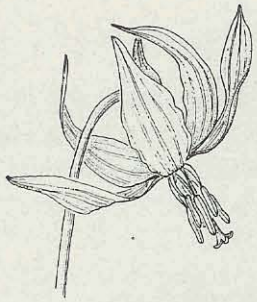

OREGON FLORA NEWSLETTER

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Rhoda Love

by Charlene Simpson

A genuine northwesterner, born and educated in Seattle, Rhoda Love claims she discovered her botanical calling in 1951 during a University of Washington botany class with C. L. Hitchcock. "Hitchy was inspiring. I had a superb education at Washington and will always be grateful to the many fine professors who taught me there," she says.

After graduation and a stint as junior high school teacher, Rhoda returned to UW to obtain her MS in botany, and she continued teaching in Seattle and briefly in California. She and husband Glen moved to Eugene in 1965 where she began 30 years of teaching at Lane Community College. Inspired by her enthusiasm, many of her former students have gone on to botany careers. One recently wrote: "Rhoda expected the best from her

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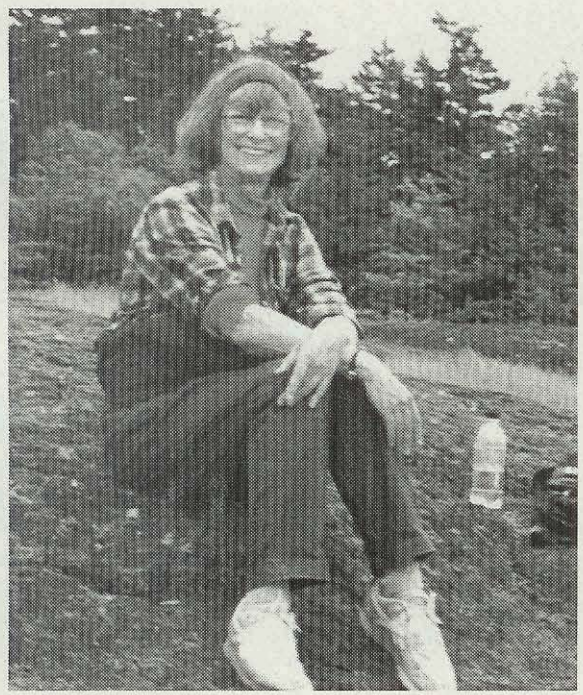

Photo: Jenny Love

Rhoda Love on Mt.Young, San Juan Island, Washington

Some taxonomic notes on Oregon goldenrods, Part I

by Kenton L. Chambers

Members of the genus *Solidago*, family Asteraceae, invariably go by the common name "goldenrod," which is nicely descriptive of their often tall, upright stems topped by masses of small, bright yellow flowering heads. There are around 100 species, primarily of North America. The central and eastern sections of the continent are especially well supplied with them, and the sequential flowering of numerous species provides a showy display during the late summer and early fall. The taxonomy of *Solidago* is quite complex, however, perhaps due to "evolution in progress" in many species groups. Polyploidy, hybridization, morphological elasticity, and ecotypic differentiation all may act to blur the distinctions among species and varieties.

My review of the genus for the Oregon Vascular Plant Checklist consisted of examining all of the herbarium specimens deposited in Corvallis to see whether I could assign them to distinct species using the keys and descriptions found in our standard reference floras. No one has yet done "biosystematic" studies on the genus in Oregon, but we can at least observe the morphological variation seen in herbarium collections, and evaluate how well the published taxonomic treatments agree with the variability found in natural populations. The term "alpha taxonomy" is often used for this kind of morphology-based classification. In my opinion, the treatments done by Arthur Cronquist—presented in *Flora of the Pacific Northwest* and *Intermountain Flora, Vol. 5*—are the most practical and useful for understanding our taxa of *Solidago*, and my checklist agrees with his work for the most part. There are some taxonomic changes, however, which I would like the readers of this Newsletter to be aware of, since they affect the current treatments in *Flora of the Pacific Northwest, The Jepson Manual: Higher Plants of California*, and Peck's *A Manual of the Higher Plants of Oregon*.

By far the most common Oregon species is *Solidago*

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Solidago, continued from front page

canadensis L., Canada goldenrod, which is found all over the state. Cronquist's classification, which I am following, places all the Oregon specimens in variety *salebrosa* (Piper) M.E. Jones. The form of the inflorescence of this taxon is highly variable, ranging from the heads tightly clustered in a small, oblong panicle (technically a "thyrse"), to what are called "pyramidal" panicles whose lower branches are much elongated, studded with small heads, and either strictly erect, arched outward, or widely spreading. Some of this variability is probably genetic and some is the result of growing conditions. I believe plants of higher elevations and other extreme environments may have shorter inflorescence branches and more clustered heads. This type of plant, along with types whose lower inflorescence branches are long but erect (not spreading), comprise what Cronquist calls the "elongata-phase" of var. *salebrosa*. In *The Jepson Manual* the author of *Solidago* raised this "phase" to subspecies status, as ssp. *elongata* (Nutt.) D.D. Keck. Perhaps future genetic studies will tell us whether the various inflorescence forms of *S. canadensis* merit such recognition as separate subspecies.

Very closely related to *Solidago canadensis* is *S. altissima* L., of the eastern United States, which in fact is included in *S. canadensis* by Cronquist. It apparently represents a phase with long, widely spreading-recurved lower inflorescence branches, and indeed such an inflorescence sometimes is seen in Oregon collections. However, as noted above, there is no break in the continuous variation of inflorescence form in our area, and I found no correlation of leaf shape or degree of serration with types of inflorescences. Therefore, I do not accept *S. altissima* as an alien introduction in Oregon, although the treatment in *The Jepson Manual* implies its occurrence here.

Solidago canadensis and the related Oregon species *S. gigantea* Aiton (smooth goldenrod) differ from our other species in having the cauline leaves largest toward the middle of the stem; that is, their largest leaves are not at the base of the stem, with a gradual decrease in leaf-size upwards, as occurs in all our other goldenrod taxa. *Solidago gigantea* grows east of the Cascades and has a non-hairy, glaucous stem and elongate, spreading inflorescence branches, whereas the stems of *S. canadensis* are invariably minutely hairy, especially in the inflorescence.

(Editor's note: Part II of Dr. Chambers' taxonomic notes on goldenrods will appear in the next Oregon Flora Newsletter.)

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

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Solidago canadensis *var.* salebrosa, *The inflorescence illustrated at upper right is the "elongata-phase" of the variety. Illustration by John H. Rumely from Hitchcock et al. 1969,* Vascular Plants of the Pacific Northwest, *courtesy of University of Washington Press.*

Carex Working Group progress

by Barbara Wilson

The Carex Working Group (CWG) was formed in 1993 when several botanists got together to share an inexplicable interest in sedges. Although others helped, the core sedge enthusiasts have been Richard Brainerd, Keli Kuykendall, Danna Lytjen, Bruce Newhouse, Nick Otting, Barbara Wilson, and Peter Zika.

The CWG quickly produced preliminary maps showing county distribution of each Oregon *Carex* species. We then settled down to produce more detailed maps, a task that proved more complicated than anticipated. Accurate mapping required annotating *Carex* specimens; doing field work to fill in apparent gaps in distribution; databasing specimen label data; finding township, range, and section for all records that lacked them, and editing the database.

The CWG annotated some 4,200 accessioned *Carex* spcimens at the combined herbaria at Oregon State University, nearly 400 specimens from other herbaria, and over 1,000 unaccessioned specimens collected by the CWG or donated by other botanists. Some 400 sight records were also databased.

Slowly we wrestled with difficult distinctions, evaluated the apparent reality of named taxa, and learned the tricks of sedges. Not until late 1995 did the CWG seriously tackle the dreaded Section *Ovales*, which includes *C. pachystachya*, *C. microptera*, and allies. We finished annotating that section in 1997.

CWG members were particularly interested in the difficult Section *Acrocystis*, which includes *C. rossii*. Group members carefully examined these sedges in the field and herbarium, and established some 120 live plants in the greenhouse to determine which foliage characters are genetically based and which result from environmental conditions. We sent live plants to three researchers studying the section. Most exciting, group member Peter Zika recognized that certain Klamath Region plants represented a species new to science; its description is being published.

Thanks to donations from the Native Plant Society of Oregon and its Corvallis and Emerald chapters, CWG employed student workers who performed the bulk of data entry, editing, and researching of township/range data. Data entry began late in 1993, performed by a constantly changing crew. By the end of 1996, when over 6,000 records had been entered, problems had become apparent, highlighted by the first map set generated by Jon Kimerling in January 1997; it showed some sedges growing in highly unlikely places, such as in the ocean!

From January through August 1997, intensive quality control was carried out by student workers Esther Frahm, Andrew Townesmith, and Matilda Sanguino, supervised by Barbara Wilson. Problems ranged from simple typing errors to difficulty deciphering the elegant script of some early Oregon botanists, to accidental deletion of all locality data from 50 records.

As the students edited label data, CWG members tracked down specimens mapped to unlikely places, corrected identifications, and researched possible label errors. Sometimes we simply had to accept that sedges can grow in places we had thought they did not.

Now all database records have been checked. This fall, final *Carex* distribution maps for Oregon will be generated and published. We also hope to make the database available on the internet.

Problems that arose during the CWG project have influenced procedures used for the larger Oregon Flora Project. A mapping process similar to the one developed by Jon Kimerling for *Carex* will be used for the Oregon Plant Atlas.

Where next for the CWG? Projects being considered include writing keys to Oregon *Carex* and expanding our horizons to other taxonomic groups.

Carex microptera, *member of the difficult Section* Ovales. *Illustration by Jeanne R. Janish from Hitchcock et al. 1969,* Vascular Plants of the Pacific Northwest, *courtesy of University of Washington Press.*

Book Review: Intermountain Flora, Volume 3A

by Aaron Liston

Intermountain Flora. Vascular Plants of the Intermountain West, U.S.A., *Volume 3, Part A. Subclass Rosidae (except Fabales). By A. Cronquist, N. H. Holmgren, and P. K. Holmgren. 1997. New York Botanical Garden, Bronx, New York. ISBN 0-89327-374-0. Hardcover: 422 Pages, 189 Plates. $75.00.*

The sixth and latest installment of the *Intermountain Flora* series was published in May, 1997. Volume 3A is authored by Noel Holmgren and Patricia Holmgren of the New York Botanical Garden, and Arthur Cronquist, who completed many of the family treatments before his death in 1992. This major regional flora, when completed, will provide descriptions, identification keys, and illustrations of all vascular plants in the Great Basin. This area is bounded by the Rocky Mountains to the east and the Sierra Nevada to the west.

Specifically, the geographic coverage encompasses all of Utah, most of Nevada (excluding the southern tip), and adjacent parts of California, Arizona, Wyoming, Idaho and Oregon. For Oregon, this includes most of Harney and Malheur counties, eastern Lake, the "panhandle" of Deschutes, and a small area of Crook County. The northwestern boundary follows "in general the eastern limits of the forested land that stretches out from the main Cascade Range." Thus the *Intermountain Flora* is an essential resource for botanists and plant enthusiasts interested in the flora of the southeastern quarter of our state.

The *Intermountain Flora* follows Cronquist's classification of the angiosperms which recognizes 5 subclasses of monocots and 6 subclasses of dicots. The present volume provides treatments of 40 families in the subclass Rosidae (excluding the legumes, published in 1989 as Volume 3B). Included here are some of the largest families found in the region such as Rosaceae and Apiaceae. Other families include Saxifragaceae, Hydrangeaceae, Onagraceae, Euphorbiaceae and Geraniaceae.

The largest genera are *Camissonia* (Onagraceae, 29 species) and *Lomatium* (Apiaceae, 28 species). These two genera illustrate different patterns of species distribution relative to Oregon: most *Camissonia* species occur in low-elevation deserts, and only half of the Intermountain species reach Oregon. In contrast, three-quarters of the covered *Lomatium* species occur in Oregon, reflecting the fact that species diversity in this genus is highest in the Columbia Basin to the north of the Intermountain Region.

Volume 3A continues the high standards set in previous volumes. The taxonomic descriptions are clear and accurate, and are supplemented by notes on distribution, ecology, unresolved taxonomic problems, etc. Every species is illustrated by a line drawing, generally one half size for the plant habit, with magnifications of flowers, fruits and / or foliage providing sufficient detail for accurate identification. It is appropriate that Volume 3A is dedicated to the illustrators, especially Jeanne Janish, Bobbi Angell, and Robin Jess, "whose skillful drawings give vivid life to the text."

In addition to the complete coverage of the native and naturalized flora, the identification keys include species known from adjacent areas that may eventually be found within the Intermountain Region and commonly cultivated plants that may be mistaken for natives. For example, the inclusion in the keys of ten cultivated maples, six sedums, and seven species of apple "planted in what now seem to be out-of-the-way places, where they appear to be naturalized" is a useful feature.

As Oregon botanists well know, plant identification within the state often requires the consultation of several different floras, and potential frustration arises when conflicting taxonomic treatments are encountered. Overall, Volume 3A takes a fairly conservative attitude towards name changes. Nevertheless, some unfamiliar names encountered in Volume 3A include the binomial *Pentaphylloides fruticosa* (Rosaceae) for *Potentilla fruticosa* (shrubby cinquefoil) and family Parnassiaceae for the genus *Parnassia* (grass of Parnassus). Generic changes from the *Flora of the Pacific Northwest* (but consistent with *The Jepson Manual: Higher Plants of California*) include the sinking of *Boisduvalia* and *Zauschneria* into *Epilobium* (Onagraceae) and the segregation of *Chamaesyce* from *Euphorbia* (Euphorbiaceae). It is the evaluation and synthesis of such changes that will be an important component of our own Oregon Vascular Plant Checklist.

The splitting of Parnassiaceae from Saxifragaceae represents a rare departure from Cronquist's classification system. The recognition of Parnassiaceae is based in part on the results of recent molecular phylogenetic analysis. The results of explicit phylogenetic analyses (both morphological and molecular) are also cited for several genera, and in some cases have been incorporated into the taxonomic decision-making process of the authors (e.g. in the synonymizing of *Boisduvalia* with *Epilobium*). Currently, such thorough analyses have been conducted on relatively few plant genera. However, as new sources of data and analytical approaches are being used by an increasing number of plant systematists, one can anticipate continued refinement of our taxonomic concepts, and consequent name changes. The approach adopted in Volume 3A (nomenclatural changes are minimized and when undertaken the rationale is clearly given) strikes a careful balance between promoting nomenclatural stability while incorporating the latest systematic research.

No new species are described in the flora, however 14 nomenclatural changes are made. These are primarily subspecies or species which have been reduced to varieties. In addition, an Oregon species of conservation concern, *Lomatium ravenii*, is considered "a morphological extreme in a continuously variable population" of *L. nevadense*. *Lomatium ravenii* is accepted in *The Jepson Manual*. This ambiguous situation once again highlights the need for taxonomic study of the Oregon flora.

Volume 1 of the *Intermountain Flora* appeared in 1972, the present volume 25 years later for an average of one volume every 4-5 years. Two additional volumes (2A and 2B) are planned, covering the subclasses Magnoliidae, Hamamelidae, Caryophyllidae and Dilleniidae. Volume 3A is an important addition to the bookshelf of Oregon botanists, and a significant step towards the completion of this valuable flora.

Rhoda, continued from front page

students and, knowing that, we usually gave her our best."

Rhoda returned to graduate school for her 1980 PhD from the University of Oregon under plant ecologist Stan Cook. "As the child of relatively unschooled parents, I consider my education to be the most important factor in my life," she tells us.

Rhoda has long been active in the Native Plant Society of Oregon. She worked vigorously for the passage of the Oregon Endangered Species Act of 1987. She was appointed by three governors to terms on the Oregon Natural Heritage Advisory Council, and serves as an advisor to the state Department of Agriculture Rare Plant Program.

When Rhoda learned that a new flora of Oregon was to be launched at OSU she couldn't resist becoming part of the project. She says when she began to volunteer she was at once made to feel welcome by members of the Oregon Flora Project team. She was soon invited to become a Checklist Project Leader and newsletter editor. She is currently writing treatments of the pome-fruited Rosaceae for the Checklist.

Rhoda has also been providing common names for all taxa on the Oregon Checklist. A rule she proposed, which was approved by the Checklist core group, was to drop all hyphens. "My work on the Flora project is now one of the most exciting and satisfying activities in my life," she says. Another, she hastens to add, is watching her two children, Stan and Jenny, mature and prosper, and visiting her first grandchild born last year in Pasadena to her son and his wife.

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

Project News

by Scott Sundberg

Imagine having over 2,000 species lists, approximately 160,000 herbarium specimens, and several computer files with information on the distributions of Oregon plants. Think of fifteen part-time student employees compiling, entering, and checking data, and dozens of other people from around the state helping in a wide variety of ways. Imagine also technical experts in taxonomy, cartography, and software development tapping away on computers. And think of the donations received from the Native Plant Society of Oregon and several individuals, which provide most of our funding. You've pictured the hum of activity in the OSU herbarium where we are busy building portions of the electronic Oregon Atlas from a huge data set. The pace of activity has dramatically increased in the past few weeks! Shortly we want to produce prototype color distribution maps of dozens of plant species.

The Checklist continues to improve, and currently has 4,426 native and naturalized taxa and 2,020 synonyms. We plan to release the Asteraceae by the end of the year. Watch our website.

Thanks!

To be added to our mailing list (if not already on it):

Name _____

Address _____

_____

_____

Phone and/or e-mail _____

Would you like to make a donation?

Tax-deductable 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 14. Please note on the check that it is for the Oregon Flora Project. Your donations go primarily toward newsletter expenses and student wages.

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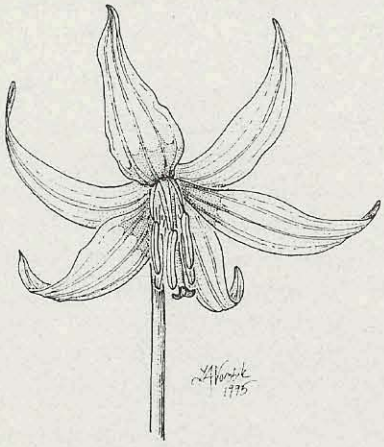


Did you know?

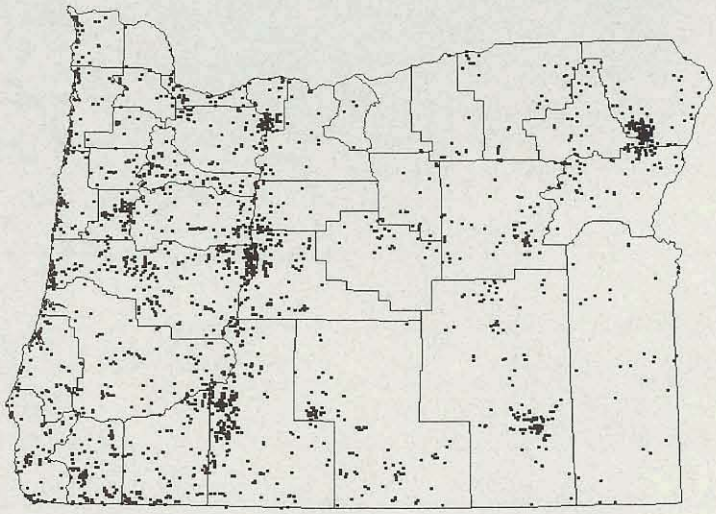
• Corn (*Zea mays*), an American native plant, was introduced to China by the year 1550 and grew so quickly in importance as a crop that it became a significant factor in the 18th Century increase in the Chinese population.

• The first plant family to be monographed was the carrot family (Apiaceae or Umbelliferae). Robert Morison published a scientific study of the family in 1672.

• *Fragaria chiloensis*, our Oregon coastal strawberry, was introduced to France in 1712 by a certain Captain Frenzier. It was used for cross-breeding and its genes are present in today's commercial strawberry varieties.

The botanical history notes above are from The Huntington Library Plant Trivia website and are used by permission. OFN readers can visit this interesting site at ***http://www.Huntington.org/BotanicalDiv/Timeline.html***

Sedge records in the Carex Working Group database



Each dot represents a sedge collection or observation site, including specimen label information from the three herbaria at Oregon State University. One or more *Carex* species were found in the 2,116 localities shown. Interesting patterns can be seen, including popular collecting areas, roads and streams. Large blanks indicate poorly sampled areas.