER-STARWORT. Annual. [Mar-Jun]  
Vernal pools west of Three Tree Hill and Rogers Canyon.

***Collinsia sparsiflora*** Fisch. & C.A. Mey. var. ***collina*** (Jeps.) Newsom. CHINESE-HOUSES. Annual. [Mar-Apr]  
Vernally wet rocky areas near Murry's Gate and the thin soil along Martin Creek.

***Collinsia sparsiflora*** Fisch. & C.A. Mey. var. ***sparsiflora***. CHINESE-HOUSES. Annual. [Mar-May]  
Serpentine scree, north of the Hume Observatory, Roller Coaster Ridge.

***Kickxia spuria*** (L.) Dumort. FLUELLIN. (Eur). Perennial. [Jul-Dec]  
Paved road to the east of the Dwight Center.

***Plantago coronopus*** L. PLANTAIN. (Eur). Annual. [Apr-Jul]  
Driveways of the Bechtel House and the Mountain House.

***Plantago erecta*** E. Morris. HOOKER'S PLANTAIN. Annual. [Mar-May]  
Depauperate soil, serpentine.

***Plantago lanceolata*** L. ENGLISH PLANTAIN. Invasive weed (Eur). Annual. [Apr-Aug]  
Disturbed areas.

***Tonella tenella*** (Benth.) A. Heller. SMALL-FLOWERED TONELLA. Annual. [Mar-Jun]  
On north slopes in oak woodland.

***Veronica arvensis*** L. SPEEDWELL, BROOKLIME. (Eurasia). Annual. [Apr-Jul]  
Disturbed areas.

***Veronica peregrina*** L. subsp. ***xalapensis*** (Kunth) Pennell. PURSLANE SPEEDWELL. Annual. [Apr-Aug]  
On the mud banks of receding ponds.

***Veronica serpyllifolia*** L. subsp. ***humifusa*** (Dicks.) Syme. SPEEDWELL, BROOKLIME. Annual. [Apr-Aug]  
Garrison Canyon.

### **Polemoniaceae (Phlox family)**

***Collomia heterophylla*** Hook. VARIABLE-LEAVED COLLOMIA. Annual. [Apr-Jun]  
Hot roadsides, thin soil and disturbed ground, also found in the dense shade of the Douglas-fir forest above Garrison Canyon.

***Gilia capitata*** Sims subsp. ***capitata***. BLUEHEAD GILIA. Annual. [Apr-Aug]  
Thin soils and rock outcrops, Three Tree Hill.

***Gilia tricolor*** Benth. subsp. ***tricolor***. BIRD'S-EYE GILIA. Annual. [Mar-May]  
Grassland.

***Leptosiphon androsaceus*** Benth. Annual. [Apr-Jun]

***Leptosiphon bicolor*** Nutt. Annual. [Mar-Jun]

Grassland. Distinguishable from *L. jepsonii* by more diminutive size, plants generally with one flower open at a time. Inflorescence opens late morning, closed by early evening.

***Leptosiphon ciliatus*** (Benth.) Jeps. WHISKER BRUSH. Annual. [Mar-Jul]

Rock outcrops, northwest corner of Pepperwood by Murry's Gate.

***Leptosiphon jepsonii*** (Schemske & Goodwillie) J.M. Porter & L.A. Johnson. JEPSON'S LEPTOSIPHON. CNPS Rank 1B.2. Annual. [Apr-May]

Rare plant, but abundant in grassland on the preserve. Thin soils from the Preserve Entrance to Roller Coaster Ridge.

***Leptosiphon latisectus*** (E.G. Buxton) J.M. Porter & L.A. Johnson. BROAD-LOBED LEPTOSIPHON. CNPS Rank 4.3. Annual. [Mar-Jun]

Road cut above the Strebel Homestead and the serpentine grassland west of Three Tree Hill. This is a glandular, large corolla form of *L. parviflorus*.

***Leptosiphon parviflorus*** Benth. FALSE BABY STARS. Annual. [Mar-Jun]

Grassland, especially grazed grassland or on thin soil.

***Microsteris gracilis*** (Hook.) Greene. Annual. [Mar-Aug]

Sunny meadows and roadsides.

***Navarretia intertexta*** (Benth.) Hook. subsp. *intertexta*. NAVARRETIA. Annual. [May-Jul]

Thin soil and hot exposures.

***Navarretia pubescens*** (Benth.) Hook. & Arn. NAVARRETIA. Annual. [May-Jul]

Thin soil and hot exposures.

***Navarretia tagetina*** Greene. MARIGOLD NAVARRETIA. Annual. [Apr-Jun]

Thin soil and hot exposures.

**Polygalaceae (Milkwort family)*****Polygala californica*** Nutt. CALIFORNIA MILKWORT. Perennial. [Apr-Jul]

In light shade or full sun, chaparral, Douglas-fir forest, oak woodland.

**Polygonaceae (Buckwheat family)*****Chorizanthe membranacea*** Benth. PINK SPINEFLOWER. Annual. [Apr-Jun]

Rock outcrops, High Hill.

***Chorizanthe polygonoides*** Torr. & A. Gray var. *polygonoides*. KNOTWEED SPINEFLOWER. Annual. [Apr-Jun]

Near the Pepperwood Entrance in chaparral.

***Eriogonum nudum*** Benth. var. *auriculatum* (Benth.) Jeps. EAR-SHAPED ERIOGONUM. Perennial. [May-Oct]

Rock outcrops, south slope of Telegraph Hill, road to Grouse Hill.

***Eriogonum vimineum*** Benth. WICKER BUCKWHEAT. Annual. [May-Sep]

Located throughout the front of the preserve.

*Fallopia convolvulus* (L.) A. Löve. BLACK BINDWEED. (Eur). Annual. [May-Dec]  
Ward House Site.

*Persicaria hydropiperoides* (Michx.) Small. FALSE WATERPEPPER. Perennial. [Jun-Oct]  
On receding vernal pool margins.

*Persicaria maculosa* Gray. LADY'S THUMB. (Eurasia). Annual. [Jun-Nov]  
Moist areas.

*Polygonum aviculare* L. subsp. *depressum* (Meisn.) Arcang. KNOTWEED, KNOTGRASS.  
(worldwide). Annual. [May-Nov]

*Pterostegia drymarioides* Fisch. & C.A. Mey. WOODLAND THREADSTEM. Annual. [Mar-Jul]  
South slope of Telegraph Hill.

*Rumex acetosella* L. SHEEP SORREL. Invasive weed (Eur, Asia). Perennial. [Apr-Jul]  
Disturbed areas, creek beds.

*Rumex crispus* L. CURLY DOCK. Invasive weed (Eurasia). Perennial. [Jan-Dec]  
Stream beds, wet areas, disturbed areas and grassland.

*Rumex pulcher* L. FIDDLE DOCK. (Medit). Perennial. [May-Sep]  
Springs, ponds, and marshes.

*Rumex salicifolius* Weinm. WILLOW DOCK. Perennial. [May-Jul]  
May occur at Pepperwood. An immature specimen (G. de Nevers #1750) should be  
recollected in fruit for a positive identification.

### **Portulacaceae (Purslane family)**

*Portulaca oleracea* L. PURSLANE. (e hemisphere). Annual. [Apr-Oct]  
Disturbed areas.

### **Primulaceae (Primrose family)**

*Dodecatheon hendersonii* A. Gray. MOSQUITOBILLS, SAILORCAPS. Perennial. [Mar-Jul]  
Oak woodland and grassland, especially in areas that are wet in spring. The leaves  
are prostrate, thick, and waxy almost to the point of succulence. The sepals and  
petals are erect in bud, but reflexed at anthesis, the black anthers are erect and tightly  
clustered at anthesis. The candelabra-form dry fruit clusters are a distinct,  
recognizable element of the dry summer grassland.

### **Ranunculaceae (Buttercup family)**

*Anemone oregana* A. Gray var. *oregana*. ANEMONE. Perennial. [Mar-Jun]  
Douglas-fir forest west of the Tower-in-the-Saddle.

*Aquilegia formosa* DC. COLUMBINE. Perennial. [Apr-Sep]  
In deep shade and/or moisture, Garrison Canyon Canyon, road to Grouse Hill,  
Rogers Canyon.

*Clematis lasiantha* Nutt. CHAPARRAL CLEMATIS, PIPESTEM CLEMATIS. Woody vine. [Jan-Jun]  
West arm of Garrison Canyon and in Devil's Kitchen. The stems have deeply  
grooved, soft, corky bark.

***Delphinium nudicaule*** Torr. & A. Gray. RED OR ORANGE LARKSPUR. Perennial. [Mar-Jun]  
Oak woodland. Flowers scarlet to red-orange, hummingbird pollinated.

***Delphinium patens*** Benth. subsp. *patens*. SPREADING OR ZIG-ZAG LARKSPUR. Perennial.  
[Mar-Jun]  
Oak woodland, High Hill, above Strebel Homestead. Flowers bright to dark blue.

***Delphinium variegatum*** Torr. & A. Gray subsp. *variegatum*. ROYAL LARKSPUR. Perennial.  
[Mar-May]  
Horse Hill. Flowers dark royal-blue.

***Ranunculus aquatilis*** L. var. unknown. BUTTERCUP. Perennial. [ ]  
Redwood Pond. Both named varieties are known to occur in broadly surrounding areas.

***Ranunculus californicus*** Benth. var. *californicus*. BUTTERCUP. Perennial. [Mar-Aug]  
Serpentine grassland along Preserve Entrance.

***Ranunculus lobbii*** (Hiern) A. Gray. LOBB'S AQUATIC BUTTERCUP. CNPS Rank 4.2. Annual.  
[Mar-May]  
Vernal pools, vernal swales and ponds, Three Tree Hill, Double Ponds. Submersed leaves are finely dissected, while the surface leaves are three-lobed and "buttercup-looking."

***Ranunculus muricatus*** L. BUTTERCUP. (Eurasia). Annual. [Apr-Jun]  
Disturbed areas, especially grazed grassland. Plants low-growing, flowers yellow, fruits distinctly coarsely papillate, each with a recurved hook at tip.

***Ranunculus occidentalis*** Nutt. var. *occidentalis*. BUTTERCUP. Perennial. [Mar-Jul]  
Grassland, oak woodland.

***Ranunculus orthorhynchus*** Hook. var. *bloomeri* (S. Watson) L. D. Benson. BUTTERCUP.  
Perennial. [Mar-May]  
Wet meadow at the Red Corral, McCann Homestead.

***Thalictrum fendleri*** A. Gray var. *polycarpum*. MEADOW RUE. Perennial. [Mar-Jun]  
Moist situations, Rogers Canyon. Plant dioecious.

### Rhamnaceae (Buckthorn family)

***Ceanothus cuneatus*** Nutt. var. *cuneatus*. BUCK-BRUSH. Shrub. [Feb-May]  
Chaparral. Flowers generally white. The smell of the flowers in spring perfumes the air for miles.

***Ceanothus divergens*** Parry. CALISTOGA CEANOTHUS. CNPS Rank 1B.2. Shrub. [Feb-May]  
Rare plant, northeast corner of Pepperwood between Redwood and Weimar Canyons. Flowers blue to purple.

***Ceanothus foliosus*** Parry var. *foliosus*. WAVYLEAF CEANOTHUS. Shrub. [Mar-Jun]  
Devil's Kitchen and northeast corner of Pepperwood between Redwood and Weimar Canyons.

***Ceanothus parryi*** Trel. CALIFORNIA-LILAC. Shrub. [Apr-May]  
Chaparral, Devil's Kitchen, road to Grouse Hill.

***Frangula californica*** (Eschsch.) A. Gray subsp. ***californica***. CALIFORNIA COFFEEBERRY.

Shrub. [May-Jul]

Chaparral and oak woodland. Leaf upper surface dark green, lower bright green to yellow, fruits black. The leaves are the food plant of a remarkable caterpillar, the larva of the pale swallowtail (*Papilio eurymedon*), which spins a silk sheet on a leaf to which it returns each dawn after foraging at night. The flowers are galled by an undescribed gnat of the genus *Dasineura* that causes the flowers to inflate in a way that mimics the green fruits.

***Rhamnus crocea*** Nutt. SPINY REDBERRY. Shrub. [Jan-Apr]

Chaparral. Fruits red, bird-dispersed.

### Rosaceae (Rose family)

***Adenostoma fasciculatum*** Hook. & Arn. var. ***fasciculatum***. CHAMISE, GREASEWOOD.

Shrub. [May-Jun]

Chaparral. These shrubs burn readily, then stump-sprout vigorously after fire. Virtually no herbaceous plants grow beneath the dense shade of a mature stand of chamise, but for ten years after fire the newly open stand is alive with an array of annual and perennial herbs. Chamise is an important browse plant of deer in California; deer repeatedly browse individual shrubs into 1-2 foot tall topiaries. One encounters patches of these low deer-browsed chamise bushes among full grown plants of the same age (6–8 feet tall).

***Amelanchier alnifolia*** (Nutt.) M. Roem. var. ***semiintegrifolia*** (Hook.) C.L. Hitchc.

SERVICE BERRY. Shrub. [Mar-Jun]

Oak woodland, Garrison Canyon, road to Grouse Hill. The ovate leaves are toothed only near the tip. The flowers turn the shrubs white in April.

***Aphanes occidentalis*** (Nutt.) Rydb. Annual. [Mar-May]

Thin soil, serpentine scree by the Barn, roadbeds.

***Cercocarpus betuloides*** (Nutt.) var. ***betuloides***. BIRCH-LEAF MOUNTAIN MAHOGANY. Shrub.

[Mar-May]

Chaparral, oak woodland border. The style elongates as the fruit grows, reaching 3" long, becoming plumose and showy.

***Cotoneaster pannosus*** Franch. SILVERLEAF COTONEASTER. Invasive weed (sw China).

Shrub. [May-Jul]

One individual documented in Garrison Canyon. One at end of Martin Creek Road.

***Drymocallis glandulosa*** (Lindl.) Rydb. var. ***glandulosa***. Perennial. [May-Jul]

Sunny openings in oak woodland, Garrison Canyon, Rogers Canyon.

***Fragaria vesca*** L. WOOD STRAWBERRY. Perennial. [Jan-Jul]

Moist oak woodland. Berries small, but delicious.

***Heteromeles arbutifolia*** (Lindl.) M. Roem. TOYON, CHRISTMAS BERRY. Shrub. [Jun-Aug]

Chaparral. Toyon has its greatest density and dominance in the serpentine chaparral between the Pepperwood Entrance and Dwight Center. The flowers produce abundant nectar.

- Holodiscus discolor*** (Pursh) Maxim. var. ***discolor***. OCEAN SPRAY. Shrub. [May-Aug]  
Oak woodland. Inflorescence a hanging panicle, flowers white.
- Oemleria cerasiformis*** (Hook. & Arn.) J. W. Landon. OSO BERRY. Shrub. [Feb-Apr]  
Fern Canyon, Weimar Canyon.
- Physocarpus capitatus*** (Pursh) Kuntze. NINEBARK. Shrub. [May-Jul]  
Forming thickets along streams, Rogers Canyon, Fern Canyon and Box Elder Canyon. Bark peeling, inflorescence an umbel.
- Prunus emarginata*** (Douglas) Eaton. BITTER CHERRY. Shrub, tree. [Apr-Jun]  
The one tree alive in 1985, in the Garrison Canyon, is now dead.
- Prunus virginiana*** L. var. ***demissa*** (Nutt.) Torr. WESTERN CHOKECHERRY. Shrub. [May-Jun]  
Garrison Canyon, side canyon entering Rogers Creek just west of the Pippindale-Pepperwood gate. Individuals form many-stemmed colonies. Food plant for Lorquin's admiral butterfly (*Basilarchia lorquini*). The petiole has extrafloral nectaries.
- Pyracantha crenulata*** (D. Don) M. Roem. FIRETHORN. Waif (Asia). Shrub. [Feb-Jun]  
Two individuals along the creek west of the Manager's House (Best et. al. 1996).
- Rosa californica*** Cham. & Schltdl. CALIFORNIA ROSE. Shrub. [Feb-Nov]  
Marshes, Skovie Basin, Rogers Spring. Individuals form massive clumps to three meters tall and 10 meters in diameter. Prickles thick-based, curved.
- Rosa gymnocarpa*** Nutt. var. ***gymnocarpa***. WOOD ROSE. Shrub. [Apr-Jul]  
In deep shade, Redwood Canyon, Garrison Canyon Douglas-fir Forest. Prickles many, slender, straight. Leaves with generally seven leaflets.
- Rosa spithamea*** S. Watson. COAST GROUND ROSE. Dwarf shrub. [Apr-Aug]  
In deep shade, Devil's kitchen. Plant loosely rhizomed, short, <0.5 meters. Prickles many, slender, straight. Leaves with generally 5 leaflets.
- Rubus armeniacus*** Focke. HIMALAYA BLACKBERRY. Invasive weed (Eurasia). Shrub. [Mar-Jun]  
Forms thickets on streambanks or seeps, Mountain House, Goodman Homestead, Strebel Homestead, Kitchen Creek. Stems thick, arching, prickles few, curved, leaflets five.
- Rubus leucodermis*** Torr. & A. Gray. WHITEBARK RASPBERRY. Shrub. [Apr-Jul]  
Moist areas in deep shade, Redwood Canyon, west of Garrison Canyon, Skovie Basin. Stems slender, arching, glaucous.
- Rubus parviflorus*** Nutt. THIMBLEBERRY. Shrub. [Mar-Aug]  
Streambanks, Redwood Canyon, Devil's Kitchen, big road cut north of the Mountain House. Leaf simple, palmately lobed.
- Rubus ursinus*** Cham. & Schltdl. CALIFORNIA BLACKBERRY. Shrub. [Mar-Jul]  
Streambanks and oak woodland, drainages near Goodman Homestead. Stems prostrate, prickles many, straight.

### Rubiaceae (Madder family)

***Galium aparine*** L. GOOSEGRASS. Annual. [Mar-Jul]

Grassland and oak woodland. Leaves 6-8 in a whorl, clinging by hooked prickles.

***Galium californicum*** Hook. & Arn. subsp. ***californicum***. CALIFORNIA BEDSTRAW.

Perennial. [Mar-Jul]

Garrison Canyon Douglas-fir forest, oak woodland north of trail to Wiemer Flat, chaparral in Devil's Kitchen. Leaves four per whorl, coarsely densely hairy.

***Galium divaricatum*** Lam. LAMARK'S BEDSTRAW. (Medit). Annual. [May-Jul]

Grasslands.

***Galium murale*** (L.) All. TINY BEDSTRAW. (Eur). Annual. [Apr-May]

Martin Creek Falls.

***Galium parisiense*** L. PARISIAN BEDSTRAW. (Medit). Annual. [Apr-Aug]

Disturbed areas and depauperate soil.

***Galium porrigens*** Dempster var. ***porrigens***. CLIMBING BEDSTRAW. Vine. [May-Aug]

Oak woodland, chaparral. Leaves ovate to oblong.

***Galium porrigens*** Dempster var. ***tenue*** (Dempster) Dempster. CLIMBING BEDSTRAW. Vine. [Feb-Jul]

Oak woodland. Leaves linear

***Galium triflorum*** Michx. SWEET-SCENTED BEDSTRAW. Annual. [May-Jul]

Deep shade, Redwood Canyon, Devil's Kitchen.

***Sherardia arvensis*** L. FIELD MADDER. (Medit). Annual. [Mar-Jul]

Disturbed areas, Skovie Basin.

### Salicaceae (Willow family)

***Populus fremontii*** S. Watson subsp. ***fremontii***. FREMONT COTTONWOOD. Tree. [Mar-Apr]

Goodman Homestead, Manager's House. The petiole is swollen into an odd mouth-like structure by gall-making aphids (*Pemphigus populitransversus*). This species is one of the few temperate trees that produces "canopy roots" to recapture nutrients. A large tree hole caused by a branch fall on the stem of the cottonwood at the Manager's House is filled with canopy roots.

***Salix laevigata*** Bebb. RED WILLOW. Tree. [Dec-Jun]

Near streams and ponds, Goodman Homestead.

***Salix lasiolepis*** Benth. ARROYO WILLOW. Small tree. [Jan-Jun]

Streambanks, Martin Creek.

### Sapindaceae (Soapberry family)

***Acer macrophyllum*** Pursh. BIG-LEAF MAPLE. Deciduous tree. [Mar-Jun]

Douglas-fir forest and along streams, less frequent in oak woodland. The biggest maples at Pepperwood are on hill slopes, presumably near springs. A magnificent one is just west of the McCann Homestead, another is on the ridge between Martin Creek and Fern Canyon (3.22 m circumference). The leaves are attacked in August



and September by a fungus (*Rhytisma punctatum*) that causes conspicuous dime-sized discolorations. When maples withdraw resources from their leaves, the leaves turn yellow and fall from the tree. The fungus spots remain green. Consequently, when the leaves land in creeks caddisfly larvae scrape (eat) the nutrient-rich, fungus-infested part first.

***Aesculus californica*** (Spach) Nutt. CALIFORNIA BUCKEYE. Deciduous tree. [May-Jun]  
Oak woodland, frequent in chaparral. Leaves palmately compound, inflorescence an upright panicle, petals white to pink. The buckeye produces by far our largest seed. The seed provided a famine food for native Californians, but required extensive leaching as it is toxic enough to use as a fish poison. The flower nectar is toxic to introduced honey bees, but apparently not so to native bumble bees. The flowers are functionally monoecious, with flowers low on the panicle having sterile ovaries, and those near the tip being functionally female. This is the tree that seems to most perfectly mirror our Mediterranean climate, leafing out early (February, March) and losing its leaves as the dry season reaches its peak (June, July). The branches are often covered by an orange crustose lichen (*Caloplaca cerina*).

### Saxifragaceae (Saxifrage family)

***Heuchera micrantha*** Lindl. ALUMROOT. Perennial. [Apr-Jul]  
Moist banks, in deep shade.

***Lithophragma affine*** A. Gray. WOODLAND STAR. Perennial. [Mar-Apr]  
Oak woodland, Rogers Canyon.

***Lithophragma affine* x *heterophyllum***  
A hybrid swarm with characters of both parents occurs along the Rogers Canyon road.

***Lithophragma heterophyllum*** (Hook. & Arn.) Torr. & A. Gray. WOODLAND STAR.  
Perennial. [Feb-Jun]  
Oak woodland.

***Micranthes californica*** (Greene) Small. SAXIFRAGE. Perennial. [Feb-May]  
Moist banks, in deep shade.

***Micranthes oregana*** (Howell) Small. SAXIFRAGE. Perennial. [Jun-Aug]  
No collection records from North Coast Ranges according to the Consortia of California Herbaria records.

### Scrophulariaceae (Figwort family)

***Scrophularia californica*** Cham. & Schltdl. CALIFORNIA FIGWORT. Perennial. [Mar-Jul]  
Moist situations, Bechtel House. The tiny flowers produce abundant nectar. The stigma bends down away from the stamens after it has matured to avoid self-fertilization.

***Verbascum thapsus*** L. WOOLLY MULLEIN. Invasive weed (Eurasia). Biennial. [May-Sep]  
Creek beds, disturbed areas, Garrison Canyon, road to Grouse Hill. Rosettes large, leaves densely stellate hairy.

**Simaroubaceae (Quassia family)**

*Ailanthus altissima* (Mill.) Swingle. TREE OF HEAVEN. Noxious weed (China). Tree. [Jun]  
A tributary of Rogers Creek in Rogers Canyon.

**Solanaceae (Nightshade family)**

*Nicotiana acuminata* (Graham) Hook. var. *multiflora* (Phil.) Reiche. TOBACCO. (S. Amer). Annual. [May-Oct]  
Creek beds and disturbed areas, Garrison Canyon.

*Salpichroa origanifolia* (Lam.) Baill. (S. Amer). Perennial. [Jul-Oct]  
Ward House Site.

*Solanum americanum* Mill. NIGHTSHADE. Subshrub. [Apr-Nov]  
Creek beds and disturbed areas.

*Solanum nigrum* L. NIGHTSHADE. (Eurasia). Subshrub. [Mar-Oct]  
Manager's House.

*Solanum xanti* A. Gray. PURPLE NIGHTSHADE. Subshrub. [Feb-Jun]  
Along Kitchen Creek by the Mountain House.

**Urticaceae (Nettle family)**

*Urtica dioica* L. subsp. *holosericea* (Nutt.) Thorne. STINGING NETTLE. Perennial. [Jun-Sep]  
Big Spring and Skovie Basin. Plant to eight feet tall, leaves and stems with stinging hairs. The silver-gray stalks are distinctive when dry, the young leaves are edible steamed like spinach.

**Valerianaceae (Valerian family)**

*Plectritis ciliosa* (Greene) Jeps. Annual. [Mar-Jun]  
Oak woodland, above Redwood Canyon, above Strebel Homestead, Rogers Canyon.

*Plectritis congesta* (Lindl.) DC. subsp. *brachystemon* (Fisch. & C.A. Mey.) Morey PINK PLECTRITIS. Annual. [Mar-Jun]  
Oak woodland, Garrison Canyon, above Redwood Canyon.

*Plectritis congesta* (Lindl.) DC. subsp. *congesta*. SEA BLUSH. Annual. [Mar-Jun]  
Oak woodland, Garrison Canyon, above Redwood Canyon.

*Plectritis macrocera* Torr. & A. Gray. Annual. [Mar-Jun]  
Known only from a Dennis Breedlove collection (#58673).

**Verbenaceae (Vervain family)**

*Verbena lasiostachys* Link var. unknown. VERVAIN. Annual. [May-Sep]  
Skovie Basin.

**Viscaceae (Mistletoe family)**

***Phoradendron serotinum*** (Raf.) M.C. Johnst. subsp. ***tomentosum*** (DC.) Kuijt. AMERICAN MISTLETOE. Shrub. [Jul-Sep]

On oak trees. Plant, hemiparasitic, green and photosynthetic, producing at least some of their own carbon compounds, but obtaining water and mineral nutrients from the host tree. The white fruits are a favorite of winter resident birds, who pass them mostly undigested; the sticky fruits adhere to branches where they germinate and grow.

**Vitaceae (Grape family)**

***Vitis californica*** Benth. CALIFORNIA WILD GRAPE. Vine. [May-Jun]

Riparian woodland, Rogers Creek, Strebel Homestead. It is distinctive among our lianas for its shaggy, flaking reddish bark, swollen nodes, and tendrils opposite the leaves. The fruits are flavorful, but rarely juicy.

**Zygophyllaceae (Caltrop family)**

***Tribulus terrestris*** L. CALTROP, PUNCTURE VINE. Noxious weed (unknown). Annual. [Apr-Oct]

Disturbed areas, near the Red Corral.

**Flowering Plants: Monocots****Agavaceae (Century plant family)**

***Chlorogalum pomeridianum*** (DC.) Kunth. var. ***pomeridianum***. SOAP PLANT, AMOLE. Perennial. [May-Aug]

Oak woodland, grassland. Leaves decumbent, long (to 70 cm), margin distinctively wavy. Flowers, delicate, spider-like, white, opening in the evening, moth-pollinated. The bulb was used both as a food source and as a fish poison by native Californians. It contains saponins (foaming agents) and blocks oxygen absorption across the gills. It also makes a handy scrubber with built-in sudsing.

**Alismataceae (Water-Plantain family)**

***Alisma triviale*** Pursh. WATER-PLANTAIN. Perennial. [Apr-Oct]  
Turtle Pond.

**Alliaceae (Onion family)**

***Allium serra*** McNeal & Ownbey. ONION, GARLIC. Perennial. [Apr-May]

Oak woodland, south of Redwood Canyon, north of the Bechtel House.

***Allium unifolium*** Kellogg. ONION, GARLIC. Perennial. [May-Jun]

Wet places, Pepperwood Entrance, below Strebel Homestead, south of Redwood Canyon.

***Allium vineale*** L. ONION, GARLIC. Noxious weed (Eur). Perennial. [Jun-Aug]

Roadside ditch near the Red Corral.

**Araceae (Arum family)**

***Lemna minor*** L. DUCKWEED. Perennial. [Aug]  
Big Spring, Rogers Spring, Skovie Spring. Plant minute, floating aquatic.

**Asparagaceae (Asparagus family)**

***Asparagus officinalis*** L. subsp. *officinalis*. (Eur). Perennial. [Mar-Sep]  
Pasture west of the Manager's House. Escaped from cultivation.

**Cyperaceae (Sedge family)**

***Carex barbarae*** Dewey. SANTA BARBARA SEDGE, WHITEROOT SEDGE. Perennial. [May-Aug]  
Stream channels.

***Carex densa*** (L.H. Bailey) L.H. Bailey. DENSE SEDGE. Perennial. [Apr-Jul]  
Wet drainages and vernal pools, Red Corral, Goodman Homestead, Rogers Creek and Spring, Three Tree Hill.

***Carex globosa*** Boott. ROUND-FRUITED SEDGE. Perennial. [Apr-Jun]  
Near the well by the road to Grouse Hill, Redwood Canyon, Devil's Kitchen, Pippindale-Pepperwood gate.

***Carex gracilior*** Mack. SLENDER SEDGE. Perennial. [Apr-Jun]  
Rogers Canyon, Goodman Homestead.

***Carex nudata*** W. Boott. TORRENT SEDGE. Perennial. [Apr-Jul]  
Stream channels.

***Carex praegracilis*** W. Boott. BLACK CREEPER, FREEWAY SEDGE. Perennial. [Apr-Aug]  
Vernally wet areas.

***Carex serratodens*** W. Boott. SAW-TOOTHED SEDGE. Perennial. [Apr-Jul]  
Bechtel House, spring east of the Dwight Center, Barn Meadow. Typically found on or adjacent to serpentine.

***Cyperus acuminatus*** Torr. & Hook. FLATSEGE, NUTSEGE, GALINGALE. Perennial. [Jun-Oct]  
Springs and streams, Upper Skovie Marsh, Rogers Creek and Spring.

***Cyperus eragrostis*** Lam. FLATSEGE, NUTSEGE, GALINGALE. Perennial. [May-Nov]  
Wet ground, Turtle Pond, Rogers Creek.

***Eleocharis macrostachya*** Britton. SPIKE RUSH. Perennial. [Mar-Oct]  
Ponds.

***Eleocharis radicans*** (Poir.) Kunth. SPIKE RUSH. Perennial. [Apr-Nov]  
Springs, Red Corral, Willow Spring.

***Scirpus microcarpus*** J. Presl & C. Presl. BULRUSH. Perennial. [Jun-Jul]  
Along banks of drainages below Leopard Lily Spring near Kitchen Creek.

**Hydrocharitaceae (Waterweed family)**

*Najas guadalupensis* (Spreng.) Magnus subsp. *guadalupensis*. RICE-FIELD WATER NYMPH. Annual. [Jul]

Larger of the Double Ponds. Submersed aquatic.

**Iridaceae (Iris family)**

*Iris fernaldii* R.C. Foster. IRIS. Perennial. [Apr]

Oak woodland. The leaves were used for fiber by native Californians. Flower dark-veined yellow.

*Iris foetidissima* L. CORAL IRIS. (Eur, n Afr, c Asia). Perennial. [Jun-Jul]

Willow Spring and the quarry near the Ward House Site.

*Iris macrosiphon* Torr. IRIS. Perennial. [Mar-May]

Flower cream to lavender to deep purple, perianth tube long.

*Iris* sp. DUTCH IRIS. ( ). Perennial.

An escape from cultivation in Garrison Canyon, a common garden plant.

*Romulea rosea* (L.) Eckl. var. *australis* (Ewart) M.P. de Vos. (s Afr). Perennial. [Mar-Apr]

Grassland. It was probably introduced in cattle hay feed and is expanding rapidly.

*Sisyrinchium bellum* S. Watson. WESTERN BLUE-EYED GRASS. Perennial. [Mar-May]

Grassland. Flowers blue, occasionally white-flowered.

**Juncaceae (Rush family)**

*Juncus bolanderi* Engelm. BOLANDER'S RUSH. Perennial. [Jul-Sep]

Red Corral, west of Three Tree Hill.

*Juncus bufonius* L. var. *bufonius*. TOAD RUSH. Annual. [May-Sep]

Pond edges, wet meadows and disturbed areas.

*Juncus capitatus* Wiegand. DWARF RUSH. (Eurasia, n Afr). Annual. [Apr-Jun]

Wetland depressions in the road to Weimar Flat.

*Juncus effusus* L. subsp. *pacificus* (Fernald & Wiegand) Piper & Beattie. PACIFIC RUSH. Perennial. [May-Oct]

Springs and streams. Stems smooth, shiny, yellow-green, wetland obligate.

*Juncus occidentalis* (Coville) Wiegand. WESTERN RUSH. Perennial. [May-Sep]

Moist and generally sunny areas. Hybridizes with *Juncus tenuis*.

*Juncus patens* E. Mey. SPREADING RUSH. Perennial. [Jun-Oct]

Ponds and springs. Stems blue-green, corrugated vertically.

*Juncus phaeocephalus* Engelm. var. *paniculatus* Engelm. PANICLED RUSH. Perennial. [Jun-Sep]

Upper Skovie Marsh. Leaves iris-like.

*Juncus tenuis* Willd. POVERTY OR SLENDER RUSH. Perennial. [Jun-Sep]

Wet areas. Hybridizes with *Juncus occidentalis*.

***Juncus xiphioides*** E. Mey. IRIS-LEAVED RUSH. Perennial. [Jul-Oct]  
Springs and ponds.

***Luzula comosa*** E. Mey. var. ***comosa***. HAIRY WOOD RUSH. Perennial. [Jun-Jul]  
Oak woodland. Plant appearing soft-hairy.

### **Juncaginaceae (Arrow-grass family)**

***Triglochin scilloides*** (Poir.) Mering & Kadereit. FLOWERING QUILLWORT. Annual. [Mar-Oct]  
Three Tree Hill vernal pools, Willow Spring.

### **Liliaceae (Lily family)**

***Calochortus amabilis*** Purdy. DIOGENES' LANTERN. Perennial. [Apr-Jun]  
Grassland, serpentine chaparral, and oak woodland edges.

***Calochortus luteus*** Lindl. YELLOW MARIPOSA LILY. Perennial. [Apr-Jun]  
Grassland.

***Calochortus vestae*** Purdy. STAR TULIP. Perennial. [May-Jul]  
Heavy clay or serpentine soil, meadows around the Barn.

***Fritillaria affinis*** (Schult. & Schult. f.) Sealy. CHECKER LILY. Perennial. [Mar-Jun]  
Oak woodland, Rogers Canyon, above Skovie Basin, Strebel Homestead, above the Dwight Center.

***Lilium pardalinum*** Kellogg subsp. ***pardalinum***. LEOPARD LILY. Perennial. [May-Aug]  
Leopard Lily Spring .

***Lilium rubescens*** S. Watson. REDWOOD LILY. CNPS Rank 4.2. Perennial. [May-Aug]  
Chaparral and conifer forest, Devil's Kitchen, Weimar Canyon. The flowers are fragrant and change from pink to bluish after pollination.

***Prosartes hookeri*** Torr. FAIRY BELLS. Perennial. [Mar-Jun]  
Moist, shady woodlands, Garrison Canyon, Redwood Canyon, Rogers Canyon. The greenish flowers hide modestly below the leaves, as do the orange fruits.

### **Melanthiaceae (False hellebore family)**

***Toxicoscordion fremontii*** (Torr.) Rydb. DEATH CAMAS. Perennial. [Feb-Jun]  
Oak woodland, chaparral, and grassland. The seed pods are distinctive, and the seeds rattle in them when brushed by hikers. The base of the petals has a greenish, nectar-producing gland.

***Trillium albidum*** J.D. Freeman. WAKE ROBIN, TRILLIUM. Perennial. [Feb-Jun]  
Rogers Canyon, Redwood Canyon. Leaves three, sessile, whorled, flowers sessile above leaf whorl, petal color varies from white to pink to purple. *Trillium* seeds have eliasomes (food bodies) attached to one end and are dispersed by ants.

***Xerophyllum tenax*** (Pursh) Nutt. BEAR-GRASS, BASKET-GRASS. Perennial. [May-Aug]  
Devil's Kitchen under redwood trees.

**Orchidaceae (Orchid family)**

*Calypso bulbosa* (L.) Oakes var. *occidentalis* (Holz.) B. Boivin. FAIRY SLIPPERS.

Perennial. [Mar-Jun]

Redwood Canyon, north of Leopard Lily Spring.

*Corallorhiza maculata* (Raf.) Raf. subsp. unknown. SPOTTED CORALROOT. Perennial.

[Feb-Jul]

Garrison Canyon.

*Corallorhiza striata* Lindl. STRIPED CORALROOT. Perennial. [Feb-Jul]

Redwood Canyon, the ridge between Three Tree Hill and Garrison Canyon, the ridge south of Goodman Homestead, and along the road to Weimar Flat.

*Goodyera oblongifolia* Raf. RATTLESNAKE-PLANTAIN. Perennial. [May-Sep]

Douglas-fir forest east of the road to Grouse Hill near the well. Often found in decomposing leaf litter.

*Piperia elongata* Rydb. CHAPARRAL ORCHID, REIN ORCHID. Perennial. [May-Jul]

Oak woodland and chaparral.

*Piperia transversa* Suksd. FLAT SPURRED PIPERIA. Perennial. [May-Aug]

Oak woodland, road to Grouse Hill.

*Spiranthes porrifolia* Lindl. LADIES TRESSES. Perennial. [Jun-Sep]

Upper Skovie Marsh, the largest of the Double Ponds.

**Poaceae (Gramineae, Grass family)**

*Aegilops triuncialis* L. BARBED GOATGRASS. Noxious weed (Medit, w Asia). Annual.

[May-Jul]

Road to Skovie Basin, road to Rogers Canyon, roads to PG&E towers north of Hendley Flat, Hendley Flat.

*Agrostis capillaris* L. COLONIAL BENT GRASS. (Eur). Perennial. [Jul-Sep]

Along the road to Grouse Hill.

*Agrostis densiflora* Vasey. CALIFORNIA BENT GRASS. Perennial. [May-Aug]

In upper swale of Barn Meadow, along disturbed swale.

*Agrostis elliottiana* Schult. SIERRA BENT GRASS. Annual. [Apr-May]

Wetland depressions in the road to Weimar Flat.

*Agrostis pallens* Trin. DUNE GRASS. Perennial. [Jun-Aug]

Oak woodland shade.

*Aira caryophyllea* L. SILVER HAIR GRASS. (Eur). Annual. [Apr-Jun]

Disturbed areas.

*Aira elegans* Roem. & Schult. ELEGANT HAIR GRASS. (s Eur). Annual. [Apr-May]

Disturbed areas.

*Alopecurus saccatus* Vasey. FOXTAIL. Annual. [Mar-May]

Infrequent.

*Anthoxanthum aristatum* Boiss. subsp. *aristatum*. ANNUAL VERNAL GRASS. (Eur). [May-Jun]

Spring wet areas, Garrison Canyon, Hendley Flat.

*Aristida oligantha* Michx. OLDFIELD THREE-AWN. Annual. [Jul-Nov]

Seeps and grassland, west of Goodman Homestead, along the road to Strebel Homestead.

*Avena barbata* Link. SLENDER WILD OAT. Invasive weed (s Eur, n Afr, India). Annual. [Mar-Jun]

Grassland.

*Avena fatua* L. WILD OAT. Invasive weed (Eurasia). Annual. [Apr-Jun]

Grassland.

*Brachypodium distachyon* (L.) P. Beauv. FALSE BROME. Invasive weed (s Eur). Annual. [Apr-Jul]

Grassland, Horse Hill, south of Turtle Pond, west of the road to Strebel Homestead.

*Briza maxima* L. RATTLESNAKE GRASS, LARGE QUAKING GRASS. Invasive weed (s Eur). Annual. [Apr-Jul]

Grassland, east of the road to Strebel Homestead.

*Briza minor* L. ANNUAL QUAKING GRASS, SMALL QUAKING GRASS. (s & w Eur). Annual. [Apr-Jul]

Grassland, especially where water stands in spring.

*Bromus carinatus* Hook. & Arn. var. *carinatus*. CALIFORNIA BROME. Perennial. [Apr-Aug]

Garrison Canyon. Spikelets strongly compressed.

*Bromus catharticus* Vahl. subsp. unknown. BROME, CHESS. (S. Amer). Annual. [Apr-Aug]

Disturbed areas, Garrison Canyon.

*Bromus diandrus* Roth. RIPGUT GRASS. Invasive weed (Eur). Annual. [Feb-Jul]

Disturbed areas, grassland. The one-way barbs on the lemmas actually cause the sharp inflorescence joints to move in one direction through tissue.

*Bromus hordeaceus* L. SOFT CHESS. Invasive weed (Eurasia). Annual. [Apr-Jul]

Grassland and disturbed areas.

*Bromus laevipes* Shear. WOODLAND BROME, CHINOOK BROME. Perennial. [May-Jul]

Oak woodland, often on serpentine. Spikelet not strongly compressed, lower glume 3-veined.

*Bromus madritensis* L. subsp. *rubens* (L.) Husn. RED BROME. Invasive weed (Eur). Annual. [Feb-Jun]

Grassland, Horse Hill, near Bechtel House, along the Preserve Entrance roadcut.

*Bromus sterilis* L. POVERTY BROME. (Eurasia). Annual. [Mar-Jun]

Disturbed areas.

*Bromus vulgaris* (Hook.) Shear. Perennial. [May-Aug]



The road from the Barn to Devil's Kitchen in oak woodland. Culm arches gracefully, inflorescence dangle together at the end. Spikelets not strongly compressed, lower glume one-veined.

***Calamagrostis rubescens*** Buckley. PINE REED GRASS. Perennial. [Jun-Sep]  
Devil's Kitchen.

*Crypsis schoenoides* (L.) Lam. SWAMP PRICKLE GRASS. (Eur). Annual. [Jun-Oct]  
Creekbeds and vernal pools, Pepperwood Creek, Rogers Canyon, Double Ponds vernal pool, Turtle Pond.

*Cynodon dactylon* (L.) Pers. BERMUDA GRASS. Invasive weed (Afr). Perennial. [Jun-Aug]  
Near the Pepperwood Entrance and below the Dwight Center.

*Cynosurus echinatus* L. BRISTLY DOGTAIL GRASS. Invasive weed (s Eur). Annual. [May-Jul]  
Grassland, oak woodland.

*Dactylis glomerata* L. ORCHARD GRASS. Invasive weed (Eurasia). Perennial. [May-Jul]  
Disturbed areas, roadsides, Bechtel House, road to Rogers Canyon.

***Danthonia californica*** Bol. CALIFORNIA OATGRASS. Perennial. [Apr-Aug]  
Grassland, vernal wet areas. The lowest leaf sheaths of many stems contain cleistogamous (hidden) flowers, an adaptation to produce seeds even when severely grazed. Leaf sheath collars with clown-collar like tufts of hairs on two sides. Upper leaves much reduced, at 90° to culm. Spikelets generally 3(5) standing at the 4, 9 and 12 o'clock positions.

***Deschampsia danthonioides*** (Trin.) Munro. ANNUAL HAIRGRASS. Perennial. [Mar-Aug]  
Pond margins and vernal pools.

*Echinochloa crus-galli* (L.) P. Beauv. BARNYARD GRASS. (Eurasia). Annual. [Jun-Oct]  
Rogers Canyon.

*Elymus caput-medusae* (L.). MEDUSA HEAD. Noxious weed (Eurasia). Annual. [Apr-Jun]  
Grassland.

***Elymus elymoides*** (Raf.) Swezey var. ***elymoides***. SQUIRRELTAIL. Perennial. [Jul-Aug]  
Disturbed areas, road to Grouse Hill, serpentine between the Barn and Dwight Center.

***Elymus glaucus*** Buckley subsp. ***glaucus***. BLUE OR WESTERN WILD-RYE. Perennial. [Jun-Aug]  
Oak woodland. Inflorescence spike-like, spikelets separate, obviously alternate on culm.

***Elymus multisetus*** (J.G. Sm.) Burt Davy. BIG SQUIRRELTAIL. Perennial. [May-Jul]  
Disturbed areas.

***Elymus stebbinsi*** Gould. STEBBINS' WHEAT GRASS. Perennial. [Jun-Jul]  
Barn Meadow.

***Elymus ponticus*** (Podp.) N. SNOW. TALL WHEAT GRASS. Perennial. [Jun-Jul]

Creek bed on north side of Barn Meadow, just east of Barn. Plant caespitose, florets and glumes awnless.

***Elymus trachycaulus*** (Link) Shinnars subsp. ***trachycaulus***. SLENDER WHEAT GRASS.

Perennial. [Jun-Aug]

Serpentine chaparral and serpentine grassland, Pepperwood Entrance, Barn, landslide valley west of Three Tree Hill.

***Elymus triticoides*** Buckley BEARDLESS WILD RYE. Perennial. [Jun-Jul]

Skovie basin. Plant from rhizomes, bluish-green.

***Eragrostis mexicana*** (Hornem.) Link subsp. ***virescens*** (J. Presl) S.D. Koch & Sánchez Vega. LOVEGRASS. Annual. [May-Oct]

Rogers Canyon.

***Festuca arundinacea*** Schreb. TALL FESCUE. Invasive weed (Eurasia). Perennial. [May-June]

Oak woodland.

***Festuca bromoides*** L. BROME FESCUE. (Eur). Annual. [Apr-Jun]

Depauperate or thin soil, and disturbed areas.

***Festuca californica*** Vasey. CALIFORNIA FESCUE. Perennial. [May-Jun]

Oak woodland, often occurring in dense stands under Oregon oaks in ungrazed locations, High Hill, road to Redwood Canyon, Rogers Canyon. Plant densely caespitose, distinctively bluish in color, leaf collar densely hairy.

***Festuca idahoensis*** Elmer. IDAHO FESCUE, BLUE BUNCHGRASS. Perennial. [Jul-Sep]

North slope of Grouse Hill (Knight & Edwards 5526), Turtle Pond. Leaf collar glabrous.

***Festuca microstachys*** Nutt. FESCUE, RYE GRASS. Annual. [Apr-Jun]

Depauperate soil, Garrison Canyon, serpentine west of Three Tree Hill.

***Festuca perennis*** (L.) Columbus & J.P. Sm. RYE GRASS. Invasive weed (Eur). Perennial. [May-Sep]

Grassland.

***Festuca rubra*** L. RED FESCUE. Perennial. [May-Jul]

Oak woodland, south of Redwood Canyon, road to Grouse Hill.

***Gastridium phleoides*** (Nees & Meyen) C.E. Hubb. NIT GRASS. (Eur). Annual. [Apr-Nov]

Grassland and disturbed areas.

***Glyceria declinata*** Breb. LOW MANNAGRASS. Noxious weed (Eur). Annual, Tufted Perennial. [May-Jun]

Vernal pools and ponds, Weimer pond, Three Tree Hill vernal pools and Skovie Basin. The leaves grow up through the water column, then lay flat on the surface.

*Glyceria x occidentalis* (Piper) J.C. Nelson. WESTERN MANNAGRASS. Hybrid, unknown nativity. Perennial. [Jun-Aug]

Vernal pools and ponds, Weimer pond, and Skovie Basin. The leaves grow up through the water column, then lay flat on the surface.

*Holcus lanatus* L. VELVET GRASS. Invasive weed (Eur). Perennial. [Jun-Aug]

Pond edges, marshes, wet meadows, drainages. Populations are spreading throughout the preserve.

*Hordeum brachyantherum* Nevskii subsp. *brachyantherum*. NORTHERN BARLEY.

Perennial. [May-Aug]

Serpentine grassland at the Barn, Barn Meadow, meadow below the Dwight Center, and moist soil at the Red Corral. Mature inflorescences purple at maturity.

*Hordeum brachyantherum* Nevskii subsp. *californicum* (Covas & Stebb.) Bothmer et al. CALIFORNIA BARLEY. Perennial. [May-Jul]

Barn Meadow. Mature inflorescences purple at maturity.

*Hordeum marinum* Huds. subsp. *gussoneanum* (Paul.) Thell. MEDITERRANEAN BARLEY.

Invasive weed (Medit). Annual. [Apr-Jun]

Wet places, Red Corral, Rogers Creek.

*Hordeum murinum* L. subsp. *leporinum* (Link) Arcang. HARE BARLEY. Invasive weed (Eur). Annual. [Feb-May]

Grassland, Red Corral.

*Koeleria macrantha* (Ledeb.) Shult. JUNEGRASS. Perennial. [May-Jul]

Grassland, roads, serpentine chaparral, oak woodland.

*Lamarckia aurea* (L.) Moench. GOLDENTOP. (Medit). Annual. [Feb-May]

On rocks and thin soil, top of Telegraph Hill, High Hill and Three Tree Hill vicinity, Goodman Homestead. The spikelets are held horizontally, flag-like, and break off easily when dry.

*Melica californica* Scribn. CALIFORNIA MELIC. Perennial. [Apr-May]

Rock outcrops, road cuts, rocky grassland areas southeast of Turtle Pond.

*Melica geyeri* Munro. GEYER'S ONIONGRASS. Perennial. [Apr-Jun]

Oak woodland. Plant caespitose, with basal bulbs, the bulb is large enough that native Californians harvested it like *Brodiaea*.

*Melica torreyana* Scribn. TORREY MELIC. Perennial. [Mar-Jun]

Douglas-fir forest, oak woodland and road cuts.

*Paspalum dilatatum* Poir. DALLIS GRASS. (S. Amer). Perennial. [May-Nov]

Pepperwood Entrance, Barn Meadow, Bechtel House. Inflorescences look like purple and green caterpillars.

*Phalaris aquatica* L. HARDING GRASS. Invasive weed (Medit, Eur). Perennial. [Apr-Aug]

Often dominating ungrazed, grassy slopes. Less conspicuous when grazed. Included in the seed mix recommended by the Soil Conservation Service (SCS) after the 1964 Hanley fire. Although this taxon is not labeled as "noxious weed" in the *Jepson Manual*, it is certainly noxious in the Pepperwood grasslands.

***Pleuropogon californicus*** (Nees.) Vasey var. ***californicus***. SEMAPHORE GRASS. Annual. [Mar-Jun]

Vernal pools, Barn Meadow. Spikelets appearing like flags on culm.

***Poa annua*** L. ANNUAL BLUEGRASS. (Eur). Annual. [Feb-Sep]

Disturbed areas.

***Poa pratensis*** L. subsp. *pratensis*. KENTUCKY BLUE GRASS. Invasive weed (Medit, Eurasia). Perennial. [Mar-Jul]

Barn Meadow.

***Poa secunda*** J. Presl subsp. ***secunda***. ONE-SIDED BLUEGRASS. Perennial. [Mar-Aug]

Oak woodland, serpentine by the Barn Meadow.

***Polypogon interruptus*** Kunth. DITCH BEARD GRASS. (S. Amer). Perennial. [May-Aug]

Rogers Creek, Leopard Lily Spring.

***Polypogon maritimus*** Willd. MEDITERRANEAN BEARD GRASS. (Medit, Eur, Afr). Annual. [Jun]

Wet situations, Turtle Pond.

***Polypogon monspeliensis*** (L.) Desf. RABBITFOOT GRASS. Invasive weed (s & w Eur). Annual. [Apr-Aug]

Springs, ponds, vernal pools, and marshes.

***Setaria sphacelata*** (Schumach.) Stapf & C.E. Hubb. AFRICA BRISTLE GRASS. (Afr). Perennial. [Jul-Oct]

Below the spring southwest of the Bechel House.

***Stipa lepida*** Hitchc. FOOTHILL NEEDLEGRASS. Perennial. [Mar-Jun]

Grassland, Garrison Canyon, south slope of Telegraph Hill, east slope of Horse Hill, middle of the road to Grouse Hill. Similar to purple needlegrass, but smaller, finer overall.

***Stipa pulchra*** Hitchc. PURPLE NEEDLEGRASS. Perennial. [Mar-Jun]

Grassland.

***Trisetum canescens*** Buckley. TALL FALSE OAT. Perennial. [May-Aug]

Oak woodland, Douglas-fir forest, in shade.

### **Potamogetonaceae (Pondweed family)**

***Potamogeton nodosus*** Poir. LONG-LEAVED PONDWEED. Perennial. [May-Aug]

Turtle Pond, Double Ponds, Three Tree Hill vernal pools.

***Potamogeton pusillus*** L. SMALL PONDWEED. Annual. [May-Jun]

Turtle Pond.

### **Ruscaceae (Butcher's broom family)**

***Maianthemum racemosum*** (L.) Link. FALSE SOLOMON'S SEAL. Perennial. [Mar-Jul]

Moist woodland, Redwood Canyon, Devil's Kitchen, Rogers Canyon. Inflorescence a panicle.

***Maianthemum stellatum*** (L.) Link. FALSE SOLOMON'S SEAL. Perennial. [Apr-Jun]  
Inflorescence a raceme.

### **Themidaceae (Brodiaea family)**

***Brodiaea elegans*** Hoover subsp. *elegans*. HARVEST BRODIAEA. Perennial. [Apr-Aug]  
Grassland.

***Brodiaea leptandra*** (Greene) Baker. NARROW-FLOWERED CALIFORNIA BRODIAEA. CNPS Rank 1B.2. Perennial. [May-Jul]  
Rare plant, but common in chaparral on the preserve.

***Dichelostemma capitatum*** (Benth.) Alph. Wood subsp. *capitatum*. BLUE DICKS. Perennial. [Mar-Jun]  
Grassland, road cuts and oak woodland.

***Dichelostemma congestum*** (Sm.) Kunth. FORK-TOOTHED OOKOW. Perennial. [Apr-Jun]  
Oak woodland.

***Triteleia hyacinthina*** (Lindl.) Greene. WHITE BRODIAEA, FOOL'S ONION. Perennial. [Mar-Jul]  
Vernal pools and areas where water stands in spring, east of the Redwood Gate, west of the Red Corral, Turtle Pond, Goodman Homestead, meadow near Martin Creek Falls.

***Triteleia laxa*** Benth. ITHURIEL'S SPEAR, COMMON TRITELEIA. Perennial. [Apr-Jun]  
Grassland.

***Triteleia peduncularis*** Lindl. LONG-RAYED BRODIAEA. Perennial. [May-Jul]  
Soggy serpentine clay soil in the streambed below the Barn.

### **Typhaceae (Cattail family)**

***Typha domingensis*** Pers. SOUTHERN CATTAIL. Perennial. [Jun-Jul]  
Skovie Basin and Willow Spring.

## Appendix A: Cultivated Taxa

*Acer negundo* L. BOX ELDER. Tree. [Mar-Apr]

Deciduous tree planted in the Garrison Canyon in 1976 by D. Cavagnaro and G. de Nevers.

*Agave americana* L. CENTURY PLANT. (Mex). Perennial.

Cultivated at the McCann and Strebel Homesteads, and has escaped to the top of Telegraph Hill, road cut below Ward House Site. The spectacular inflorescences are produced only once in the life of each rosette, after about 25 years. Bat-pollinated in Mexico, perhaps facultatively pollinated by hummingbirds and bumble bees here.

*Amaryllis belladonna* L. NAKED LADIES. (s Amer, Afr, Medit). Perennial. [Jul-Sep]

Bulb with wonderfully fragrant pink flowers. Goodman, McCann, and Strebel Homesteads; Garrison Canyon. Native to Japan. Naked lilies are one of a group of geophytes (bulbs) that put up leaves in the wet season, then bloom without leaves in the middle of the dry season. The phenomenon is best known from the Negev Desert of Israel, and South Africa. It may be that these plants bloom “out of season” to avoid competition for pollinators. Our best native plant example of this phenomenon is *Brodiaea leptandra*.

*Carya illinoensis* (Wangenh.) K. Koch. PECAN. ( ). Tree. [Apr-May]

Manager’s House. This beautiful, mature tree fruits every year, but the nuts don’t develop to maturity and are inedible.

*Citrus x sinensis* (L.) Osbeck. SWEET ORANGE. ( ). Tree. [ ]

The orange tree along the road between Goodman Homestead and the Turtle Pond survived ups and downs over perhaps 100 years: snow every 4 or 5 years, dying back from frostbite, then gradually recovering. The fruits were small, juicy and delicious. It finally succumbed to a grass fire in 1996.

*Cydonia oblonga* Mill. QUINCE. ( ). Tree. [ ]

The last of the old quince bushes at the McCann Homestead died in 1991.

*Diospyros kaki* L. f. JAPANESE PERSIMMON. (Asia). Tree. [ ]

The Hachia variety persimmon tree fruits most years near the old winery foundation at the Strebel Homestead.

*Diospyros lotus* L. DATE PLUM. (se Asia, sw Eur). Tree. [Jun-Jul]

Manager’s House. This is probably a tree developed from rootstock that grew up after the grafted top died.

*Eucalyptus globulus* Labill. BLUE GUM. Invasive weed (se Australia). Tree. [Oct-Jan]

Old trees at Strebel Homestead. Apparently it is too dry at Pepperwood for this tree to reproduce by seed, although it produces abundant seed. This is an interesting contrast to the coastal situation just 20 miles west, where it is an invasive weed.

*Ficus carica* L. FIG. Invasive weed (sw Asia). Tree. [Mar-Apr]

Manager’s House; McCann, Goodman, and Strebel Homesteads; west of the Bechtel House; Martin Creek. One of the highlights of a visit to Pepperwood is climbing in

the acre-large old Black Mission figs at the Goodman Homestead. When ripe the figs are unrivaled, coyotes, foxes, and bear eat the fruits and distribute the seeds all over the preserve. Seedlings are relatively common, but usually short-lived. Foxes are good tree climbers and are apparently responsible for epiphytic fig seedlings in tree crotches.

*Hesperocyparis macrocarpa* (Hartw.) Bartel. MONTEREY CYPRESS. (Monterey Peninsula, Point Lobos). CNPS Rank 1B.2. Tree.

A few beautiful, old, flattopped trees planted for shade at the McCann Homestead survive at the Red Corral. Planted at homestead sites. They are a favorite perch of crows, ravens and raptors. Rare plant, native only in Monterey County, California.

*Juglans regia* L. ENGLISH WALNUT. (Eurasia). Tree. [ ]

Manager's House, Garrison Canyon, above Strebel Homestead. The husk is attacked by walnut husk flies (*Rhagoletis completa*) that turn it to an inky black ooze which is a remarkably effective dye. California black walnut (*Juglans nigra*) is used as a root stock to graft English walnut on. The black walnut is more vigorous and produces a fatter stem with black bark which contrasts sharply with the white stem of the English walnut above after a few years. When the English walnut top dies the black walnut then grows up as a tree, as at Goodman Homestead and above Strebel Homestead.

*Kniphofia uvaria* (L.) Oken. POKER PLANT. (S Afr). Perennial. [Apr-Jul]

Infrequent, a garden escape from Rogers Canyon (Best et al. 1996). It persists from cultivation at the McCann and Goodman Homesteads.

*Leucojum aestivum* L. SNOWFLAKE. (Eur). Perennial. [Apr-May]

Persisting at Goodman Homestead.

*Malus pumila* Mill. APPLE. (Eurasia). Tree. [Apr-May]

Rogers, Goodman Homestead, Garrison Canyon, escaped near Manager's House, Strebel Homestead. From Europe. The apples are one of the great delights of Pepperwood, both at blooming time and during harvest. One year a black bear harvested all the *branches* from a few of the trees at the Rogers Orchard, ate all the apples, and left a great mound of scat to tell the tale.

*Narcissus pseudonarcissus* L. DAFFODIL. (Eur, w Asia, n Afr). Perennial. [spring]

Strebel Homestead.

*Populus nigra* L. LOMBARDY POPLAR. (Eur). Tree. [Feb-May]

Old specimen trees at Strebel Homestead.

*Prunus* spp. UPPER ORCHARD PLUM, GOODMAN PLUM. ( ). Tree. [ ]

Goodman Homestead. A seed planted during the homestead era has produced a small group of root suckering trees just downstream of the cottonwood at Goodman Homestead.

*Prunus avium* (L.) L. SWEET CHERRY. ( ). Tree. [ ]

Strebel and McCann Homesteads.

*Prunus armeniaca* L. APRICOT. (China). Tree. [ ]

Goodman Homestead, above Strebel Homestead.

*Prunus avium* (L.) L. CHERRY. (Eurasia). Tree. [ ]

Above Strebel Homestead, McCann Homestead.

*Prunus cerasifera* Ehrh. CHERRY PLUM. Invasive weed (se Eur). Tree. [Feb-Mar]

McCann Homestead, gravel pit by the Red Corral, Manager's House, Garrison Canyon.

*Prunus domestica* L. COMMON PLUM. (sw Asia). Tree. [ ]

Goodman and Strebel Homesteads, Garrison Canyon.

*Prunus dulcis* (Mill.) D.A. Webb. ALMOND. (w Asia, n Afr). Tree. [Feb-Mar]

The last surviving homestead almonds, at the Manager's House and McCann Homestead, died in 1995.

*Prunus persica* (L.) Batsch. PEACH. (e Asia). Tree. [Mar]

The last peach at McCann Homestead died in 1993.

*Pyrus communis* L. COMMON PEAR. (Eurasia). Tree. [Feb-Apr]

McCann and Goodman Homesteads, above Strebel Homestead. There are eight or ten pear trees along the creek below the main spring in the 40 acre pasture west of the Manager's House. They don't appear planted and may be escapees from cultivation.



## Appendix B: Taxa on Neighboring Properties

The following is a partial list of the taxa found growing along roads or on properties that are adjacent to Pepperwood Preserve, increasing the probability that they may occur on the preserve or will migrate onto the preserve in the future. Native taxa are indicated by bold binomials. Invasive or noxious weeds are indicated by double asterisks (\*\*).

Scientific Name	Location(s)
<i>Acacia decurrens</i>	Franz Valley Road by the Mountain House
<i>Agrostis avenacea</i>	Oak Hill Ranch after the 1996 fire
<i>Agrostis exarata</i>	Leslie Creek, Franz Creek
<i>Allium ampletens</i>	Seep on Studio Road, just above Hagel's Corral
<i>Allophyllum divaricatum</i>	Sandy road cut along Franz Valley Road one mile north of the Mountain House
<i>Apiastrum angustifolium</i>	Redeposited volcanic ash cliffs in the canyon west of the second bridge on Leslie Road
<i>Arum italicum</i>	Franz Valley Road opposite 3625 Franz Valley Road
<i>Boykinia occidentalis</i>	Mark West Creek at Leslie Creek
<i>Brickellia californica</i>	Franz Creek
<i>Bolboschoenus fluviatilis</i>	Sand-gravel bar in Mark West Creek at Leslie Creek
<i>Calandrinia breweri</i>	CNPS Rank 4, Chalk Mountain after the October 1996 fire, may have been abundant at Pepperwood after the 1964 fire
<i>Camassia quamash</i> subsp. <i>breviflora</i>	Big spring and marsh complex in Knights Valley
<i>Carex subfusca</i>	Mark West Creek at Leslie Creek
<i>Carex tumulicola</i>	Leslie Creek
<i>Castilleja exserta</i> subsp. <i>exserta</i>	Rock outcrops along Franz Valley Road
<i>Centaurea calcitrapa</i> **	Cow pasture on Leslie Road
<i>Centaurea iberica</i>	Franz Creek
<i>Chamaesyce serpyllifolia</i> subsp. <i>serpyllifolia</i>	Sand-gravel bar in Mark West Creek at Leslie Creek
<i>Chenopodium album</i>	Mark West Creek
<i>Collinsia heterophylla</i> var. <i>heterophylla</i>	Rock outcrop at the road cut below the Ward House Site
<i>Collinsia tinctoria</i>	Serpentine outcrops along Franz Valley Road
<i>Conium maculatum</i> **	Franz Creek, Mark West Creek
<i>Cordylanthus tenuis</i> subsp. <i>brunneus</i>	CNPS Rank 4, Redeposited volcanic ash on Chalk Mountain
<i>Cornus glabrata</i>	Franz Valley Road in Knights Valley
<i>Cornus nuttallii</i>	Franz Creek east of 3865 Franz Valley Road, common on Mt. Saint Helena
<i>Cornus sericea</i> subsp. <i>sericea</i>	Mark West Creek, Leslie Creek
<i>Cortaderia selloana</i> **	Mark West Springs Road near Mark West Lodge
<i>Cucurbita pepo</i>	Leslie Creek
<i>Datura stramonium</i>	Sand bar in Franz Creek

Scientific Name	Location(s)
<i>Delairea odorata</i> **	Drainage ditch along Franz Valley Road by the Ward House Site
<i>Delphinium hesperium</i> subsp. <i>hesperium</i>	Milo Baker 8068, Petrified Forest; Milo Baker 8762, Geysers, Sonoma County
<i>Deschampsia elongata</i>	Franz Creek
<i>Digitalis purpurea</i> **	Franz Creek
<i>Digitaria sanguinalis</i>	Franz Valley Road, Mark West Creek at Leslie Creek
<i>Draba verna</i>	West bank of Leslie Creek, 100 meters upstream of the confluence with Mark West Creek; Murry's Gate
<i>Dysphania botrys</i>	Sand-gravel bar in Mark West Creek at Leslie Creek
<i>Elatine brachysperma</i>	Shore of Hagel's Lake
<i>Epipactis gigantea</i>	A.A. Heller 1902 collected at Mark West Lodge
<i>Equisetum hyemale</i> subsp. <i>affine</i>	Franz Creek east of Franz Valley Road
<i>Eragrostis cilianensis</i>	Sand-gravel bar in Mark West Creek at Leslie Creek
<i>Eragrostis pilosa</i> var. <i>pilosa</i>	Franz Valley Road
<i>Euphorbia lathyris</i> **	Franz Valley School Road, Mark West Creek
<i>Festuca elmeri</i>	Mark West Creek at Leslie Creek
<i>Festuca myuros</i> **	Disturbed areas
<i>Festuca occidentalis</i>	Mark West Creek at Leslie Creek
<i>Gratiola ebracteata</i>	Vernal pool margins, Leslie Road pond
<i>Heliotropium curassavicum</i> var. <i>oculatum</i>	Sand-gravel bar in Mark West Creek at Leslie Creek, Hagel's Lake
<i>Heracleum maximum</i>	Mark West Springs Road one mile east of Leslie Road, along Franz Valley Road toward Franz Valley
<i>Hoita macrostachya</i>	Franz Creek, spring on road from Bald Hills to Franz Creek
<i>Holozonia filipes</i>	Spillway of a pond on Leslie Road and the creek below it
<i>Lathyrus odoratus</i>	Road cut at Ward House Site
<i>Layia platyglossa</i>	Grazed pasture along Leslie Creek
<i>Lepidium didymum</i>	Sand-gravel bar in Mark West Creek at Leslie Creek
<i>Leptosiphon harknessii</i>	Oak Hill Ranch after the 1996 fire, probably at Pepperwood after the 1964 fire
<i>Lomatium californicum</i>	Serpentine road cuts along Franz Valley Road
<i>Lonicera involucrata</i> var. <i>ledebourii</i>	Mark West Creek
<i>Ludwigia hexapetala</i> **	Pond along Leslie Road, Franz Creek, Mark West Creek (native invasive)
<i>Ludwigia palustris</i>	Franz Creek, Yellow Jacket Ranch Lake
<i>Lupinus latifolius</i> var. <i>latifolius</i>	Mark West Springs Road (Eastwood and Howell #5513, May 15, 1938), road cut on Franz Valley Road
<i>Lycopersicon esculentum</i>	Franz Creek
<i>Madia elegans</i>	Mark West Springs Road near the Cresta Ranch
<i>Malacothrix floccifera</i>	Serpentine road cuts along Franz Valley Road
<i>Marah fabaceus</i>	Mark West Creek at Leslie Creek, Mark West Springs Road, Franz Valley Road below Pepperwood Entrance
<i>Medicago lupulina</i>	North side of Franz Valley Road
<i>Mentha x piperita</i>	Mark West Creek

Scientific Name	Location(s)
<i>Micranthes integrifolia</i>	Moist seep on Studio Road, just above Hagel's Corral
<i>Mimulus kelloggii</i>	Hillside along Leslie Road, east of the road at the first bridge
<i>Mimulus pilosus</i>	Mark West Creek, Franz Creek
<i>Myriophyllum sibiricum</i>	Yellow Jacket Ranch Lake
<i>Navarretia heterodoxa</i>	Sand-gravel bar in Mark West Creek at Leslie Creek
<i>Panicum dichotomiflorum</i> subsp. <i>dichotomiflorum</i>	Spring at the base of the driveway at 3725 Franz Valley Road
<i>Panicum hillmanii</i>	Franz Valley Road, Mark West Creek
<i>Paspalum distichum</i>	Sand-gravel bar in Mark West Creek at Leslie Creek
<i>Penstemon heterophyllus</i> var. <i>heterophyllus</i>	"Petrified Forest" (A. Eastwood 4611, June 5, 1915); "between Knight Valley and Mark West Springs" (A.A. Heller 5790, June 28, 1902); "mountains west of Calistoga" (D.D. Keck, F.G. Krauss, May 1894)
<i>Penstemon heterophyllus</i> var. <i>purdyi</i>	"One mile west of Petrified Forest along Calistoga Road" (G de Nevers 1229, G.E. Hass 1, June 10, 1941); "Growing in full sun on sandstone road cut, Mark West Springs Road, NE of Santa Rosa, Sonoma County, Elevation 200 feet" (W. Roderick, June 18, 1976).
<i>Phacelia californica</i>	Petrified Forest, fire follower collected by J.T. Howell (#13,069 – July 4, 1937)
<i>Phacelia suaveolens</i>	Franz Valley School Road after the Hanley Fire in 1964 (Walter Knight, personal communication, April 1982)
<i>Phalaris canariensis</i>	Unknown
<i>Phragmites australis</i>	Unknown
<i>Phyla nodiflora</i>	Receding shoreline of Hagel's Lake
<i>Physalis philadelphica</i>	Gravel bar in Franz Creek
<i>Polycarpon tetraphyllum</i> var. <i>tetraphyllum</i>	Mark West Creek, Leslie Creek
<i>Prunella vulgaris</i> var. <i>vulgaris</i>	Franz Creek, Mark West Creek
<i>Prunus subcordata</i>	20-30 individuals in the canyon west of the second bridge on Leslie Road
<i>Rhododendron occidentale</i>	Mark West Creek, Franz Creek, headwaters of Franz Creek north of Chalk Mountain
<i>Ribes divaricatum</i> var. <i>pubiflorum</i>	Riparian zone at Mark West Creek at Leslie Creek
<i>Salix exigua</i>	Leslie Creek near Mark West Creek
<i>Salsola tragus</i> **	Sand-gravel bar in Mark West Creek at Leslie Creek
<i>Schoenoplectus mucronatus</i>	Sand-gravel bar in Mark West Creek at Leslie Creek
<i>Scutellaria tuberosa</i>	East of 3865 Franz Valley Road
<i>Setaria viridis</i>	Mark West Creek bed, along Franz Valley Road
<i>Sidalcea oregana</i> subsp. <i>valida</i>	CNPS Rank 1B rare plant, marsh in Knights Valley and Kenwood Marsh
<i>Sonchus oleraceus</i>	Disturbed areas, Cresta Ranch
<i>Spartium junceum</i> **	Leslie Creek near Mark West Creek
<i>Streptanthus glandulosus</i> subsp. <i>secundus</i>	Serpentine road cuts along Franz Valley Road, Petrified Forest (according to J.T. Howell, July 4, 1937)

Scientific Name	Location(s)
<i>Tellima grandiflora</i>	Franz Creek east of 3865 Franz Valley Road
<i>Trifolium barbigerum</i>	Road to Hagel's Lake
<i>Trillium ovatum</i>	Bank of Kitchen Creek near Al Cuneo's cabin
<i>Verbascum blattaria</i>	Sand-gravel bar in Mark West Creek at Leslie Creek
<i>Verbascum bombyciferum</i>	Mark West Creek and the lower Russian River
<i>Verbascum virgatum</i>	Franz Creek
<i>Verbena bonariensis</i> **	Leslie Creek
<i>Veronica anagallis-aquatica</i>	Franz Creek
<i>Vicia hirsuta</i>	Franz Valley Road
<i>Viola lobata</i> subsp. <i>lobata</i>	North side of Franz Valley Road
<i>Xanthium spinosum</i>	Murry Ranch on Pepperwood's northwest border

## Appendix C: Invasive and Noxious Weeds

The Pepperwood flora includes many exotic invasive and noxious weeds which are listed here in accordance with *The Jepson Manual, Second Edition* (Baldwin, et al. 2012). Invasive taxa are primarily from the California Invasive Plant Inventory Database developed by the California Invasive Plant Council (Cal-IPC). Noxious weeds are indicated by a dagger symbol (†) and are from listings by the California Department of Food and Agriculture.

Scientific Name	Common Name(s)
<i>Aegilops triuncialis</i> †	Barbed goatgrass
<i>Ailanthus altissima</i> †	Tree of heaven
<i>Allium vineale</i> †	Onion, garlic
<i>Avena barbata</i>	Slender wild oat
<i>Avena fatua</i>	Wild oat
<i>Bellardia trixago</i>	Mediterranean linseed
<i>Brachypodium distachyon</i>	False brome
<i>Brassica nigra</i>	Black mustard
<i>Brassica rapa</i>	Turnip, field mustard
<i>Briza maxima</i>	Rattlesnake grass, large quaking grass
<i>Bromus diandrus</i>	Ripgut grass
<i>Bromus hordeaceus</i>	Soft chess
<i>Bromus madritensis</i> subsp. <i>rubens</i>	Red brome
<i>Carduus acanthoides</i> subsp. <i>acanthoides</i> †	Plumeless thistle
<i>Carduus pycnocephalus</i> subsp. <i>pycnocephalus</i> †	Italian thistle
<i>Carthamus lanatus</i> †	Woolly distaff thistle
<i>Centaurea melitensis</i> †	Tocalote
<i>Centaurea solstitialis</i> †	Yellow star thistle
<i>Chondrilla juncea</i> †	Skeleton weed
<i>Cirsium arvense</i> †	Canada thistle
<i>Cirsium vulgare</i> †	Bull thistle
<i>Convolvulus arvensis</i> †	Bindweed, orchard morning-glory
<i>Cotoneaster pannosus</i>	Silverleaf cotoneaster
<i>Cotula coronopifolia</i>	Brass-buttons
<i>Cynodon dactylon</i>	Bermuda grass
<i>Cynosurus echinatus</i>	Bristly dogtail grass
<i>Cytisus scoparius</i> †	Scotch broom
<i>Dactylis glomerata</i>	Orchard grass
<i>Dipsacus fullonum</i>	Wild teasel
<i>Dittrichia graveolens</i>	Stinkwort
<i>Echium plantagineum</i>	Salvation Jane
<i>Elymus caput-medusae</i> †	Medusa head
<i>Erodium cicutarium</i>	Redstem filaree
<i>Eucalyptus globulus</i>	Blue gum

Scientific Name	Common Name(s)
<i>Euphorbia oblongata</i> <sup>†</sup>	Spurge
<i>Festuca arundinacea</i>	Tall fescue
<i>Festuca perennis</i>	Rye grass
<i>Ficus carica</i>	Fig
<i>Foeniculum vulgare</i>	Fennel
<i>Genista monspessulana</i> <sup>†</sup>	French broom
<i>Geranium dissectum</i>	Cranesbill, geranium
<i>Glyceria declinata</i> <sup>†</sup>	Low mannagrass
<i>Hedera helix</i>	English ivy
<i>Helminthotheca echinoides</i>	Prickly ox tongue
<i>Holcus lanatus</i>	Velvet grass
<i>Hordeum marinum</i> subsp. <i>gussoneanum</i>	Mediterranean barley
<i>Hordeum murinum</i> subsp. <i>leporinum</i>	Hare barley
<i>Hypericum perforatum</i> subsp. <i>perforatum</i> <sup>†</sup>	Klamath weed
<i>Hypochaeris glabra</i>	Smooth cat's ear
<i>Hypochaeris radicata</i>	Hairy cat's ear
<i>Lepidium campestre</i>	Peppergrass, peppergrass
<i>Lepidium draba</i> <sup>†</sup>	Heart-podded hoary cress
<i>Lythrum hyssopifolia</i>	Loosestrife
<i>Marrubium vulgare</i>	Horehound
<i>Medicago polymorpha</i>	California bur-clover
<i>Mentha pulegium</i>	Pennyroyal
<i>Myosotis latifolia</i>	Broadleaved forget-me-not
<i>Olea europaea</i>	Olive
<i>Onopordum illyricum</i> <sup>†</sup>	Illyrian thistle
<i>Oxalis pes-caprae</i>	Bermuda buttercup
<i>Parentucellia viscosa</i>	Parentucellia
<i>Phalaris aquatica</i>	Harding grass
<i>Plantago lanceolata</i>	English plantain
<i>Poa pratensis</i> subsp. <i>pratensis</i>	Kentucky blue grass
<i>Polypogon monspeliensis</i>	Rabbitfoot grass
<i>Prunus cerasifera</i>	Cherry plum
<i>Raphanus sativus</i>	Radish
<i>Rubus armeniacus</i>	Himalaya blackberry
<i>Rumex acetosella</i>	Sheep sorrel
<i>Rumex crispus</i>	Curly dock
<i>Silybum marianum</i>	Milk thistle
<i>Torilis arvensis</i>	Tall sock destroyer
<i>Tribulus terrestris</i> <sup>†</sup>	Caltrop, puncture vine
<i>Trifolium hirtum</i>	Rose clover
<i>Verbascum thapsus</i>	Woolly mullein
<i>Vinca major</i>	Greater periwinkle

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