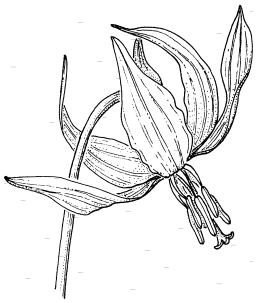

OREGON FLORA NEWSLETTER

Volume 7 Number 3 • Oregon State University • October 2001

LeRoy Ellsworth Detling (1898-1967)

by Eileen Flory

LeRoy Detling served as curator of the herbarium at the University of Oregon from 1939 until his death in 1967. He worked on the collection and taxonomy of far western plants and plant fossils (with monographs on *Cardamine* (*Dentaria*), *Descurainia*, and *Lupinus*), and on the ecology and origin of Oregon plant communities, with particular attention later in his career to plant migration. This subject took him on several trips to Mexico, where he collected many specimens for the herbarium. All of his herbarium specimens now reside at Oregon State University.

LeRoy Detling was born on October 23, 1898 in Groton, South Dakota. His parents, like so many of their generation, emigrated west, where they were farmers and orchardists in Washington and California. He graduated from Gridley (California) Union High School in 1916, attended Philomath

See Detling, page 17

Photo: Detling family collection.

LeRoy Detling at the University of Oregon Herbarium, Eugene.

Three grants provide important boost to the Oregon Flora Project!

by Scott Sundberg

The Oregon Flora Project has exciting news! Three new grants, along with continuing support from the Native Plant Society of Oregon and individual donors, are allowing us to embark on work in new directions while accellerating efforts on the Atlas and Oregon Vascular Plant Checklist. For the first time in the history of the project we have sufficient funding to support three full-time staff members for one year and have partial staff funding for two more years. We are in the process of hiring two Faculty Research Assistants. Computer software developers are being supported by one of the grants and thirteen students started working part-time on the project this fall. The students bring a broad range of skills to the project, and we have been fortunate to have people specializing in data entry, quality control, photography and art in the group. We also hope to involve specialists to assist in a number of other areas, including fund-raising, volunteer coordination, and biogeographical and library research.

Rare plant guide prototype: The Friends of the Oregon Flora Project has been awarded a grant from Willamette Industries, Inc. Funds will be donated to the Flora project and will be used to write a prototype of a rare plant guide. The guide will be composed of loose-leaf "fact sheets" on rare plants. Each fact sheet will have photographs, illustrations, descriptions, a distribution map, and identification hints. The prototype will include 20 fact sheets, along with introductory text and an illustrated glossary.

County-level species lists: A grant from the Bureau of Land Management will support documentation of plant species, subspecies and varieties in Oregon counties. The overall focus of the BLM program is on the promotion of native plant materials in ecological restoration projects; our work will provide lists of plants that are native to each county. Our work will entail a thorough inventory of plant specimens in Oregon and the review of hundreds of botanical references. A side benefit of the work is that the Flora project will compile a database of thousands of plant localities for all Oregon taxa that will greatly enhance the value of our plant Atlas. During the next year we will be inventorying information from a wide variety of sources, including plant specimen collections at several herbaria

See Three Grants, page 16

Three Grants, continued from front page

around Oregon, taxonomic monographs, and other credible reports.

Online, downloadable Flora: The Project has been awarded a 3-year grant from the National Science Foundation for a project entitled "Personal Digital Field Guides: Mobile Access to Comprehensive Regional Flora." The PDFG project is a collaboration between the Flora Project and the Northwest Alliance for Computational Science and Engineering at Oregon State University. The grant will support design and software development for the online version of the *Flora of Oregon*. The digital Flora will include identification keys, photographs, illustrations, species descriptions, mapping capabilities, and much more. The primary focus of the grant is research in computer science. The central and most challenging aspect of the project is to design the system to allow users to download portions of the Flora to their own computer. Smaller versions could even be downloaded on a personal digital assistant (e.g., Palm Pilot) for use in the field. These "Personal Digital Field Guides" can then be tailored to one's specific needs. A broad range of users, including nature lovers, scientists, students, and decision makers, will be able to personalize the way they navigate through the Flora, selecting the amount and type of information presented as well as how and when it will be accessed.

Examples of Personal Digital Field Guides:

- a flora of species likely to be found in a particular county, BLM district, or USFS forest
- a flora of the ferns of Oregon
- technical details and identification hints on Oregon's noxious weeds and rare plants
- an atlas of Oregon penstemons

These projects will greatly speed the completion of the new *Flora of Oregon*. All of the data gathered and virtually all of the work accomplished can be applied toward the final versions of the Flora and Atlas. These grants represent a wonderful influx of funds to pay for progress in several directions. However, there are still many aspects of the Flora Project that do not receive targeted support; these will be the objects of our continued, long-term fundraising efforts.

Without the early and constant support of the Native Plant Society of Oregon, private donors, and hundreds of volunteers, the Oregon Flora Project would have been unable to apply competitively for these federal and private funds. Thank you for being a part of this project!

Contributions of stock, tax rebates, or donations honoring a special person are generous ways to support the Oregon Flora Project at year's end. (See donation box on page 21). Thank you for your continued support.

Illustrations of *Erythronium oregonum* on the front and back covers by Linda Ann Vorobik.

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 Miko Nadel.

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Asteraceae database online at www.oregonflora.org

by Scott Sundberg

The *Oregon Vascular Plant Checklist-Asteraceae* is now available on the Oregon Flora Project's web site, www.oregonflora.org. The checklist is a searchable database that reflects the latest information on Oregon's members of the sunflower family. It includes a few name changes that have been made since the second edition paper copy of the checklist was printed in May 2000. The online version will be updated periodically as more species are discovered and names are changed.

The Asteraceae checklist is the first family to be made available online by the Flora project. Over the next several months we will be publishing checklists of other families as well. We also plan to publish paper versions of these family checklists periodically, but the online versions will be made public first.

We need your input. Please visit our web site from time to time and give us feedback. We anticipate that we will continue to improve the site for several weeks and your comments will help enormously.

Detling, continued from front page

(Oregon) College and then went to the University of Oregon, where he received his BA in Romance languages in 1921.

In 1921-22 Detling taught high school Latin and French in Wallowa, Oregon. A love of languages that would stay with him all his life prompted him to go for an advanced degree, and he received his MA in French from Stanford University in 1923. He then returned to Oregon to teach Romance languages at Willamette University in Salem (1924-26) and at the University of Oregon (1927-1930).

During the teaching years at Oregon, Louis F. Henderson, then curator of the plant collection, served as Detling's mentor, training him in the techniques of collecting, identifying, and caring for herbarium specimens. (Henderson had a degree in romance languages from Cornell and this mutual interest may have originally brought the two men together.) Eventually Detling went back to Stanford to study botany and received his second MA in 1933 and his PhD in 1936.

The year Detling returned to the University of Oregon with his new PhD, the Museum of Natural History was created, with the herbarium as one of its four units. Henderson formally became curator of the herbarium and Detling was hired part time and, when Henderson retired in 1939, Detling succeeded him as full-time curator. For nearly 30 years, Detling directed and developed the herbarium and taught for many years in the departments of botany, zoology, and finally biology. After 1957 he focused almost entirely on herbarium work, limiting his teaching to small classes of advanced students in plant taxonomy and species distribution, plus advising graduate students in their theses and dissertations.

Detling gathered thousands of specimens from the far West–most notably those on which were based his monographs on *Cardamine* (*Dentaria*), *Descurainia*, and *Lupinus*. His interest in plant migrations and the origins of current western flora took Detling to Mexico five times (most significantly a sabbatical leave in 1961-62) and once to Costa Rica. The Mexican collection comes largely from the western Sierra Madre in the states of Jalisco, Nayarit, Aguascalientes and Colima.

Detling's commitment to botany extended beyond the herbarium. He served as an officer of the 4-H organization in Lane County; was on the staff at Camp Lane, a 4-H camp in the Coast Range; and led forestry and entomology clubs for many years. From time to time he was also called into court to identify plants–once to find that the contents of a suspicious cigarette was actually Scots broom flowers!

On September 19, 1967, LeRoy Detling died of a heart attack as he left his house to walk to an evening of work at "the herb." The faculty recorded, "We will miss this quiet, patient man. Even those who were only casually acquainted with him will be saddened at the loss. . . . The many thousands of plants he collected will serve botanists and students for many years to come. His memorial will be the simple statement on the label of each of these specimens, 'Collected by LeRoy E. Detling.'"

(Eileen Flory is the daughter of LeRoy and Mildred Detling.)

Winter Twigs **back in print!**

by Rhoda Love

I am delighted to report that *Winter Twigs: a Wintertime Key to Deciduous Trees and Shrubs of Northwest Oregon and Western Washington,* by Helen M. Gilkey and Patricia L. Packard is once again available in a handsome new incarnation. OSU Press obtained permission from Dr. Packard, the surviving author, to update this much-loved field guide first published in 1962 and long out of print. With the help of Oregon Flora Project botanists, nomenclature was carefully reviewed and the new edition appeared this fall. Twenty-two of the 81 taxa included in the Guide were changed to reflect present taxonomic understanding. The book retains its comprehensive keys, descriptions, and lovely drawings by Dr. Packard. A colorful new cover features a twig photograph by Michael Hartman of the Native Plant Society of Oregon.

Paperbound, 128 pages, glossary, $19.95. ISBN: 0-87071-530-5. To order, contact your local bookstore or OSU Press, 541-737-3166, fax 541-737-3170.

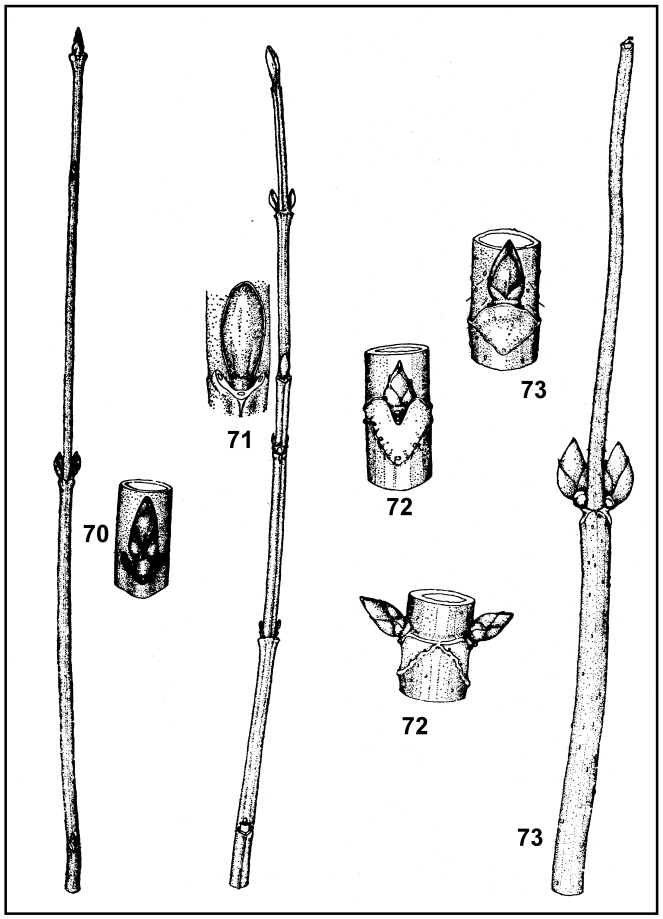


Plate 14 from Winter Twigs *by Gilkey and Packard illustrating* Viburnum *(70, 71) and* Sambucus *(72, 73). Courtesy of Oregon State University Press.*

Oregon plantains: the natives are diverse and we tolerate the weeds!

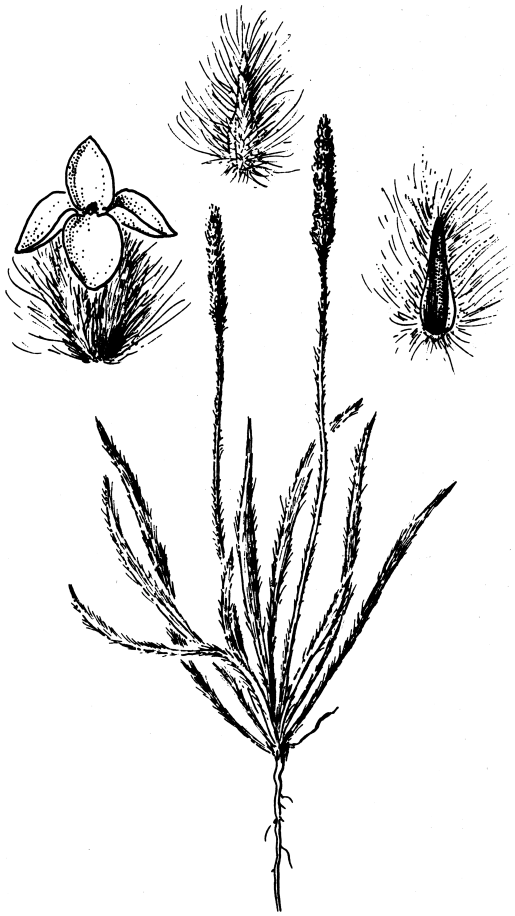
by Henrietta Chambers

Most of us recognize two of the exotic species of *Plantago* that grow in Oregon: *P. lanceolata* (English plantain) and *P. major* (common plantain). But did you know that there are fourteen species of *Plantago* in our state? They are equally divided between native and exotic species, and are really quite easy to tell apart when you compare their morphology and learn where they grow. The flowers, which are arranged in bracteate spikes, are extremely small and scarious and I seldom mention them in this treatment. However the leaves show distinct differences between species and thus I rely a good deal on leaf morphology. We will discuss the native species first. My primary reference, with illustrations, is *Vascular Plants of the Pacific Northwest* by Hitchcock, et al; however, several of the species that have southwestern Oregon as their northern limit are not included in that work. In those cases, Abrams' *Illustrated Flora of the Pacific States* has aided in identification and distribution. Also, H. A. Gleason's *The New Britton and Brown Illustrated Flora* (1952) provides good illustrations and descriptions of the exotic species.

Oregon has seven native plantains. *Plantago elongata* Pursh var. *elongata* (slender plantain) occurs in moist saline habitats on the beaches from Lincoln County to Curry County, south into California and scattered throughout the Rocky Mountain states to the Midwest. The species name "elongata" is not very fitting, because the flowering/fruiting stalks are not particularly elongated compared to other species. The plants are rarely over 20 cm tall and frequently much smaller. (There are two additional varieties of this species which do not grow in Oregon; one is found in central California southward, and the other is found from California north to coastal British Columbia but has not been collected in Oregon.)

Plantago erecta E. Morris (dwarf plantain) grows in a wide variety of habitats along the southern Oregon coast (Curry and Coos Counties) and inland (Jackson and Douglas Counties). It occurs on grassy beaches, dunes, stable sandy flats, vernal pools, ridges and rock outcrops. The flowering stalks are a little longer than the other small (sometimes called "dwarf") plantains (*P. elongata, P. pusilla* Nutt. and *P. virginica* L.), but the flowering portion is not as elongate (usually less than 5 cm) and is whitened due to a long silky pubescence on the flowers and bracts.

Plantago eriopoda Torr. (redwool or saline plantain) shows a disjunction in its Oregon distribution from the southern coast (Coos County) to Malheur County. On the label of one of the specimens collected in Malheur County in 1957 it states that the plant is a common weed in irrigated hayfields. That is an interesting comment since it is a native species. It has basal leaves that are somewhat intermediate in shape between those of *P. lanceolata* and *P. major*, but the flowering stalk is thicker (more stout) and up to 4 dm in height. The root-crown has an abundance of reddish-brown hairs, hence the common name. The basal flowers become somewhat separated as the stalk ages, a feature also seen in *P. subnuda*.



Plantago patagonica *is the most hirsute of Oregon's native plantains. In our state it is found only east of the Cascades. Illustration by Jeanne R. Janish from Hitchcock et al.,* Vascular Plants of the Pacific Northwest, part 4, *courtesy of University of Washington Press.*

Plantago macrocarpa Cham. & Schltdl. (Alaska plantain) is a species of cold, wet habitats from the Aleutian Islands south to Lincoln County, Oregon. The five collections at OSU are all from Yachats. The species name refers to the large fruits, and this feature, along with the broad, sedge-like leaves, serves to distinguish this taxon. The 2-seeded indehiscent fruits (5-7 mm long) drop from the fruiting spike intact making this species unique in the genus as all other *Plantago* species have a capsule which dehisces in a circumscissile (lid-like) pattern. The Yachats population is disjunct from the next closest collection from Gray's Harbor, Washington, which is widely separated from populations farther north in the Olympic Peninsula, Vancouver Island, Queen Charlotte Islands and coastal Alaska.

Plantago maritima L. (seaside plantain) has two varieties which differ in morphology and habitat, although both grow along the coast. *P. maritima* var. *californica* (Fern.) Pilg. (small seaside plantain) is a fleshy, rosette-forming plant which frequently has a branched caudex. The leaves are broadly linear or linear-oblanceolate to subspathulate or obtuse. The plants range from 3-7 cm tall and grow on headlands and bluffs above the beaches from California north to Tillamook County, Oregon. *P. maritima* var. *juncoides* (Lam.) A. Gray (tall seaside plantain) has grass-

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Plantains, continued from page eighteen

like leaves which are ascending rather than rosette-forming. The leaves are entire or sparsely denticulate, and may be as long as 25 cm. The upright spikes are up to 7 cm tall and densely flowered. This variety favors beach and salt marsh habitats from the San Francisco Bay area north to the Aleutian Islands.

Plantago patagonica Jacq. (Indian wheat) is a plantain whose species name reflects its widespread distribution in Argentina and Chile as well as western North America. In Oregon it is found only east of the Cascades and is quite distinct because of the wooly pubescence on the leaves, flowering stalks and flowers (see illustration). Also, the entire flowering/fruiting spike is covered with a dense, fine pubescence which turns tan with age, thus appearing foxtail-like. Its habitats include disturbed areas, sunny slopes, rocky openings in woods, and banks of rivers and streams.

Plantago subnuda Pilg. (Mexican plantain) has leaves that are intermediate in shape between *P. lanceolata* and *P. major* but the petiole, which can be winged, is much wider with 5-8 distinct veins. Most plantains have perfect flowers, but this taxon is monoecious with the male flowers above the female on the spike. The corolla lobes of male flowers are spreading while those of female flowers are rolled inward and are upright and form a straw-colored beak over the developing fruit. Flowering spikes can attain a height of 6 dm, and the lower flowers on well-developed plants become somewhat separated in fruit, much like *P. eriopoda*. The plants occur along the coast in a variety of sandy, tidal, rocky and bog habitats as far north as Lincoln County.

The seven introduced species have two distribution patterns: widespread perennial species which are aggressive weeds growing in a broad range of disturbed habitats; or spotty annuals, with widely separated populations because of chance dispersal followed by little or no spreading from the initial site. Plant size is also extremely variable in the exotic species because the growing conditions with regard to moisture and soil may be either favorable or marginal for plant growth.

Plantago aristata Michx. (bristly plantain) has long, thin, grass-like leaves and long, stiff bracts which extend beyond the flowers. The lower bracts are longest (5-25 mm) and thus the inflorescence tapers toward the tip. This species is native in the Midwest from Illinois south to the western Gulf States and is currently naturalized over much of the United States and eastern Canada. Our three collections show a disjunction from Clackamas to Grants Pass.

Plantago coronopus L. (cut-leaf plantain) consists of low-growing, rosette-forming plants which are distinct from all other Oregon taxa because they have deeply divided (pinnatifid) leaves (see photo). The species is native to Europe and sparingly introduced from southern California to Whidbey Island, Washington. Our collections are from Coos, Curry, Lane and Lincoln Counties in habitats such as headlands, bluffs, dunes, edges of lakes, sandy and gravely road- and trailsides. The scapes, which can reach 3 cm, have an elongate flowering/fruiting region and tend to be upright or arching. The sharp tips of the bracts extend very slightly beyond the flowers/fruits.

Plantago lanceolata L. (English plantain) is a well-known widespread, weedy perennial species introduced from Europe. It is common in the moister parts of Oregon and other temperate regions, where it occurs in many disturbed habitats. The leaves have three or more conspicuous parallel veins and are narrowly to broadly elliptic. The petiole varies greatly in length. Each rosette of leaves produces one to many flowering stalks. The stamens are well-exserted at anthesis forming a fringe, with younger flowers above the fringe and older flowers (setting fruits) below the fringe. The habit is much like two of the native species, *P. eriopoda* and *P. subnuda*, but the latter tend to have much wider leaves with broader petioles. The flowering/fruiting portions of the flowering stalks in English plantain continue to produce new flowers very late in the growing season if conditions are favorable.

Plantago major L. (common plantain) is another of the widespread European weeds that inhabit lawns, roadsides and other disturbed habitats throughout Oregon. The leaves are much broader (up to three times as long as wide), elliptic to ovate with three or more conspicuous veins. The margins are usually entire but some biotypes have a few shallow teeth from the base to the middle of the leaf blades. The scapes are upright or arching. The label on an 1888 collection (ORE) says "Introduced but not common in E.O. (Eastern Oregon)." Both *Vascular Plants of the Pacific Northwest* and *Intermountain Flora* state that there are two varieties in this region. However, the authors also acknowledge that it is almost impossible to distinguish them using herbarium specimens. (Perhaps a graduate student would be interested in a project to make collections of the typical var. *major* and the more succulent plants of saline habitats, var. *pachyphylla*, and grow them under similar conditions in a greenhouse and in the field to determine if their differences are genetically stable.)

Plantago psyllium L. (sand plantain) is an exotic species which is native in Europe, Asia and North Africa. It is established in the eastern United States but only sparingly introduced in the Northwest. We have only a single collection from Hood River in 1934. Sand plantain does not produce a rosette but has a branched stem with opposite, linear leaves. The short, compact spikes are found on terminal as well as lateral branches. Our specimen has no habitat data but *Vascular Plants of the Pacific Northwest* states that in the East it grows along railroads.

Plantago pusilla Nutt. (dwarf plantain). This annual species truly fits its Latin species name (pusilla =very small). The tallest specimens in the herbarium are 8 cm. Our collections are from Lake Oswego, Sauvie Island, and Albina (Portland). There is a very interesting characteristic regarding the morphology of the root system: the taproot detaches from the crown leaving a few adventitious roots to form the root system. The corolla lobes become upright forming a short beak over the developing capsule. The linear leaves distinguish it from *P. virginica*, another small, introduced species often also called dwarf plantain.

Our seventh introduced species is *Plantago virginica* L. (Virginia plantain), an Eastern United States native that has been introduced into the West, but is not a very aggressive

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Plantains, continued from page nineteen

weed. Our collections are from Coos and Curry Counties from dry habitats such as hillside meadows, dry pastures, and dry ground above the Rogue and Chetco Rivers. The entire plant is hirsute. The petals are erect and form a straw-colored beak over the developing fruit. One to several scapes arise from the rosette of oblanceolate to obovate leaves. The few collections observed show a great range of size in the leaves and flowering stalks, the latter from 5 to 50 cm.

Seeking Oregon herbaria!

by Scott Sundberg

We know of forty collections of pressed and dried plant specimens in Oregon (see map, back page). These range in size from large university herbaria to small private collections. All have valuable records on the distributions of Oregon plants. For our work on county-level species lists we will be contacting people who manage these herbaria to learn more about their holdings. Do you know of herbaria or other collections that we have not yet found? For a full list of those known to us, please email or send a note to my address on page 16.

Photo: Charlene Simpson, Coastal Lane County.

Introduced Plantago coronopus *is distinct from all other Oregon plantains due to its deeply divided leaves.*

Key to Oregon *Plantago*

by Henrietta Chambers

1. Plants annuals, biennials or short-lived perennials
   2. Leaves lanceolate to ovate; corolla beak-like.....*P. virginica*
   2. Leaves linear, or deeply pinnately divided; corolla not beak-like
      3. Leaves deeply pinnately divided.....*P. coronopus*
      3. Leaves linear, grass-like
         4. Stem leaves present, opposite.....*P. psyllium*
         4. Leaves all basal
            5. Bracts not extending beyond flowers/fruits
               6. Leaves glabrous or sparsely hairy, less than 2 mm wide; scapes less than 10 cm
                  7. Leaves succulent; spikes short, less than 20 flowered.....*P. elongata* var. *elongata*
                  7. Leaves not succulent; spikes elongate, more than 20 flowered.....*P. pusilla*
               6. Leaves silky or long-hairy, slightly wider; scapes longer than 10 cm.....*P. erecta*
            5. Bracts longer than flowers/fruits
               8. Bracts stiff, remaining dark, up to 25 mm long.....*P. aristata*
               8. Bracts soft, fine, turning tan in age, < 10 mm long.....*P. patagonica*
1. Plants perennial
   9. Leaves lanceolate to ovate
      10. Leaves lanceolate.....*P. lanceolata*
      10. Leaves ovate
         11. Petioles wide, often winged, their veins conspicuous
            12. Corolla upright in female flowers (spreading in male), forming a beak.....*P. subnuda*
            12. Corolla spreading, not beak-like.....*P. eriopoda*
         11. Petioles narrow, their veins not apparent.....*P. major*
   9. Leaves linear, grass-like or sedge-like
      13. Spikes greater than 1 cm wide; capsule indehiscent; leaves petiolate.....*P. macrocarpa*
      13. Spikes less than1 cm wide; capsule dehiscent; leaves scarcely or not at all petiolate
         14. Small plants of coastal bluffs; leaves in a low rosette, succulent.....*P. maritima* var. *californica*
         14. Taller plants from other coastal habitats; leaves upright, not succulent.....*P. maritima* var. *juncoides*

Oregon plant photo gallery. Would you like to participate?

by Scott Sundberg

In the last issue of the OFN [7(2)] we announced a grant from the North American Rock Garden Society to support work on an online photo gallery. We are now working on a Plan of Work for the project. This will outline the "rules" for accepting photographs, crediting photographers, and making them available online to the public. Over the next several months we will be working out many technical aspects of the project, addressing resolution needs, requirements for assuring proper identifications, techniques for digitizing slides and prints, management of computer files, and presentation of the photographs online.

We hope to have photographs of each Oregon vascular plant species, subspecies and variety, featuring habitat, overall form, and closeups of diagnostic features. It is an ambitious undertaking that can only succeed as a grass-roots effort.

We encourage your participation!

There are many ways you can become involved:

- donate the use (but not the copyright) of photographs in your collection, or donate the photos themselves
- enter information from the OSU Herbarium's slide collection into a database
- assess the quality of slides and help decide which ones to put online
- take photographs of species for which we lack images
- specialize in photographing microscopic features
- form a group of people to conduct photographic safaris
- help train volunteers in photographic and digitizing techniques
- help us find sources of photographs

If you'd like to help us (and perhaps see your photographs and name in bright lights on the Internet), please contact me by email at the address on page 16.

Thanks

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

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 this page. Please note on the check that it is for the Oregon Flora Project. Many thanks.

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

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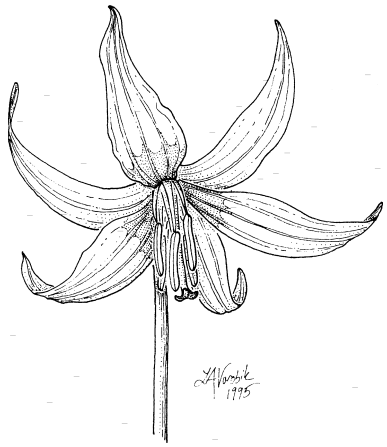
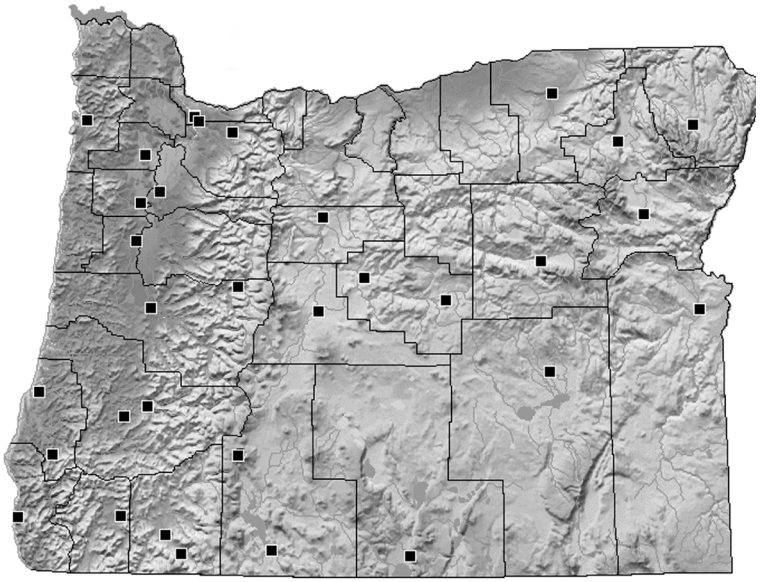


Did you know?

• *Aster chilensis*, named by Nees von Esenbeck in 1832, was thought to have been discovered in Chile. The collector, Thaddaeus Haenke, had written the type locality in Latin, as "In regionis montanis," which Nees translated as "In the region of the mountains," i.e. the Andes of South America. However, what Haenke meant was "In mountain-of-the-king," meaning Monterey (California), whose name has that meaning in Spanish. We know that Haenke's ship visited Monterey in 1791, where he collected this aster along with many other Californian species. Haenke died in 1817, before his collections were studied and named.

• Two species of the sea-rocket genus *Cakile* (Brassicaceae) occur in beach sands on the Oregon coast. Neither species is native here, *C. edentula* arriving, probably in ship ballast, around 1880, and the European *C. maritima* first appearing in California in the 1930s. Ocean currents have dispersed their corky fruits up and down the coast. South of Oregon, *C. maritima* has gradually out-competed *C. edentula*, due to its superior reproductive characteristics, and the latter taxon is now rare in California. Both species survive and coexist from Oregon northward, however. *Cakile edentula* is native from Virginia north to Newfoundland; perhaps it is better adapted to the cooler climate of coastal Oregon. Additionally, because the two species can hybridize, genetic exchange may have changed their competitive interactions here. These and other questions invite further research.



Locations of public and private herbaria in Oregon.

We plan to search many of these collections for additions to our county-level species lists. See details on front page.