OREGON FLORA Newsletter

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NPSO Citizen's Rare Plant Watch: Hunting for rare species in Oregon

by Erin Gray

Who doesn't love a treasure hunt? How about a search for a rare plant that hasn't been documented since the early 1900's? In June, that is what the Native Plant Society of Oregon (NPSO) Citizen's Rare Plant Watch volunteers set out to do: search for a historical occurrence of the rare *Erigeron howellii* (Howell's daisy) in the Columbia River Gorge. Within ten minutes of hiking we passed a small waterfall and as we approached, we noticed a member of the Saxifragaceae covering the cliff directly under the falls. This turned out to be a previously undocumented occurrence of the rare *Sullivantia oregana* (Oregon coolwort)! We pulled out our data sheets and began collecting data on the population including location, a count of individuals, habitat description, potential threats, and lots of photographs.

See NPSO Citizen's Rare Plant Watch, page 2

Photo: Erin Gray

NPSO Citizen's Rare Plant Watch volunteers documenting a population of Delphinium nuttallii *in the Columbia River Gorge*

Wild Strawberries

by Aaron Liston

Considering its familiarity, it is easy to overlook the fact that the edible strawberry is a botanical oddity. In most plants, the fleshy part of the edible structure is derived from the ovary, and this fits the botanical definition of a fruit. Thus despite the fact that the US Supreme Court ruled in 1893 that the tomato is legally a vegetable (*http://en.wikipedia.org/wiki/Nix_v._Hedden*) to a botanist, it will always be a fruit. I am certain if asked, the Supreme Court would also decree that the strawberry is a fruit. At least this is partially correct. We do eat fruits when we ingest a strawberry, but it is definitely not a berry! The fruits are the small achenes (dry one-seeded fruits) that are scattered on the surface of the tasty, red receptacle (the vegetative tissue from which the floral organs originate).

From an evolutionary perspective, the strawberry represents a remarkably successful innovation for seed dispersal. "Everything eats strawberries" according to Dr. Tia-Lynn Ashman, a plant ecological geneticist at the University of Pittsburgh who has been studying wild strawberries for 15 years. The fleshy receptacles are enjoyed by mammals, birds, reptiles and even molluscs, as anyone who has grown strawberries will know. All of these creatures are capable of spreading the achenes. Their popularity in the animal kingdom has facilitated the spread of the ca. 20 species of wild strawberry to appropriate habitats (not too dry and not too wet with plenty of sun) throughout the Northern hemisphere. One species, *Fragaria chiloensis,* has even dispersed to Hawaii and the southern tip of South America. Based on a recent fossil-calibrated molecular clock analysis (Njuguna et al 2012) *Fragaria* originated between 1-4 million years ago, and thus the genus attained its widespread distribution in a relatively short time, on an evolutionary time scale.

When I started working on *Fragaria* four years ago, I was excited to make my first visit to the strawberry greenhouses at the USDA National Clonal Germplasm Repository in Corvallis, Oregon. This facility houses the national collection of *Fragaria*, including all 20 of the wild species. I was eager to see the morphological diversity of these species. To my disappointment, most of the flowers had been removed to prevent cross pollination, and vegetatively, they all looked pretty much the same! Even if

See Wild Strawberries, page 3

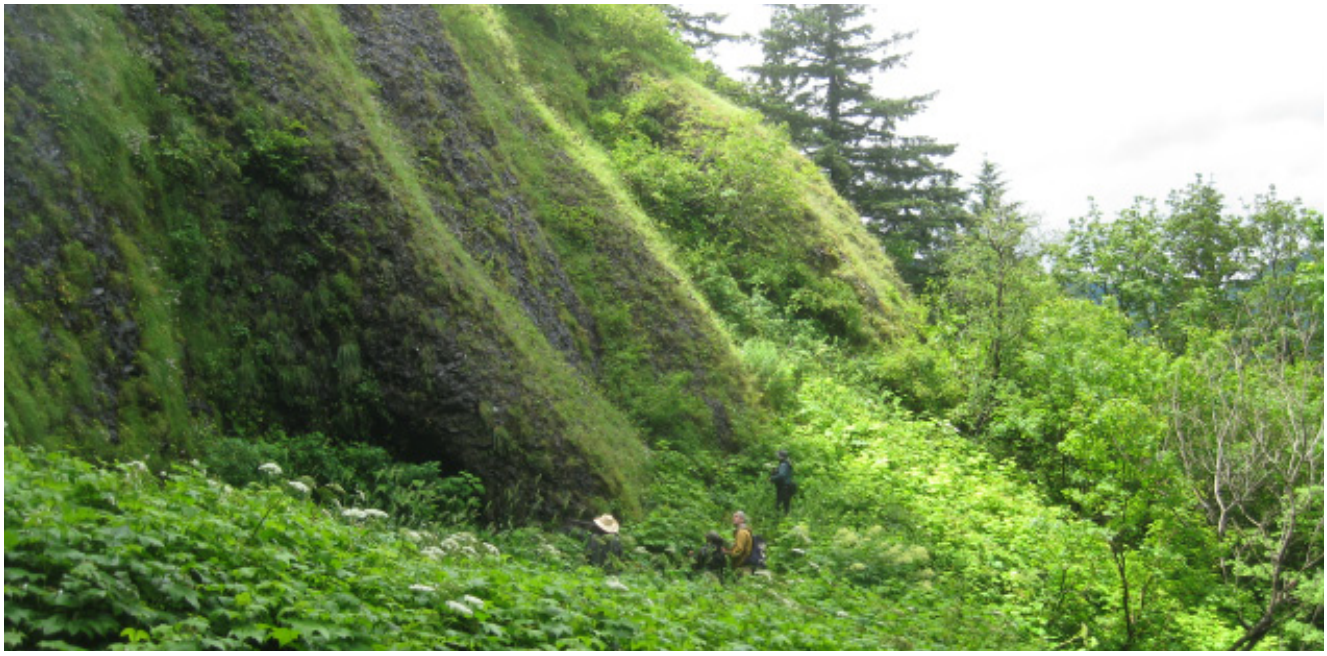

Photo: Erin Gray

NPSO Citizen's Rare Plant Watch volunteers documenting a historical occurrence of the rare Erigeron howellii *in the Columbia River Gorge*

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NPSO Citizen's Rare Plant Watch, continued from front page

Armed with a sense of accomplishment we set out to find *E. howellii*. As we hiked up the trail we saw a ravine that looked as though it might have appropriate habitat: dry, rocky cliff faces with a NE facing aspect. We scrambled up the ravine and were rewarded by finding *E. howellii* within reach. With a lot of binocular botanizing, we were able to document the entirety of a population that hadn't been documented since 1928. The outing was an absolute success!

Citizen's Rare Plant Watch is a new program initiated by the NPSO's Rare and Endangered Species Committee, where volunteers revisit historic populations of rare species, collect data on their extent and habitat, and contribute directly to the conservation of species throughout Oregon. Working together with the Oregon Flora Project, the Oregon Biodiversity Information Center (ORBIC), Federal and State agencies, we prioritize which plant populations are in need of field verification. This includes species for which little is known of range and or population size, or for which historic populations haven't been visited in years. The NPSO Citizen's Rare Plant Watch offers an invaluable hands-on service to provide updated information on the current status of historical populations of rare species while involving volunteers in their conservation. Modeled after successful citizen-science projects such as the University of Washington Botanic Garden's Rare Care and the California Native Plant Society's Rare Plant Treasure Hunt, the Citizen's Rare Plant Watch will contribute all data to the Oregon Flora Project, ORBIC, and the land management agencies to increase our knowledge of rare species in Oregon.

Our second June outing in the Columbia River Gorge

See NPSO Citizen's Rare Plant Watch, page 6

Wild Strawberries, continued from front page

flowers had been available, most species would still have been indistinguishable to me, as floral variation is limited. The mature receptacles are more diverse and can potentially be used to differentiate species. However, they are also quite variable within a species, and because they lose most of their features in herbarium specimens, they are not well-documented in the botanical literature. For this reason, identification keys tend to focus on details of leaf texture, dentation, venation and pubescence. For a key to the Oregon species, see Hummer (2012).

Fragaria flowers (Figure 1) always possess anthers and pistils (i.e. they are perfect), but in some species, including all Oregon taxa, the flowers of an individual plant can be functionally female (sterile anthers) or functionally male (sterile pistils). In the dioecious *F. chiloensis*, the females have very reduced anthers, and are easy to spot. However, in the gynodioecious *F. vesca* subsp. *bracteata,* the female and hermaphrodite flowers are quite similar; the stamens are slightly smaller, and do not dehisce and shed pollen in the females. The remaining Oregon species (*F. virginiana, F. cascadensis, F. ananassa* subsp. *cuneifolia*) are subdioecious with females, males and hermaphrodites. It takes practice, and often a hand lens, to identify the different sexes in the field. When you encounter wild strawberries next spring, I encourage you to give it a try. Due to their vegetative reproduction by stolons, patches of a single sexual morph are typically found; these can be surprisingly large.

The left column shows female flowers of (a) *Fragaria vesca* subsp. *bracteata,* (b) *F. virginiana* and (c) *F. chiloensis*. The right column shows hermaphrodite flowers of (d) *F. vesca* subsp. *bracteata* and (e) *F. virginiana*, and a male flower of (f) *F. chiloensis*.

Photos: (a) and (d) Rebecca Dalton; (b) and (e) Tia-Lynn Ashman; (c) and (f) Gerald Carr.

Despite their phenotypic similarity, the *Fragaria* genus possesses remarkable variation in chromosome number. *Fragaria* has a base chromosome number of 7, and species may be diploid (2n=14), tetraploid (2n=28), hexaploid (2n=42), octoploid (2n=56), or decaploid (2n=70). Unlike many other genera, no species is known to have multiple chromosome numbers, and thus counting chromosomes (or estimating their number from genome size via a method known as flow cytometry) is the most reliable way to distinguish species. In Oregon, *Fragaria vesca* is a diploid, while *F. chiloensis* and *F. virginiana* are octoploids. Dr. Kim Hummer, curator of the USDA National Clonal Germplasm Repository, discovered that some individuals of "*F. virginiana*" from the high Cascades of Oregon are decaploids. On further investigation, she found morphological differences between these plants and *F. virginiana* and she recently described these as the new species *F. cascadensis* (Hummer 2012).

The cultivated strawberry, *Fragaria* × *ananassa* subsp. *ananassa* is also an octoploid. The "×" symbol denotes that this is a hybrid species, originating as a cross between *F. chiloensis* and *F. virginiana*. The origin of this subspecies is fairly well-documented. It can be traced to France in the mid-1700s, where both of its parental species were being grown, having been introduced from Chile and Quebec, respectively. These plants combined the large receptacles of *F. chiloensis* with the delicious flavor of *F. virginiana*, and the hybrid soon eclipsed both parents in popularity.

Less well-known is the fact that these two octoploid species also hybridize naturally in northwestern North America, and the resulting plants are named *Fragaria* × *ananassa* subsp. *cuneifolia*. This taxon is particularly abundant in the vicinity of Corvallis, including an isolated population on the top of Marys Peak. Our initial results from the study of these hybrids shows that most individuals in a population from Wren (near Corvallis) have *F. virginiana* as the female parent, while the pattern is reversed on Marys Peak, where most individuals

See Wild Strawberries, page 7

Elevation of Kincaid's lupine (*Lupinus oreganus*) to its proper taxonomic status

by Paul M. Severns
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In western Oregon and southwest Washington, USA, the sordid taxonomy of *Lupinus sulphureus* ssp. *kincaidii* (Kincaid's lupine), a threatened species, has been confusing botanists since it was first described. The purple- to occasionally cream-flowered perennial lupine, found predominantly in Willamette Valley grasslands, was first described from Eugene, Oregon, by Amos Arthur Heller as *Lupinus oreganus* in 1911. Shortly after this, Heller described another species from the Eugene area, *L. amabilis.* In 1924, Charles Piper Smith recognized a variety of *L. oreganus* from Corvallis, Oregon and named it *Lupinus oreganus* var. *kincaidii,* in honor of Trevor Kincaid. Smith synonymized some of the previously named *Lupinus* taxa from Oregon in 1927, including *L. amabilis.* Without explanation, however, Smith retained *L. oreganus* var. *kincaidii* as a subspecific taxon. The variety *kincaidii* and the typical *L. oreganus* had overlapping ranges in the Willamette Valley, yet Smith did not justify nor adequately describe the traits by which he differentiated the two taxa.

Smith had an eye for variation, which led to a proliferation of poorly described and defined taxonomic entities throughout western North America. Smith's penchant for creating unique lupine taxa within the same geographic area that were based on subtle differences in plant appearances struck a nerve with Lyle Phillips when he revised North American *Lupinus* in 1955. Phillips wrote in reference to C.P. Smith: "*He has published hundreds of new species in divers volumes of the Bulletin of the Torrey Botanical Club and more recently in his own publication, Species Lupinorum... The taxonomists who have made the lupines their specialty have attempted to categorize and describe this variability rather than to investigate it for interrelational and evolutionary ramifications.*" However, while Phillips made some justification or reasonable argument for consolidating many *Lupinus* taxa throughout North America, he must have channeled the spirit of C.P. Smith when it came to *L. oreganus*. Phillips, without reasoning, rationale, or justification designated *L. oreganus* as the subspecies *L. sulphureus* ssp. *kincaidii*. This was a quite curious decision given that the flowers of *L. sulphureus* are typically yellow with a cup-shaped banner and not the stongly-reflexed, "ruffled banner" of *L. oreganus*.

To add another layer of taxonomic confusion to Kincaid's lupine, the USDA PLANTS database (http://plants.usda.gov/) has listed the accepted name of this plant as *Lupinus oreganus* var. *kincaidii*, with *L. sulphureus* ssp. *kincaidii* as a synonym. PLANTS also lists *L. biddlei* Henderson ex. C.P. Smith as a synonym of *Lupinus oreganus* var. *oreganus*. Unlike Kincaid's lupine, which has a western Oregon distribution, *L. biddlei* is known and recognized by the Oregon Flora Project as a species limited to southeastern Oregon.

A phylogenetic study that is currently in press in the journal *Western North American Naturalist* sheds light on Kincaid's lupine taxonomy. In this manuscript, Severns and coauthors provide phylogenetic evidence that re-elevates Kincaid's lupine to its original species status of *L. oreganus.* It also asserts that *L. biddlei* is no more closely related to *L. oreganus* than any other perennial lupine in western Oregon and therefore should remain as a distinct species until phylogenetic data suggest otherwise. The authors go on to recommend that the common name of Kincaid's lupine be used for *L. oreganus* to preserve the taxonomic history and commemorate the biological exploration of the Pacific Northwest by Trevor Kincaid. Electronic reprints of this article can be requested from either Drs. Paul M. Severns (paulseverns@hotmail.com) or Stephen Meyers (meyersst@science.oregonstate.edu) once available.

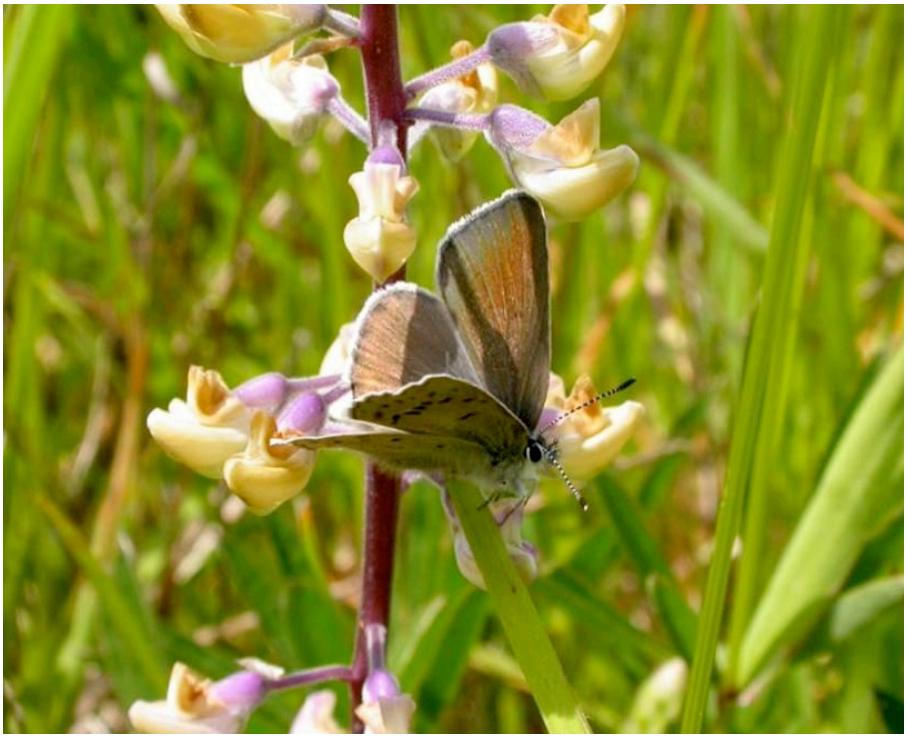

Photo: Paul Severns

Lupinus oreganus *(Kincaid's lupine) flowers with female Fender's blue butterfly. The lupine is a threatened species and is a larval host plant for the federally endangered butterfly* Icaricia icarioides fendleri.

Final Volume of the *Intermountain Flora* is Published

by Stephen Meyers

Intermountain Flora: Vascular Plants of the Intermountain West, U.S.A. Volume Two, Part A: Subclasses Magnoliidae-Caryophyllidae. 2012. Noel H. Holmgren, Patricia K. Holmgren, James L. Reveal, and collaborators. New York Botanical Garden Press. ISBN-0893275204.

It was with great anticipation that I recently received the eighth and final volume of *the Intermountain Flora –Vascular Plants of the Intermountain West, U.S.A.* Writing of the *Intermountain Flora* began in 1969. In the intervening 43 years the previous seven volumes were published at a regular pace (Vol.1, 1972; Vol. 6, 1977; Vol. 4, 1984; Vol. 3B, 1989; Vol. 5, 1994; Vol. 3A, 1997; Vol. 2B, 2005), concluding with Vol. 2A (containing subclasses Magnoliidae-Caryophyllidae) this year.

Volume 2A and its companions covers, as the name of the series implies, the intermountain region of the United States. This area is defined as the region between the Sierra-Cascade Range in the west and the Rocky Mountains in the east. Politically mapped, this includes the entirety of Utah, most of Nevada, Idaho south of the panhandle, and adjacent portions of northern Arizona, southwest Wyoming and northeast California. Oregon is represented with the entire coverage of Lake, Harney and Malheur Counties, as well as portions of Deschutes and Crook Counties.

Throughout the *Intermountain Flora* series the principal authors (and leaders of the project) have been Noel and Patricia Holmgren. Although the Holmgrens have written the majority of the treatments, contributions by many others intersperse the series. Notable contributions have been made by Rupert Barneby (Vol. 3B), Arthur Cronquist (Vols. 1, 2B, 3A, 4, 5, 6), Arthur Holmgren (Vols. 1, 4, 5, 6) and James Reveal (Vols. 1, 2A, 4, 5, 6), and indeed these botanists prominently and deservedly share authorship on the cover of these volumes.

While those who are prone to impatience may ask "Why did the publication of these volumes take so long?" even a quick glance at any one volume will quickly answer that question. To sum up the answer in one word: quality. All volumes (including 2A) have a taxonomic presentation that has remained consistent throughout the series. Each volume begins with a key to the families (and/or orders) presented. Following each family description is a key to species. As with previous volumes, I have thus far found the keys in volume 2A a pleasure to use. I give great credit to the authors for creating keys that, while technical, are also informative and user friendly. This ability to keep a balance of jargon within the keys (and descriptions) that is complex and analytical enough for botanical experts, yet still very much usable by the nonprofessional botanist is a rare talent, not often encountered.

After the keys, species descriptions logically follow. Beginning each description are details of the original publication and typification of the species, as well as an exhaustive list of synonyms. Next is a list of common names followed by detailed morphological descriptions. Tying up the descriptions of each taxon are habitat information, elevation ranges, distribution ranges, flowering times, and finally general discussions varying in length from one sentence to several paragraphs. The latter I personally find the most interesting and thought-provoking aspect of each volume. The discussions detail one or more topics such as ethnobotanical uses, garden tips, look-alike taxa, taxonomic problems and controversies, and a host of other intriguing tidbits. These discussions serve the often neglected purpose of gently bringing taxonomy from lofty academic heights to a down-to-earth level which originally attracted most of us to botany.

In addition to the taxonomic treatments, readers are also

See Final Volume of Intermountain Flora*, page 7*

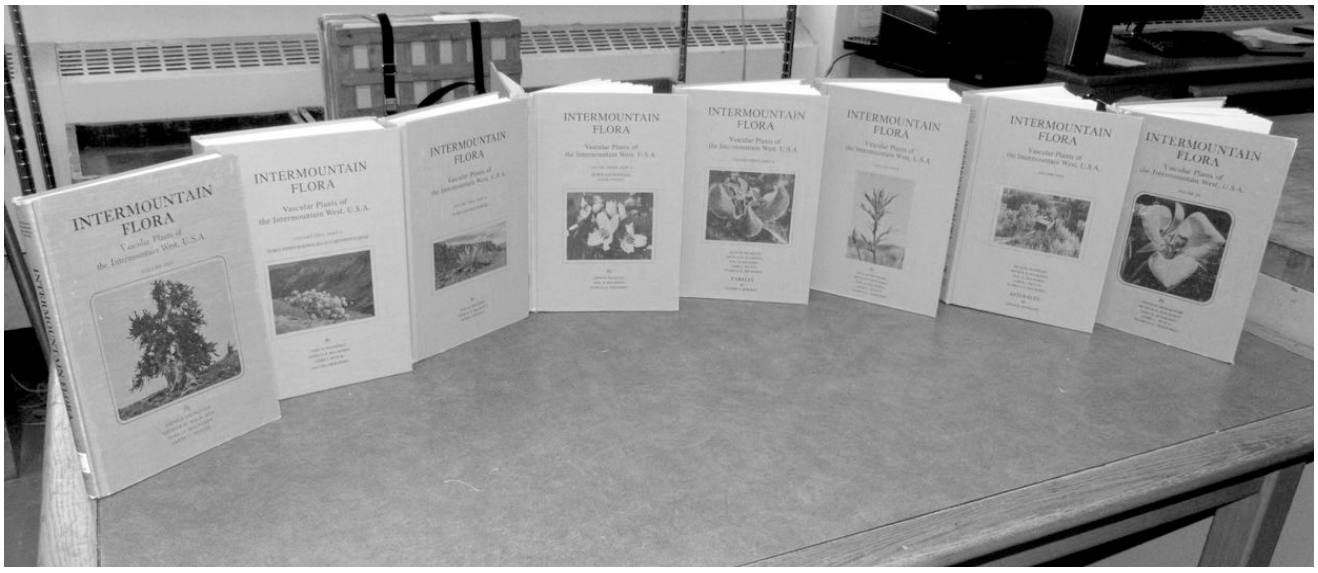

Photo: Stephen Meyers

The publication of Volume 2A completes the eight-volume series of the Intermountain Flora.

NPSO Citizen's Rare Plant Watch, continued from page 2

Photo: courtesy of Erin Gray

April Ann Fong and Erin Gray collect data on a new occurrence of Erigeron oreganus

was no less exciting. Despite the torrential downpours all 9 volunteers met on a soggy Saturday near Bridal Veil Falls and began our search for *Erigeron howellii*. One occurrence last documented by the late Russ Jolley led us up a creek to the base of one of the prominent waterfalls in the Gorge. Not only did we find *E. howellii* on the cliff faces west of the falls, we also found another new occurrence of *S. oregana* perched directly under the falls! Soaked and happy, we collected data on both populations (which required climbing directly into the path of the falls to get an accurate count). Later that day, en route to another occurrence, we spotted some potential habitat for *E. howellii* along the roadside. Though we found no *E. howellii*, the cliff faces did support a previously undocumented population of *Erigeron oreganus* (gorge daisy), thereby extending its known range within the Gorge. The sun broke through, and we finished our day documenting a population of *Delphinium nuttallii* (Nuttall's larkspur) near scenic Crown Point.

In addition to the successful group outings, Julie Gibson, of Corvallis, has visited many of the Willamette Valley occurrences of *Navarretia willamettensis* (Willamette navarretia) and *Lathyrus holochlorus* (thinleaf pea) to document their current status as part of our Rare Plant Watch mission. Julie has managed to log 27 occurrences, including three previously undocumented occurrences of *L. holocholorus*!

We are excited about the success of our recently initiated program: we already have over 40 volunteers throughout the state who have expressed interest in participating. Collectively, we have documented 32 historical occurrences and documented 6 new occurrences! The Citizen's Rare Plant Watch volunteers are currently making plans for next season when we will perform a species inventory at Silver Falls State Park and search for a rare species on the Table Rocks near Medford. If you would like to lead or participate in an outing, or search for plants in your area, please contact Erin Gray (NPSO Rare & Endangered Species Committee co-chair; ecgray830@gmail.com).

Help us conserve resources and elect to receive this newsletter electronically!

Send us your email address at ofpflora@oregonflora.org, and we will notify you when newsletters—with color graphics—are posted on our website."

Wild Strawberries, continued from page 3

have *F. chiloensis* as the female parent (Govindarajulu et al. 2012). It is interesting to speculate that if Native American agriculture had developed in the Willamette Valley (see Mann, 2003), these people would likely have incorporated the hybrid into their crops, and the Pacific Northwest could have been the birthplace of the cultivated strawberry.

In early 2011, the genome sequence of the European diploid *Fragaria vesca* subsp. *vesca* was published (Shulaev et al. 2011). This was the result of a collaboration involving over 70 scientists, including 13 from Oregon State University. This species was chosen due to its relatively small genome size (only 200 million base pairs – most plants are over 1 billion base pairs), its ease of manipulation in the laboratory and greenhouse, and its close relationship to the cultivated strawberry. (The latter is an octoploid, and genome sequencing of polyploids is much more challenging). This genome sequence represents an important foundational step in efforts to improve stawberry agriculture. However, progress in that area will still take years of effort before fruition. On the other hand, the genome sequence can be used immediately to increase our understanding of the evolutionary history of *Fragaria* and other Rosaceae, and this has become the focus of much of my research.

The native Oregon species of *Fragaria* play a prominent role in several of these research projects. In collaboration with Dr. Tia-Lynn Ashman, we are examining the evolution of sex-determination in *F. virginiana* and *F. chiloensis*, as

See Wild Strawberries, page 9

Final Volume of Intermountain Flora*, continued from page 5*

treated to at least one line drawing of each species. The quality of these illustrations is excellent, and drawn with such detail that "picture keying" is very much possible.

Perhaps the most noticeable difference between the *Intermountain Flora* series (including volume 2A) and many other modern floras is the authors' use of the Cronquist classification system for flowering plants at or above the family level. The result is that the families are neither arranged in alphabetical order nor according to a more recent classification system, such as the APG (Angiosperm Phylogeny Group) system. Rather, each volume of the series contains one or more related subclasses or orders, and the families within these are arranged, again, according to the Cronquist system. For example, within volume 2A, the families are in the sequence: Nymphaceae, Saururaceae, Magnoliaceae, Ceratophyllaceae, Papaveraceae, Fumariaceae, Berberidaceae, Ranunculaceae, Platanaceae, etc. Followers of more recent classifications systems may find this arrangement disagreeable, but I urge readers to recall that the *Intermountain Flora* project was begun in 1969. At that time, the Cronquist system was arguably considered the most up to date, while the APG system would not be created for another 29 years. In the interest of maintaining consistency, I applaud the authors for remaining with the Cronquist system. For those who are less than familiar with the Cronquist system, I was recently pleased to learn that preparations for a supplement to the *Intermountain Flora* series are currently underway. The supplement will contain a key to all families within the series, a cumulative index to all eight volumes and a history of the *Intermountain Flora* project. A date for this publication has not been announced at this time.

As an Oregon botanist, one of the first things I noticed within volume 2A was the treatment of Berberidaceae. As all Oregon plant enthusiasts know, this family contains our official state flower, Oregon-grape. Within this treatment, Noel and Patricia Holmgren have opted to "split" the genus *Berberis* into *Berberis* and *Mahonia*. This decision results in our state flower being called *Mahonia aquifolium* rather than the more widely (and locally) accepted *Berberis aquifolium*. The Holmgrens defend their decision logically and deftly, but in their usual and admirable fairness they include an opposing opinion in their discussion of the family. The opposing opinion is that of Berberidaceae expert Alan Whittemore, who chose to "lump" the genera in his *Flora of North America* treatment.

I have many times in the past relied on the expertise and wisdom of the *Intermountain Flora* to provide a tie-breaking vote in regards to difficult taxonomic questions, and will continue to do so in the future. In this one instance however, and with the utmost respect to the Holmgrens, the Oregon Flora Project will not use the name *Mahonia*. This is, for the most part, due to the fact that Dr. Whittemore is currently composing our Berberidaceae treatment for the upcoming *Flora of Oregon*. I suspect the Holmgrens will understand and find no offense concerning this.

Volume 2A is available for purchase for $150 from Amazon.com and from the publisher, New York Botanical Press. The press also offers the eight-book set at a discounted price of $520. The Intermountain Flora brochure/order form can be downloaded at www.nybgpress.org.

Although $150 or $520 may seem a steep price, given our current economic times, I nonetheless highly encourage all western botanists (as well as those who might visit the area) to invest in the series. Among the floras I have read (which are many), the *Intermountain Flora* ranks among those of the highest quality. To put things in perspective, I spent about $500 for the last computer I bought. Now, just two years later, I already find it dated and approaching obsolescence. For approximately the same money the *Intermountain Flora* series will provide a lifetime resource of botanical information and enjoyment. In short, it will be money well spent.

Once you have obtained a copy of volume 2A, I encourage you to not look initially at the first page, table of contents, or a family of interest. Rather, look at the last page (pg. 731). There you will be greeted with an 1894 photo of the legendary botanist Marcus E. Jones. To quote part of the photo's caption: "…we look over the shoulder of Marcus E. Jones (1852-1934), who long contemplated a flora centered around this same geographic focus, riding off on his buckboard to somewhere, firm in the belief, as we are, that more adventures lie ahead." Well said!

Project News

by Linda Hardison

Support from the Bureau of Land Management and a supplemental NSF grant that funds research for undergraduates has let us direct our energies toward compiling ethnobotanical information about the plants of Oregon for inclusion in our *Flora*. We have hired Lucile Housley, a former BLM botanist with expertise in cultural uses of plants, and undergraduate botany major Elizabeth McWilliams for this work, which will add to the depth of information presented by the OFP.

The individuals authoring segments of the *Flora of Oregon* are typically experts in a particular plant group. Many live in Oregon or the Pacific Northwest; others are scattered across the country. We are most fortunate to include Dr. Alan Whittemore as one of our floristic contributors. Alan is a research plant taxonomist at the U.S. National Herbarium Arboretum in Washington, DC. In support of his contributing manuscripts for 17 families containing 45 genera, Alan spent a week in Corvallis at the Oregon State University Herbarium, referring to specimens and annotating many to reflect the taxonomic decisions he is asserting in his descriptions. It is always enjoyable to have botanists visiting our offices and the Herbarium, and it is a good gauge of the energy and value the Oregon Flora Project brings to the Botany department at OSU.

In August we added a new staff member, John Myers, to our team. John is an artist and botanical illustrator who has contributed significantly to the *Flora of North America*. He will be coordinating the graphic design and development of the *Flora of Oregon* as well as contributing many beautiful illustrations. Look for a profile of John in the next issue of this newsletter.

I suspect few organizations enjoy the support of a volunteer for over seventeen years—the OFP has been in such fortunate circumstances with our *Oregon Flora Newsletter* editor, Rhoda Love. As elaborated elsewhere in this issue, Rhoda is stepping down from her position as editor after producing 43 issues. Rhoda has been a tireless advocate of the Oregon Flora Project and, through her talents, has greatly expanded the awareness of the OFP. Personally, she has supported me with encouragement and sage counsel through good times and bad. I deeply appreciate all that Rhoda has done for us and look forward to her continued involvement, albeit in a much more unstructured manner. Thank you for sharing your gifts with us, Rhoda!

Have you made a financial contribution to the OFP recently? Donations continue to be a critical part of our budget, and we use every dollar wisely. Below are some creative ways some Flora Project supporters have helped—won't you join them?

- Kyle Spinks of the Tualatin Hills Park & Recreation District recognized how much he relies on OFP data in his job, and secured an annual contribution from his employer to support our work, which helps support his work!

- A long-time OFP supporter recently donated stock as a generous—and tax-deductible—gift.

- A Corvallis supporter is dedicating 1% of the rent she collects on an investment property to sustainable causes, and is donating that amount to the OFP. "My renters love the idea, and I'm happy to help support the Flora Project," she says.

Rhoda Love Retires from Editing *OFN*

by Linda Hardison

It is with sadness that we announce that Rhoda Love is stepping down as editor of the *Oregon Flora Newsletter*. Rhoda has edited our newsletter since the first issue in 1995—a total of 43 issues! She has provided clarity of purpose to ensure that each newsletter is engaging to a broad audience of readers. Rhoda writes: "I have enjoyed working with the *OFN* folks since our first issue. I will very much miss the excitement of being part of our wonderful project, but time goes on and we must hand these activities over to a new generation; I believe that time has now arrived for me."

Thank you, thank you Rhoda for the years of work you have given in support of the Oregon Flora Project. You have shaped the *Newsletter* into a valuable resource that well represents our mission. Our fondest wishes for your future endeavors!

Photo: Bryan Haynes

Rhoda Love demonstrating use of a vasculum, a device for temporarily storing plant material before pressing it into a herbarium specimen. The vasculum has been replaced by the less aesthetic, but more ubiquitous plastic bag.

Wild Strawberries, continued from page 7

well as one of their diploid progenitors, *Fragaria vesca* subsp. *bracteata*. In another study, we are documenting the extent and genetic consequences of hybridization between *F. virginiana* and *F. chiloensis* in the Pacific Northwest.

In addition, we have recently embarked on an ambitious international project that uses *Fragaria* as a model system for understanding the role of polyploidy in the generation of biological diversity. Led by Dr. Ashman, our research team includes Dr. Richard Cronn (US Forest Service Pacific Northwest Research Station), Dr. Junmin Li (Taizhou University, China) and Dr. Ming Dong (Hangzhou Normal University, China). The project is jointly funded by the US National Science Foundation and the Chinese National Natural Science Foundation. The study will focus on seven "trios" of polyploid species and their diploid progenitors, and will encompass field work in the US, Europe and China; phylogenetic and population genetic analyses; and characterization of the plant's phenotypic and gene expression responses to environmental change using controlled environments and experimental gardens in Oregon, Pennsylvania and China. I will describe the results of these above research projects in future issues of the Oregon Flora Newsletter.

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Thanks

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How can I contribute?

Donations to the Oregon Flora Project are a critical part of our operating budget. Funds are routed to the OFP through the Agricultural Research Foundation (ARF). The ARF is a non-profit organization that raises funds to support scientific research and programs at OSU. All contributions are tax-deductible.

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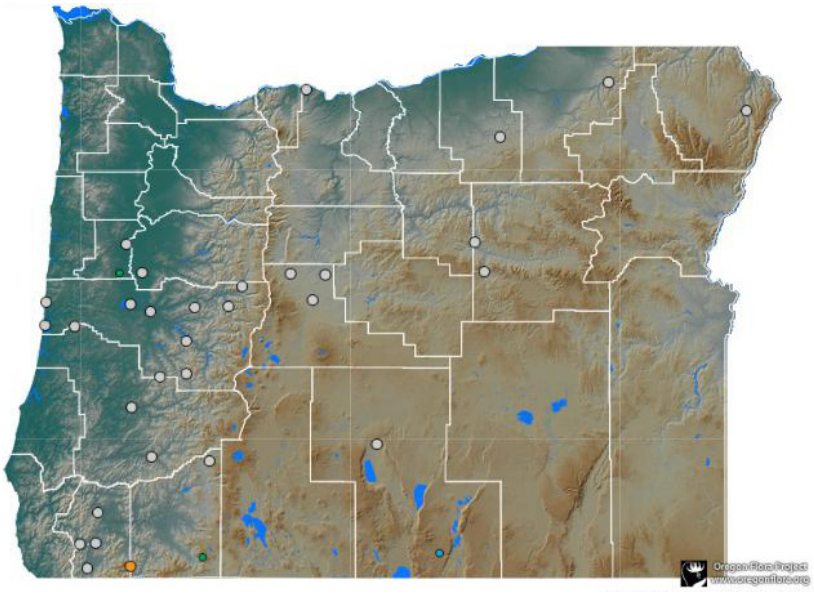
Did you know?

- Twenty-two percent of the 1409 Atlas records provided by Dr. Rhoda Love are in the Rosaceae.
- Rhoda authored the Checklist treatments for 23 genera of the rose family, including strawberry (*Fragaria*), hawthorne (*Crataegus*) and serviceberry (*Amelanchier*).
- The herbarium at Lane Community College was named the Rowe-Love Herbarium in honor of Freeman Rowe and Rhoda, who taught botany at LCC for 18 years.
- Also an environmentalist and historian, Rhoda helped implement the Oregon Endangered Species Act and has written biographies of prominent northwest collectors and women botanists.



Records in the Oregon Plant Atlas contributed by Dr. Rhoda Love. These are from 431 specimens deposited in the Oregon State Univeristy and the Lane Community College herbaria (Rhoda taught at LCC for many years) and from 978 observations.