OREGON FLORA *Newsletter*

VOLUME 9, NUMBER 3 | OREGON STATE UNIVERSITY | OCTOBER 2003

Almeta Barrett: A pioneer woman botanist in Oregon

by Robin Lodewick

Only a few women, as far as we know, collected new plants in the early Pacific Northwest, sending them to the Eastern botanical establishment for naming. One of these was Almeta Hodge Barrett, an Oregon pioneer. Almeta was the wife of a former Civil War surgeon, Dr. Perry Barrett, who began a medical practice in Pennsylvania following the war. After losing nearly everything to a fire however, the couple chose to start over in the west. In 1871, with year-old daughter Julia, the family traveled to Portland, then up the Columbia to where Hood River joins the mighty River of the West. There, in the fertile Hood River Valley, the family established their homestead.

The Barretts built a two-story house and barn and the doctor began to accept patients. Almeta may have acted as nurse for her husband; she wrote in an 1882 letter that they would both be away from home, because the doctor had to remain at the bedside of a sick patient. However, as daughter Julia grew older, and Almeta's parents came west

See Barrett, page 18

Photo: Hood River County Historical Museum Archives

Almeta Barrett with daughter Julia and husband Dr. Perry G. Barrett, 1882.

Manzanitas – A study in speciation patterns

Part II: Summary of the Oregon taxa of *Arctostaphylos*

by Kenton L. Chambers

For the Oregon Vascular Plant Checklist, we are recognizing the following 8 species of manzanitas as occurring in the state. This is many fewer than the 57 species, with accompanying subspecies, found in California according to the treatment by P. V. Wells in *The Jepson Manual*. Two rare species of northern California cited by Wells, *A. klamathensis* and *A. nortensis*, are found just south of Oregon but have not yet been discovered in this state. As mentioned in Part I of this article, most of the taxonomic complexity in Oregon manzanitas is seen in Curry, Josephine, and Jackson counties. It is important to observe population variability and to take careful notes on habit and burl development, when collecting specimens in that part of Oregon.

(1) *Arctostaphylos uva-ursi* (L.) Spreng.—This is the familiar "kinnikinnik," a fully prostrate plant that differs from other species in having a shiny upper leaf epidermis that completely lacks stomates, together with distinct stomates on the lower leaf surface. The other prostrate species, *A. nevadensis*, has dull upper and lower leaf surfaces with indistinct stomates on both sides; its leaves are more acute than the obtuse leaves of *A. uva-ursi*. Kinnikinnik ranges widely to the northeastern United States, the Rocky Mountains, Alaska, and Eurasia. In Oregon it occurs on the immediate coast and in the Cascades, Blue Mountains, Wallowas, Siskiyous, and Steens Mountain.

Where *A. uva-ursi* co-occurs with the shrubby *A. columbiana*, one occasionally finds their hybrid, *A.* ×*media*. I have also seen hybrids between *A. uva-ursi* and *A. patula* in *Pinus ponderosa* woods near Camp Sherman, Jefferson County. There is no hybrid name for them in common use. Probably very little gene exchange, beyond the initial F1, arises from either of these hybrids. In an analysis of *A.* ×*media* in western Washington and northwestern Oregon, A.R. Kruckeberg (1977) speculated that "(u)nder conditions of forest succession…(h)ardly more than the formation of F1 hybrids and a trickle of introgression may take place before the trend is stopped by succession and hybridization ceases."

(2) *Arctostaphylos nevadensis* A. Gray—This species ranges from western Washington southward, especially in

See Manzanitas, page 16

Manzanitas, continued from front page

the Cascades and Siskiyous, to northern California and the Sierra Nevada. In Oregon, it is not on the immediate coast, but it goes east as far as the Blue Mountains. *Arctostaphylos nevadensis* seems not to hybridize with *A. uva-ursi*, but hybrids are known with *A. columbiana* from the Mt. Hood area (Kruckeberg 1977). The establishment of hybrids was probably favored by habitat disturbance due to prehistoric mudflows from the volcano. In the Siskiyous, it may hybridize with various shrubby species; however, this can only be observed through field studies, because herbarium sheets are usually just a collection of twigs and lack notes about plant height and habit. One such hybrid may have been the source of the plants named *A. parvifolia* by Thomas Howell early in the previous century.

(3) *Arctostaphylos patula* Greene—This shrubby species with broadly ovate-lanceolate leaves is the dominant manzanita in the ponderosa-pine zone on the east flank of the Cascades. Plants of this region lack a burl and reproduce from seeds following a fire. The species is also common in the Siskiyous, where it very often possesses a burl at the stem base. It has been debated whether these two growth forms should be named as separate species or subspecies, but Wells has argued that the difference between them is minor and inconsistent (*The Manzanitas of California*, page 131).

I believe that if field research shows *A. patula* to be regularly burl-forming in the part of its range that includes the Siskiyous, and non-burl-forming in an extensive area on the east side of the Cascades, then a subspecific separation for the two populations would be useful. The leaves of *A. patula* are glabrous except for a fine golden-glandular puberulence on the petioles and leaf bases. The species is very wide-ranging, from southern Washington through the Cascades and mountainous California to northern Baja California, and disjunctly to parts of Utah, Arizona, and the Rocky Mountains. The distribution of burl-forming populations over this range has not been mapped as yet, although Wells states that "(o)ver most of its wide range, burl formation is lacking".

(4) *Arctostaphylos columbiana* Piper—Also widespread in Oregon, this shrubby species has broadly lanceolate leaves with dense, short, white pubescence, which Wells characterizes as "tomentose," along with longer, bristly-hispid, sometimes gland-tipped hairs. The conspicuous bristly hairs may extend to the rachises and bracts of the inflorescence. The species' range is coastal and inland to the western slopes of the Cascades, from southern British Columbia south to Sonoma County, California. On the coast, it meets and occasionally hybridizes with *A. uva-ursi*, as noted above.

A confusing feature of the variation in *A. columbiana* is that some plants, or even whole populations, may be missing the bristly hairs expected for this species. These plants occur within the usual northern range of the species (e.g. Hood River, where L. F. Henderson collected many such plants), and are probably simple genetic mutants. However, things become confusingly variable in southern Oregon, from Coos County south, where *A. columbiana* comes into the range of *A. canescens*, another species with short, matted white hairs on its leaves. *Arctostaphylos canescens* is characterized as lacking any bristly hairs. Therefore, to my eye, there is no difference between its pubescence and the bristleless forms of *A. columbiana* mentioned above. The overall form of the inflorescence, with its well-developed leafy bracts, is also similar in the two species. Therefore, my suggestion when collecting manzanitas in the Siskiyou Mountains is to take a population approach to this group: evaluate whether a given population is predominantly bristly, and if so, call it *A. columbiana*. If bristly plants are rare in the population, then it probably represents *A. canescens* with some genes of *A. columbiana* obtained through hybridization. If herbarium specimens are collected, be sure to note your observations on the label!

(5) *Arctostaphylos viscida* Parry—This species is common in the upper Rogue River Valley and surrounding foothills, and it extends south to the Illinois River Valley where it meets and hybridizes with *A. canescens*. Where it

Manzanitas, continued on next page

Erythronium oregonum logo and masthead designed by Tanya Harvey.

The Oregon Flora Newsletter is published three times a year by the Oregon Flora Project and the Oregon State University Herbarium. The Editor is Rhoda Love and the Production Assistant is Rena Schlachter.

Address correspondence to:
Scott Sundberg
Department of Botany & Plant Pathology
Oregon State University Cordley Hall 2082
Corvallis, OR 97331-2902
E-mail: sundbers@bcc.orst.edu
(541) 737-4338; FAX (541) 737-3573
http://www.oregonflora.org

Printed on Recycled Paper

Manzanitas, continued from previous page

is not involved in hybridization, it is quite uniform and distinctive, with large, glabrous, grayish leaves, open inflorescences with only very small bracts, and dense glandular pubescence on the long floral pedicels as well as sometimes on the twigs and ovaries. An unusual feature of its ecology is that in the Illinois River Valley it is limited to serpentine soil, but north and east of there it shows no such specialization. Wells recognizes three subspecies for this species (see *The Jepson Manual*, pages 558-559), one of them being ssp. *pulchella*, named for a species described from Josephine County by Thomas Howell. Unfortunately, these are single-character subspecies, based entirely on the distribution of glandular hairs on the twigs, pedicels, and ovaries of the plants. In ssp. *pulchella*, the ovaries are said to be glandular-bristly. However, on the type specimen of *A. pulchella* collected by Howell, the ovaries are glabrous, and this was noted in his published description as well. Therefore, Wells' description does not match the type of the name. In southern Oregon we find examples of all three pubescence types representing all three "subspecies," and the pattern here seems to be one of simple genetic variation not worthy of taxonomic recognition.

Arctostaphylos viscida*, left, and* A. canescens*, right, the parent species of the hybrid* A. x cinerea *in southern Josephine County.*

Of more significance for *A. viscida* is its extensive hybridization and introgression with *A. canescens,* principally in the Illinois River Valley of Josephine County. We are indebted to Leslie Gottlieb (1968) for clarifying the taxonomic confusion surrounding such hybrids. At one locality, the abandoned mining town of Waldo, he showed that human disturbance had caused soil mixing which allowed hybridization and introgression to blur the distinctions between *A. canescens*, a non-serpentine species, and *A. viscida*. At this locality, Thomas Howell had collected the type specimens of several "new species," which he described in 1903 (*A Flora of Northwest America*, pages 416-417). Upon analysis, all but one of these proved to be hybrids. Elsewhere in the Illinois Valley, one also finds many plants that, from their morphology, probably have a similar hybrid origin. In the alluvial valley flats south of Cave Junction, serpentine and non-serpentine rocks and soil are mixed naturally, and a large population of manzanitas has developed. These plants appear to combine the genes of *A. canescens* with those of *A. viscida*.

We are using the name *A.* x *cinerea* Howell for this and similar populations, the name being based on one of the hybrid plants collected by Howell at Waldo. Plants of this type usually have leaf pubescence that is less dense than typical *A. canescens*, a more open inflorescence with shorter bracts than in that species, and longer floral pedicels with some glandular hairs on them. The hybrid population on alluvium is very extensive, and it might persist to form the nucleus of a distinctive new species in that region. As discussed previously in Part I, hybrid speciation is considered to be common in this genus, mainly in California.

(6) *Arctostaphylos canescens* Eastw.—The hybridization between this species and *A. viscida* is discussed above. In Oregon *A. canescens* occupies the Siskiyou Mountains of Josephine and Curry counties (perhaps also southern Douglas and Coos counties). It is distinguished by its densely canescent to white-downy leaf pubescence and condensed inflorescences with long floral bracts. It avoids serpentine-derived soils. The overall range extends south to central California, where it is a common component of chaparral vegetation. In Oregon it seems to intergrade with *A. columbiana*, as described above under that species.

(7) *Arctostaphylos hispidula* Howell—This quite localized shrubby species is found in Josephine and Curry counties as well as adjacent Del Norte and Humboldt counties. It has small lance-elliptic leaves, 1.5-3 cm long, which are minutely glandular in a pattern that is reminiscent of *A. patula*. The inflorescence is distinctive in being branched and open, with no large floral bracts. Field notes indicate that it grows in serpentine soils, and on the whole it remains distinct from the other species found in southwestern Oregon.

(8) *Arctostaphylos glandulosa* Eastw.—The characteristic that best marks this species is the presence of a burl; other than this, it is extremely variable. It ranges from southwest Oregon through the California Coast Ranges to northern Baja California. Both glandular-pubescent and non-glandular forms are known, making the species epithet ambiguous. It is very poorly known in Oregon, mostly due to the absence of field studies that would provide information on burl formation in the manzanitas of Josephine and Curry counties. Herbarium specimens without the necessary label data are of little use, because glandular pubescence is known in non-burl-forming species such as *A. columbiana* as well, and the twigs of A. glandulosa may be tomentose and bristly as in *A. columbiana*. Much remains to be discovered about this species in our state. Oregon plants are assigned to ssp. *glandulosa*, which also occurs in California along with five additional subspecies, according to Wells (*The Jepson Manual*, Page 551).

References:

Gottlieb, L. D. 1968."Hybridization between *Arctostaphylos viscida* and *A. canescens* in Oregon." *Brittonia* 20: 83-93.

Howell, Thomas. *Flora of Northwest America*. 1903.

Kruckeberg, A. R. 1977. "Manzanita (*Arctostaphylos*) hybrids in the Pacific Northwest: effects of human and natural disturbance." *Syst. Bot.* 2: 233-250.

Barrett, continued from front page

for an extended visit, Almeta had fewer duties at home. Now she could join Perry in exploring the valley for new plants as they both loved to do. Many of the unusual flowers Almeta transplanted to her garden where she could watch them develop and collect seeds.

Doctors were trained in botany in those days, and Almeta may have learned from her husband or studied the subject herself. By 1878 – they had found a companion in their botanical forays. Louis Henderson, then a Portland high school teacher, spent summers at Hood River where his mother had a home. Henderson later wrote that the Barretts were as fascinated with the Northwest flora as he was. The three "scoured the valley," bringing armfuls of flowers back to the Barrett house, where they happily spent days identifying them. Specimens they could not name were sent to Asa Gray and Sereno Watson at Harvard, perhaps to be published as new species.

Three type specimens at Harvard list Mrs. Barrett as collector. Her most famous find was a blue-green-leaved, rose-purple penstemon found on cliffs near Hood River and across the Columbia. Asa Gray named it *Pentstemon barrettae* in 1886 – that is, "Mrs. Barrett's penstemon." The name is spelled *Penstemon barrettiae* today. A second species, *Anemone oregana*, covers the forest floor in much of western Oregon, but its type location is Hood River. The third species, *Cimicifuga laciniata*, was discovered by Almeta and Henderson together in 1882 at Lost Lake. The species grows only in that location and just to the north in Washington. A large collection of fawn lilies, made by Almeta near Lost Lake, was used by Watson in writing his "A Revision of the American Species of *Erythronium*" in 1891.

The Barretts returned frequently to Lost Lake on the northeast shoulder of Mt. Hood. Almeta called it that "deep, triangular sheet of blue water" in a letter to Asa Gray. At times they found themselves there, at over 3,000 feet, before the snow was gone.

Almeta wrote, in one surviving letter to Gray, of

Photo provided by Lonnie Wick

The widow Almeta Barrett at age 85. She had left Oregon and returned to the East to raise her daughter Julia's orphaned twin sons.

Photo: OSU Herbarium

Specimens of Madia citriodora *collected in 1884 near Hood River by Almeta Barrett and donated to Louis Henderson, who composed the label. Later annotations are by David Keck, the monographer of the genus, and Kenton Chambers, who reviewed it for the Oregon Flora Project.*

reaching for an unusual *Dodecatheon* across a "yawning fissure" at the edge of a snow bank, then starting to lose her footing, and having to leap across the chasm – one reason perhaps why her friends remembered her as "willing to brave almost any hardship to find a new or rare plant." She writes of several trips across the Columbia and up the White Salmon River to Mt. Adams.

But life in Hood River was about to change. The railroad came through the Gorge on its way to Portland. Julia, age fourteen, was sent East for a year of high school and then to newly-opened Wellesley College. By 1891 she had married and departed with her husband to live in Honduras. There she caught the "Honduras fever," came back to her parents for care, but died in 1892, leaving newborn twin sons. Almeta had always coped; now, at sixty, she would raise Julia's sons. But fate was against her. One day in 1900, Perry went to the barn to tend his prized Jersey cows and did not return. He had "dropped dead of heart failure," according to a biographer of the valley's pioneers. The remnants of the Barrett family, Almeta and her grandsons, returned east to New York. Probably she had relatives there. We know only that Almeta died at 92 in New York, and one grandson married shortly thereafter.

Thinking of Almeta's life, today, it may seem tragic that she could not devote herself to the scientific study she loved. Then, looking at her face, one sees her differently. She was a kind, firm, capable, intelligent woman. She did what it was her share to do, without regret. And, after all, she has a gorgeous penstemon named for her.

Project News

by Scott Sundberg

The late publication of this issue allows me to include Flora project news through February, and a great deal has happened since the last issue! Most notable is the recent, semi-public release of the online Atlas mapping program. A "Preview Version" was announced to members of the Native Plant Society of Oregon and we have received valuable feedback from them. Some important upgrades will be implemented before we announce the website to the general public. The next issue of the OFN will be devoted to the online Atlas.

Another milestone was reached in the OSU Herbarium last month, when the database of label information from Oregon plant specimens exceeded 100,000 records. This was celebrated with a potluck lunch hosted by the herbarium and a slide presentation on the Flora project by Linda Hardison.

Recently Mildred Thiele, one of the *grandes dames* of botany in Douglas County (OFN 1(2):6), has generously donated her collection of almost 5000 photographic slides of Oregon plants to the OSU Herbarium. This beautiful and well-documented collection of slides spanning the years 1984-1992 is an invaluable resource. Images from the collection will be available to a wide audience through the Oregon Flora Photo Gallery.

Thanks and best wishes to Ann Willyard, who left the Flora project in September to begin graduate studies in the Dept. of Botany and Plant Pathology here at OSU. Ann was one of our first full-time staff members, and for two years provided leadership in establishing database structure for the Flora project. Good luck, Ann. We miss your full time involvement in the project and appreciate the help you continue to provide.

Welcome to Katie Mitchell, who joined our staff in January. She hails from the Seattle, Washington area, and is applying her skills in botany, database management, and GIS (geographic information systems) to Flora project and herbarium specimen databasing tasks.

Serigraph of fawnlilies created by Bonnie Hall.

In Memoriam: Bonnie Hall and Jack Hausotter

by Linda Hardison

The Oregon Flora Project honors the memory of two native plant lovers who have recently passed away: Bonnie Hall and Jack Hausotter. Bonnie Hall died of pancreatic cancer February 18, 2004. She contributed to the scientific community for 30 years as an illustrator in Entomology at Oregon State University. In the early 1990s Bonnie shifted her focus to an interest in native plants by creating screen serigraphs of flowers and ferns. Bonnie was an avid and generous supporter of the Oregon Flora Project. Upon the formation of the Friends, she donated 20 serigraphs of the Oregon fawnlily (*Erythronium oregonum*) to be presented to significant donors. While she will be deeply missed, her warmth will persist through her beautiful artwork.

Jack, a teacher, columnist, and naturalist, embodied a passion and intimate understanding of the natural surroundings of his Douglas County home and beyond. He died August 6, 2003. The Friends of the Oregon Flora Project will gratefully accept and acknowledge contributions honoring the lives of these two special individuals.

Thanks

Would you like to make a donation?

Tax-deductible donations can be made to the Oregon Flora Project by sending a check made out to the Oregon State University Foundation to Scott Sundberg at the address on page 16. Please note on the check that it is for the Oregon Flora Project. Your donations go primarily toward newsletter expenses and student wages.

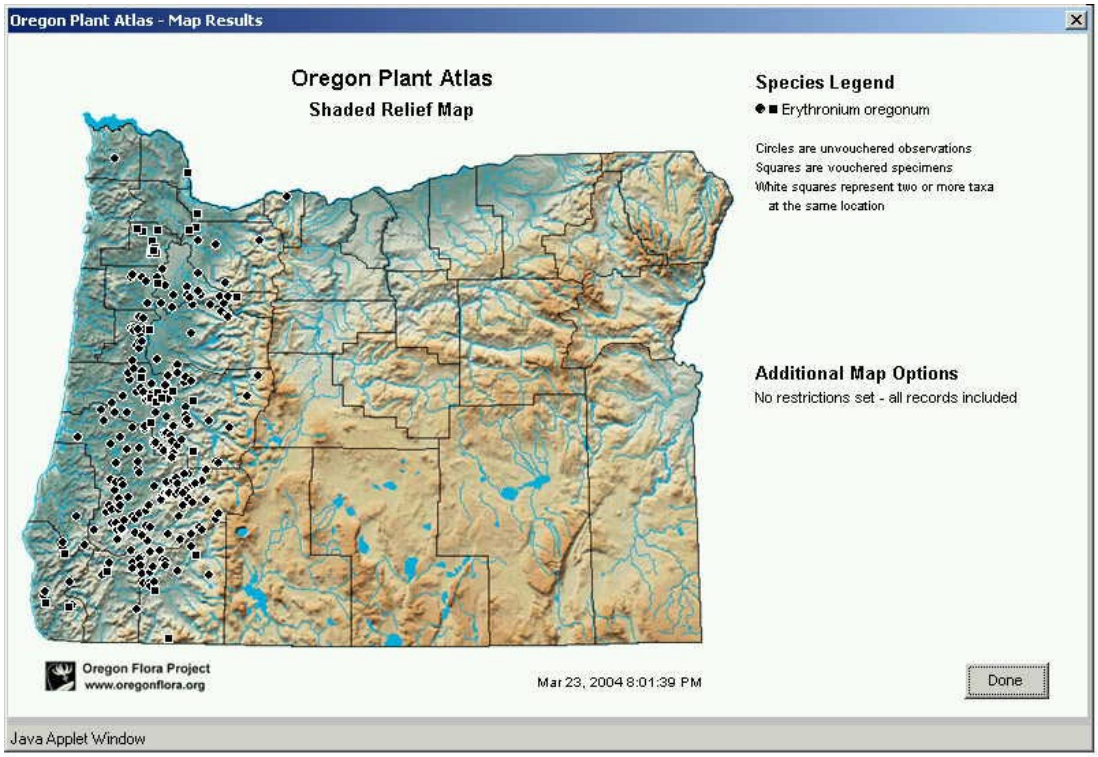
☐ Please check here if you do not wish to have your name listed in our "Thanks" column or on our Internet website.

☐ Please put me on the *Oregon Flora Newsletter* mailing list.

Oregon Flora Project
Dept. of Botany & Plant Pathology
Oregon State University
2082 Cordley Hall
Corvallis, OR 97331-2902

Return Service Requested

TIME DATED MAIL



Distribution of the Oregon fawnlily (Erythronium oregonum)*, from the upcoming online Atlas.*