

Summer herbarium databasing a success

By Thea Cook and Ann Willyard

Herbaria are typically quiet, thoughtful places, museums dedicated to solitary study. This summer, the OSU Herbarium was transformed into a bustling beehive of activity. With funding from BLM, our goal was to search the entire herbarium, selecting one specimen from each taxon for each Oregon county to enter into the database.

Summer began with a rush to hire 12 students (for a team of 20) with skills ranging from plant taxonomy to editing and the goal of meticulously entering over 20,000 new records into our herbarium specimen database. We fretted over the number of workers needed to accomplish this tremendous task and hoped they were ready to pay careful attention to the elaborate data entry protocol, not to mention persevere through the duration of the summer! We could not have anticipated our good fortune. These stellar students rose to the occasion and even surpassed our expectations. We fought the heat (most work areas are not air conditioned), power outages, a tight deadline, and we won.

Erythronium oregonum logo and masthead designed by Tanya Harvey.

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Who are these herbarium heroes? Half of our crew are Botany and Plant Pathology majors while most others are studying Zoology, Environmental Science or Resource Management. We were very pleased to harbor a convert to Botany and Plant Pathology, Lacey Yarbrough. Experienced workers like Stephen Meyers, John Schenk, Carl Wiese and Steve Ziemack became responsible trainers of summer hires. Other dedicated workers of honorable mention are Bailey Edgley, Paige Kruger and Kate Norman, whose spirit, willingness to learn and ability with special software programs was highly appreciated. Local KBVR radio show hosts, Dr. Soul (a.k.a. Tyler Norby) and Prof. Funk (a.k.a. Andy Needham), also joined our team. They arrived early every day to stake out their workstations in the cave (a small back room of the herbarium). Tyler became so dedicated to the project that when he did not finish an assignment on his last day, he arrived the next morning (a Saturday) to complete his work in pajamas and a bathrobe! Another very dedicated worker, John Schenk, upon hearing of our desire to reach the 50 thousandth database record before a databasing milestone party, took it upon himself to ensure we reached our goal over the weekend. The rate of activity in our confined herbarium space called for crowd control as students waited in line to access herbarium cabinets. In the end, herbarium visitors, George Argus and Pat and Noel Holmgren among them, seemed energized by the OSU Herbarium experience. Noel Holmgren said that the New York Botanical Garden Herbarium seemed strangely quiet when he returned home.

The summer was filled with blossoming relationships between people of vastly different ages and backgrounds. Students with abundant computer skills learned how to lift and carry fragile old specimens from volunteers who have handled specimens for more than 50 years, but who might need help reaching the upper shelves. Ruth McFarland quickly became an honorary grandmother to several students, as well as an inspiration when she finished labeling her life's collections for donation to various herbaria. Richard Halse occasionally gathered eager students to show them some unique feature of

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Photo: Whitney Ziemack

Some members of the summer databasing team. Top row: Kate Norman, Scott and Matthew Sundberg, Linda Hardison, Ann Willyard, Tyler Norby, Jason Alexander, John Schenk, Basho Perry, Stephen Meyers. Bottom Row: Bailey Edgley, Thea Cook, Aaron Liston (Herbarium Director), and Steve Ziemack

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Thomas Howell Discovers *Calyptridium monospermum* by Kenton L. Chambers

In a previous issue of this Newsletter, I mentioned that the genus name *Spraguea*, used in *Flora of the Pacific Northwest* and other references, should be replaced by the older name *Calyptridium*. The most common representative of the genus in Oregon is *C. umbellatum* (Torr.) Greene (pussypaws), a species discovered by the explorer John Charles Fremont and named as *Spraguea umbellata* by John Torrey in 1853. The pioneer Oregon botanist, Thomas Howell, seems to have had a special interest in this genus, and in the family Portulacaceae to which it belongs.

One of Howell's few (if not only) scientific papers, published in 1893 in the botanical journal *Erythea* (Willis Linn Jepson, editor), dealt with this family. The paper was titled "A Rearrangement of American Portulacaceae" and it was quite influential in taxonomic treatments of the family, especially as to Howell's interpretation of *Claytonia* and *Montia*, even as late as the 1970s (see Peck's *Manual*, Munz & Keck's *California Flora*, and Hitchcock's *Flora of the Pacific Northwest*). In this paper, Howell proposed the generic name *Oreobroma* (meaning "food of the mountains") for *allewisia* species except the type species, *L. rediviva*, and he described a new species, *Montia rubra*, which we now recognize as a valid species of *Claytonia*. Another new species was *Spraguea multiceps* Howell, from Mt. Hood and Mt. Adams; however, its description refers to the common, widespread form of *Calyptridium umbellatum* with an underground, multiple-branched perennial caudex. In such plants, each caudex branch produces a rosette of succulent leaves and a single terminal inflorescence. His description of *Spraguea umbellata*, on the other hand, says (b) "biennial; stems all arising from a single crown." Siskiyou and Sierra Nevada Mountains, the word "stems" referring to numerous separate inflorescences.

While examining herbarium specimens for a treatment of *Calyptridium* for the Oregon Vascular Plant Checklist, I came upon an historical document, the draft of a letter from Thomas Howell to Asa Gray, which helps explain Howell's interpretation of *Spraguea umbellata* and his publication of the new name *Spraguea multiceps*. The draft is written in pencil on poor quality ledger paper; it was attached to an herbarium sheet having the

printed label "Spraguea umbellata, Torr., Siskiyou mountains near Waldo, Thos. Howell No. 1339, July 1887." The letter is addressed to Dr. Gray and is dated Oct. 9, 1887. It describes two collections of *Spraguea* that Howell was sending to Gray for his determination, one from Mt. Hood and one from the Siskiyou. Howell had been a frequent correspondent of Gray's, providing field observations about various Portulacaceae. In his letter, Howell describes the peculiar features of his Siskiyou Mountains collection, differentiating it from the *Spraguea* species that he knew from Mt. Hood. He then makes the following request: "If either of these plants is the original *S. umbellata*, please tell me which one it is and give the other a name; name both of them if they are not that plant."

Sadly, Asa Gray had a stroke on November 28, 1887, and died just two months later. It is quite unlikely, therefore, that he could have replied to Howell's letter. From subsequent events it is clear that, by 1893, Howell decided on his own that the Mt. Hood and Mt. Adams plants were *not* what Torrey had described as *Spraguea umbellata*, and hence they should be given the new name *S. multiceps*. His Siskiyou collection, he therefore assumed, was the same species as Torrey's *S. umbellata*, whose type specimen had come from the Sierra Nevada of northern California. But today our interpretation is just the reverse; *S. multiceps* is the *same* as *S. umbellata*, while the Siskiyou plant is a different species! What is the explanation?

The answer is this: In his Siskiyou Mountains collection, Thomas Howell had discovered a new undescribed species, but

because Dr. Gray had died before he could advise Howell what the *S. umbellata* was, Howell did not correctly interpret his find. Only later, in 1895, was this new species given the name *Calyptridium monospermum* by E. L. Greene, the type collection coming from Inyo County, California. Unfortunately, further confusion arose, because Greene erroneously described the species as an annual, with only one seed per capsule (not perennial and having 1-8 seeds, as is the case). Not until 1975 was the confusion between these two species finally clarified (W. F. Hinton, Systematics of the *Calyptridium umbellatum* complex [Portulacaceae]. *Brittonia* 27:197-208).

In Oregon, *Calyptridium monospermum* is known from Curry, Josephine, Douglas, Jackson, Klamath, and Lake counties; it ranges south through California all the way to

Specimen of Calyptridium monospermum collected by Lincoln Savage in Jackson Co., Oregon, May 13, 1934. The label reads, "This plant grows in sandy pumice flats at high altitudes, Union Creek on Crater Lake Road." Note that none of the inflorescence stems arise from the central apex of the rosette of basal leaves.

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northern Baja California. Its essential differences from *C. umbellatum* are well illustrated by the accompanying image of a specimen from Union Creek, Jackson County: (1) the inflorescence scapes arise from the axils of leaves below the single stem apex, and (2) there are small leafy bracts on the scapes. A third difference, not shown, is that throughout the life of the plant, the caudex never branches (unless its growing point is damaged). The opposing traits of *C. umbellatum* are: (1) each inflorescence scape is terminal, from the center of a leaf rosette, (2) bracts on the scapes are smaller or absent, and (3) the caudex is branched, with a leaf rosette at the tip of each branch.

This involved story would not be complete if I did not add a further complication: these two species may grow together in nature and form hybrids. From herbarium collections, it appears that hybrid plants may have a single caudex with both the terminal, small-bracted inflorescence of *C. umbellatum* and the axillary ones of *C. monospermum*. Such plants are frequent in California; in Oregon, they are found in the vicinity of Crater Lake and elsewhere in Klamath County. In the Cascades north of Douglas County, as well as eastward to the Wallowas, we expect to find only *C. umbellatum*.

Our new look

by Rhoda Love

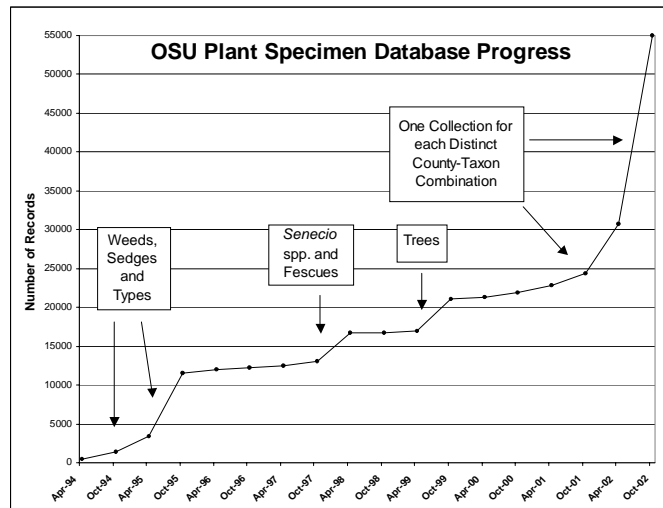
The *Oregon Flora Newsletter* has a new look and the Oregon Flora Project a new logo. With this issue of the newsletter we introduce a new representation of our signature species, *Erythronium oregonum*, Oregon fawn lily or giant fawn lily.

Our new logo and masthead were designed for us by well-known Oregon artist, Tanya Harvey. Tanya lives near Lowell in Lane County and is known to many of us as the Editor of the *Bulletin* of the Native Plant Society of Oregon. She is a designer of cards, posters, and other art work and is also an avid birder and native plant gardener.

In 1995 when the Oregon Flora Newsletter was launched we knew we wanted a well-known species with *Erythronium oregonum* in its name for our logo. The fawn lily seemed the perfect choice, a beautiful and much-loved species which is closely associated with our state. This charming native lily with its handsome mottled leaves was first collected by Archibald Menzies in the spring of 1792. Floras generally give the collecting place as Fort Vancouver, but this cannot be correct as Menzies did not visit the Fort. Scholars now believe the location was most likely Admiralty Inlet north of present-day Seattle, part of the vast Oregon Territory from 1848 to 1853. W. J. Hooker named the flower *Erythronium grandiflorum albiflorum* and Oregon botanist Elmer Ivan Applegate gave it the present name, *Erythronium oregonum*, in 1932, designating a type specimen from Clackamas County.

Our previous logo, which graced the newsletter from 1996 until this year, was drawn for us by Dr. Linda Ann Vorobik, who was Principal Illustrator for *The Jepson Manual*. We thank Tanya Harvey for the new designs and Linda Vorobik for the earlier logo. Both Tanya and Linda are superb artists and we are grateful to both for making their work available to us. We hope newsletter readers enjoy our new look.

a newly-collected plant. Don Roberts, Glenn and Barbara Halliday, Gene Newcomb, and a number of other volunteers patiently double-checked student work by comparing computer printouts with specimens. Henny Chambers continued annotating in the midst of all of this activity, sharing tidbits of her discoveries about the species she was studying for checklist treatments. Finding a question that needed to be asked of Ken Chambers was a high point for many students, because the answer might include a wonderful story about either the plant, the collector, or Oregon geographical place names.



This chart shows growth of the OSU Herbarium Vascular Plant Specimen Database since its inception in early 1994. The line rises with each new record. A measurement of the number of records (each record represents one herbarium specimen) was made every 6 months. During high rates of data entry, text indicates the specific plant groups databased. Almost 55,000 OSU records have been entered to date.

The pace of work in the herbarium this summer was stimulated on various fronts. When Aaron Liston (OSU Herbarium Director) asked Thea Cook to prepare a chart of records databased over the course of the summer, he never imagined the impact it would have on our group. A new graph was produced each week to chart progress toward our 22,000 record goal. Having learned to write database queries, workers began to check their daily progress and compete with one another for the most new specimen records created in a day. Of course we always stressed quality over quantity, but these competitive botanists were eager for a chance to show their prowess. At every 5,000 record increment we had a lunchtime celebration and speaker. Rhoda Love offered a slide presentation on Oregon plant collectors, which gave us all higher appreciation for botanists, like William Cusick and Thomas Jefferson Howell, whose handwritten labels can sometimes be a challenge to decipher. Linda Hardison fueled workers' spirits with a pertinent introduction to the need for a new comprehensive flora for this state.

All good things must come to an end. The Oregon county project was completed for the September deadline, and fortunately we were able to keep much of our highly esteemed databasing crew for more Flora Project work this fall. Additionally our team of dedicated volunteers, critical to our success, stands ready to tackle more projects. Whatever is next, we are ready!

Project news

by Scott Sundberg

The summer of 2002 will long be remembered as a turning point in the history of the Oregon Flora Project. Significant gains have been made in many areas. Funding from the Bureau of Land Management, Weyerhaeuser (Willamette Industries), the Native Plant Society of Oregon, The National Science Foundation, and private donations supported 28 part- and full-time employees. Volunteers, including five individuals who came on 1/2 Volunteer Tuesdays, 1/2 allowed us to make even more progress.

At the end of September Ann Willyard, Thea Cook and I submitted a report and database to the BLM with lists of all known plant taxa (species, subspecies and varieties) for all 36 Oregon counties. The lists were derived by reviewing 342,000 records from twenty sources, including herbarium specimens at OSU and eight other herbaria, species lists, photographs, and published literature.

County checklist work is underway for Curry, Jackson, Josephine, Lane, Polk, and Yamhill counties. If you are interested in starting a project for another county let me know and you'd be welcome to use our list as a starting point!

During the summer we completed work on the prototype of a Rare Plant Guide. Fifty 1/2 fact sheets 1/2 were prepared. Each sheet summarizes information on a rare western Oregon species and has a distribution map, species description, line drawings, photos, habitat, best survey times, and identification hints. We are now editing the fact sheets and plan to make them available for viewing and printing over the Internet some time this fall.

The online photo gallery is under development. Sherry Pittam has designed a web page and we are gathering photographs with an emphasis on members of the heath family (Ericaceae) and rock garden plants. By the end of November we plan to make this accessible to the public.

Linda Hardison and I have been working on a database of morphological characters, which will become the core of the identification keys in our planned 1/2 Personal Digital Field Guide. 1/2 We are focusing on members of the heath family (Ericaceae) for now, but eventually will include all Oregon species. This task requires establishing many of the ground

rules for the Oregon Flora, including making decisions on terminology. I am now working on a list of characters and a glossary.

Over the next couple of months we will put several things online through our website, www.oregonflora.org, so please drop by for a visit! ☐

Thanks

The following donors have recently contributed via the OSU Foundation, Friends of the Flora and NPSO membership pledges: Native Plant Society of Oregon, NPSO Umpqua Valley Chapter, Linda Boyer, Gretchen & Denis Carnaby, Dave Garcia, Clay Gautier & Gail Baker, Pat & Noel Holmgren, Mary H. Hough, Robert Hubert, Jim Johnson, Kenneth & Robin Lodewick, Rhoda & Glen Love, Charlene Simpson, James P. Smith, Veva Stansell, George & Emily Swan, and Charles Trainer.

Thanks to the following who have helped by volunteering or sending in species lists or specimens: Doug Barbe, Jim Duncan, Barbara & Glenn Halliday, Don Mansfield, Megan Miller Morgan, Gene Newcomb, Joan Ojerio, Don Roberts, and Suzanne Stillwaggon.

Thanks to the following for giving permission to use photographs and illustrations: Institute of Applied Ecology, Oregon Dept. of Agriculture, Mark Egger, Steve Gisler, Tanya Harvey, Phillip Hays, Bill Hopkins, Vernon Marttala, Julie Kierstead Nelson, Bruce Newhouse, Linda Vorobik, and Karen Wallace.

We would like to give a special thanks to Glenn Halliday for donating 10,360 slides to the Oregon Flora Project!

Lane County Checklist Note: A page of additions and deletions to the Checklist published last spring will soon be posted at www.EmeraldNPSO.org. Hard copies of the updates will be available at Emerald Chapter NPSO meetings and events, and published in the February *Oregon Flora Newsletter*.

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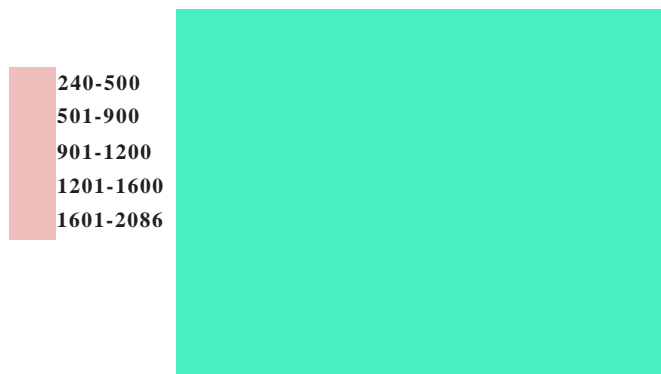
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Did you know?

- The OSU Herbarium web page now has 47,000+ specimens that can be searched by scientific name, collector, collection date, or Oregon county: www.orst.edu/dept/botany/herbarium/db/vasc_plant.html. This represents 30% of the non-cultivated Oregon vascular plant specimens in the OSU herbarium.
- Currently, no species has been reported from all 36 Oregon counties, but 4 are known from 35 counties each: *Achillea millefolium* (yarrow; native to Oregon; not yet reported from Gilliam Co.), *Cornus sericea* (red osier dogwood; native to Oregon; not yet reported from Morrow Co.), *Erodium cicutarium* (red-stemmed filaree; not native to Oregon; not yet reported from Columbia Co.), *Galium aparine* (stickywilly, cleavers; native to Oregon; not yet reported from Columbia Co.).
- In a recent survey of a sample of OSU Herbarium specimen collection dates, we discovered a great distinction between collecting eras. Whereas 70% of the specimens were collected between 1910 and 1959 and 10% were made prior to 1910, only 20% were collected between 1960 and 2000.



Number of species known from each Oregon county

This map is shaded to show how many taxa have been reported to the Oregon Flora Project for each county. The numbers include vouchered collections from herbaria as well as other reliable reports. This large data collection contains over 36,000 species/county occurrences!