

Bulletin of the  
**NATIVE PLANT SOCIETY  
OF OREGON**

Dedicated to the enjoyment, conservation, and study  
of Oregon's native vegetation

---

VOLUME 24 NUMBER 9

SEPTEMBER 1991

---

ISSN 0884-599

**OUR 30TH ANNIVERSARY YEAR**

IMPORTANT NOTE TO FIELD TRIP PARTICIPANTS

Field trips take place rain or shine, so proper dress and footwear are essential. Trips may be strenuous and/or hazardous. Please contact the trip leader for information about difficulty, mileage, and terrain. Participation is at your own risk. Bring water and lunch. All NPSO activities are open to the public at no charge (other than carpool mileage), and friends, newcomers and visitors are always welcome.

**Notice to field trip chairs and leaders:** The Forest Service and other Federal agencies have set policies limiting group size in wilderness areas to 12. The reason for this is to limit the human impact on these fragile areas. Each group using wilderness must be no larger than 12.



Recycled Paper

**Blue Mountain**  
-----

For information, call Jerry Baker (566-2244).

**Corvallis**

28 Sept., Sat.

**WORKSHOP:** 10am to 12 Noon. Seed and cutting propagation of native plants. If interested, call Esther McEvoy (754-0893) for more details.

**Emerald**

9 Sept., Mon.

**MEETING.** 7:30 pm in the Library, Kennedy Middle School, 2200 Bailey Hill Road, Eugene. Ed Alverson, Eugene Public Works Dept., and TNC ecologist, will show slides and speak on: "Native Ecosystems of the Willamette Valley: Inventory, Protection and Restoration." For more information, call Jenny Dimling, 343-3242.

16 Oct., Wed.

**MEETING.** 7:30 pm in the Library, Kennedy Middle School, 2200 Bailey Hill Road, Eugene. Rhoda Love will show slides and speak on: "What's Going on with the Western Hawthorns? Adventures in Mt. St. Helens Country." For more information, call Jenny Dimling, 343-3242. Note: This meeting has been moved from Monday to Wednesday because of the Columbus Day Holiday.

13 Nov., Wed.

**MEETING.** 7:30 pm in the Library, Kennedy Middle School, 2200 Bailey Hill Road, Eugene. Peter Zika will show slides and speak on: "Changes in the Alpine Flora of New England in the last 100 years." For more information, call Jenny Dimling, 343-3242. Note: This meeting has been moved from Monday to Wednesday because of the Veteran's Day Holiday.

9 Dec., Mon.

**HOLIDAY SOCIAL.** 7:30 pm at Rhoda Love's house, 393 FulVue Drive, Eugene. (Take South Willamette St., then Crest Drive, turn left a block above Wayne Morse Ranch Park.) Holiday Party with snack potluck and potpourri of members' slides. Bring a snack and 10-15 of your favorite slides of 1991. For more information, call Rhoda Love at 345-6241.



## Willamette Valley

16 Sept., Mon.

MEETING. 7pm at First United Methodist Church, Room 225, 600 State St., Salem. Kathy Conley will give a talk on "Fire Ecology of the Willamette Valley".

## William Cusick

-----

For information, contact Paula Brooks (523-7564).

## EMERALD CHAPTER OFFICERS FOR 1991 ARE:

President: Jennifer Dimling  
Vice-President and Program Chair: Rhoda Love  
Secretary and R & E Chair: Tom Pringle  
Treasurer: Evelyn Everett  
Conservation Co-Chairs: Warren Pavlat and Rhoda Love

### WELCOMING OUR NEW MEMBERS....

We have 49 new members to report!

Blue Mountain Chapter	Kelly E. Cahill Katherine Skirvin Joan Soderstrom Tom Winters	Mid-Columbia Chapter	Barbara Bailey
Corvallis Chapter	Ellen Dcehan Clark Julie DiLeone John A. Hull Amy Miller Tom Moran Cathy Rose Frederick W. Schuierer	North Coast Chapter	Shirley Schwartz
Emerald Chapter	Peggy Fisher Sherrill Kennedy Tracy McGeehan Kelly O'Neill John Pegg Doris & Richard Soderberg Janell Sorensen	Portland Chapter	Sharon Bucher Denise Lee Howard Judith Hurita Pamela Johnston Nancy Monroe Jessica Palfreyman Lynn Putnam Riet Smith Deanna Thronson James Walters Carol Weigler Stephan A. Wille Jane A. Winters
High Desert Chapter	Blythe Brown Dean & Margaret Dobbs Paul & Lydia Dudley Wanda Gable Katie Hartley Meghan Schwanke Lynn & Sandra Thirtyacre Jeanine Valenti	Siskiyou Chapter	Frank Callahan Romain Cooper James T. Duncan Frank H. Hirst Rick Landt Frederick C. Mittleman Patricia & Frank Nardell
		Willamette Valley Chapter	E. Jane Adams

## WHAT'S GOING ON WITH WESTERN HAWTHORNS?

**THE BLACK-FRUITED HAWTHORNS.** Our native western hawthorn -- *Crataegus douglasii*, with two varieties -- is interesting because of its black fruit, a characteristic not known in other North American hawthorns. At present, we can only speculate about the origin of this black-fruited species, although it may be significant that black-fruited hawthorns are also known from Asia. Now, due to recent research by my colleagues Dickinson, Muniyamma and Belaoussoff of Toronto, Canada, and by Steven J. Brunfeld and Frederick D. Johnson of the University of Idaho, the western black-fruited hawthorns are becoming even more interesting to students of plant reproduction. Recent discoveries reveal that cytologically, geographically and ecologically this group is more complex than previously believed. In a brief note in the August *Bulletin*, I brought readers up to date with regard to the Brunfeld and Johnson proposal to raise the varieties of *Crataegus douglasii* to species level. Here I would like to describe some other recent hawthorn work and thank the many people who have helped me and my co-workers with this research.

**HISTORICAL BACKGROUND.** David Douglas was the first European to collect the black-fruited *Crataegus*. He encountered the plant in the Colville-Spokane River country of northeast Washington State in 1826. Its flowers had 10 stamens. The hawthorn was named *Crataegus douglasii* in his honor, by Lindley in 1830. A half-century later, Wilhelm Nikolaus Suksdorf, the German-born pioneer botanist of Bingen, Washington, collected various 10- and 20-stamen, black-fruited hawthorns in Klickitat County, Washington. Suksdorf sent specimens to C. S. Sargent who named the 20-stamen form a new variety *Crataegus douglasii* var. *suksdorfii* in 1907. [Hereinafter, 10-stamen *Crataegus douglasii* var. *douglasii* will be referred to as CDD, and 20-stamen *C. douglasii* var. *suksdorfii* as CDS.]

**CHROMOSOME NUMBERS.** Students of *Crataegus* taxonomy have suspected for some time that there may be different chromosome numbers associated with the different stamen numbers in hawthorn species and varieties. As cytological work has been done, this assumption has proven to be true in some, but not all, hawthorn groups. When I worked on 20-stamen CDS in the Willamette Valley for my PhD, I concluded that the plants

behaved like outcrossing diploids; however, when I attempted to count chromosomes, I was unable to get usable preparations. At that time I could only report that one published count on material from British Columbia's Queen Charlotte Islands had indicated that there CDS was indeed a diploid with  $2n = 34$ . Workers have recently been able to count chromosomes of 10-stamen CDD from the Great Lakes area and found that some of these are tetraploids with  $2n = 68$ .

**GEOGRAPHIC DISTRIBUTION.** Based on early herbarium records, it has been assumed that 20-stamen CDS was found primarily west of the Cascades while 10-stamen CDD was found primarily east of the Cascades and disjunctly in the Great Lakes Area. And, it was known from Suksdorf's collections, that CDS and CDD came together in the Columbia Gorge. Last year, Brunfeld and Johnson surprised many *Crataegus* scholars by reporting that CDS and CDD were sympatric (found together) in some places in Idaho and Montana. They got diploid counts of  $2n=34$  for 20-stamen CDS, and tetraploid counts of  $2n=68$  for 10-stamen CDD. They found enough other distinctions between CDS and CDD in Idaho to propose raising the two taxa to species level.

**RECENT WORK.** Even before we heard about Brunfeld and Johnson's findings, Timothy Dickinson and I had decided that we needed chromosome counts and cytological information about *Crataegus douglasii* from many more sites, both west and east of the Cascades. While Dickinson's Toronto group concentrated on studying CDD from the Great Lakes area and perfecting cytological techniques, I collected hawthorn buds, flowers, fruits and leafy branches from the Willamette Valley and nearby Elk Meadows and Patterson Prairie, from Spencer Meadow in the Gifford Pinchot National Forest in Washington and from the Columbia Gorge, the Laurel area, Pullman, and other sites. Some of this material has begun to yield rather startling results which will be published soon by Dickinson, Muniyamma, Belaoussoff and myself. Among other things, what we are now finding is that some 20-stamen CDS from Oregon and Washington are polyploids!

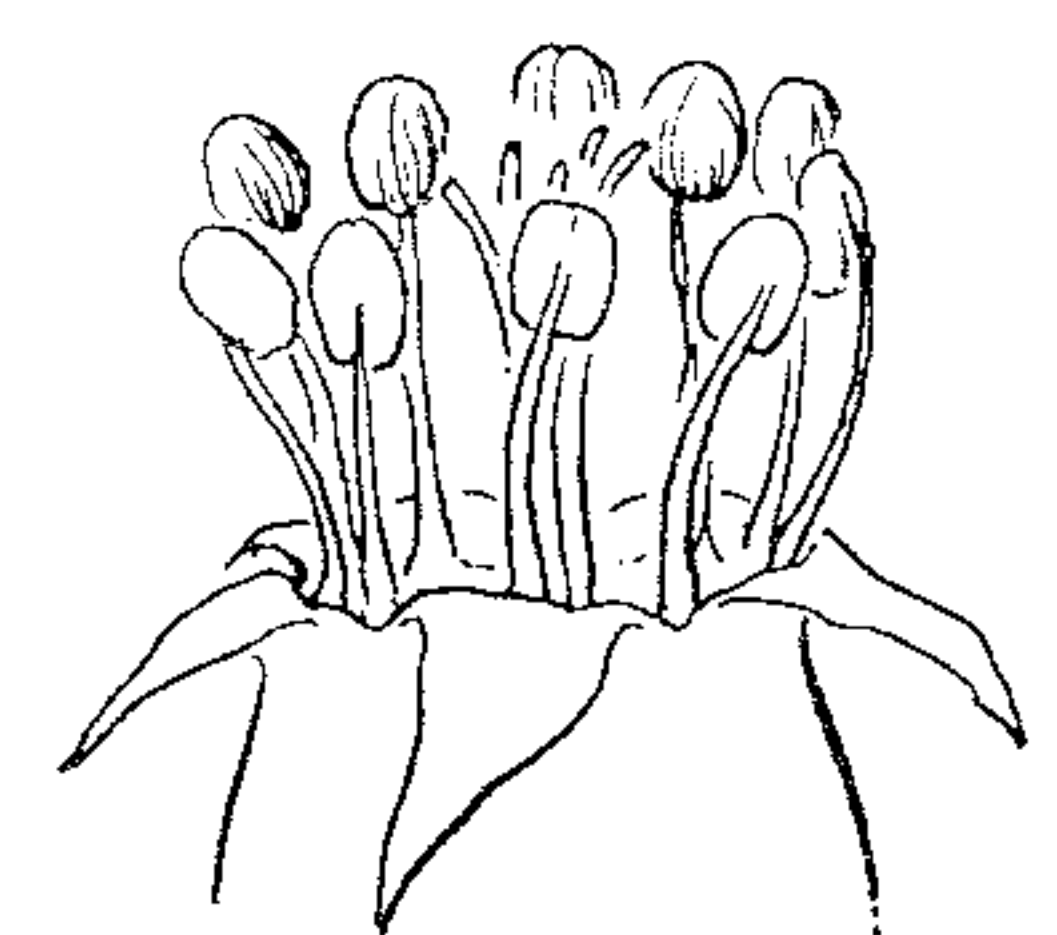
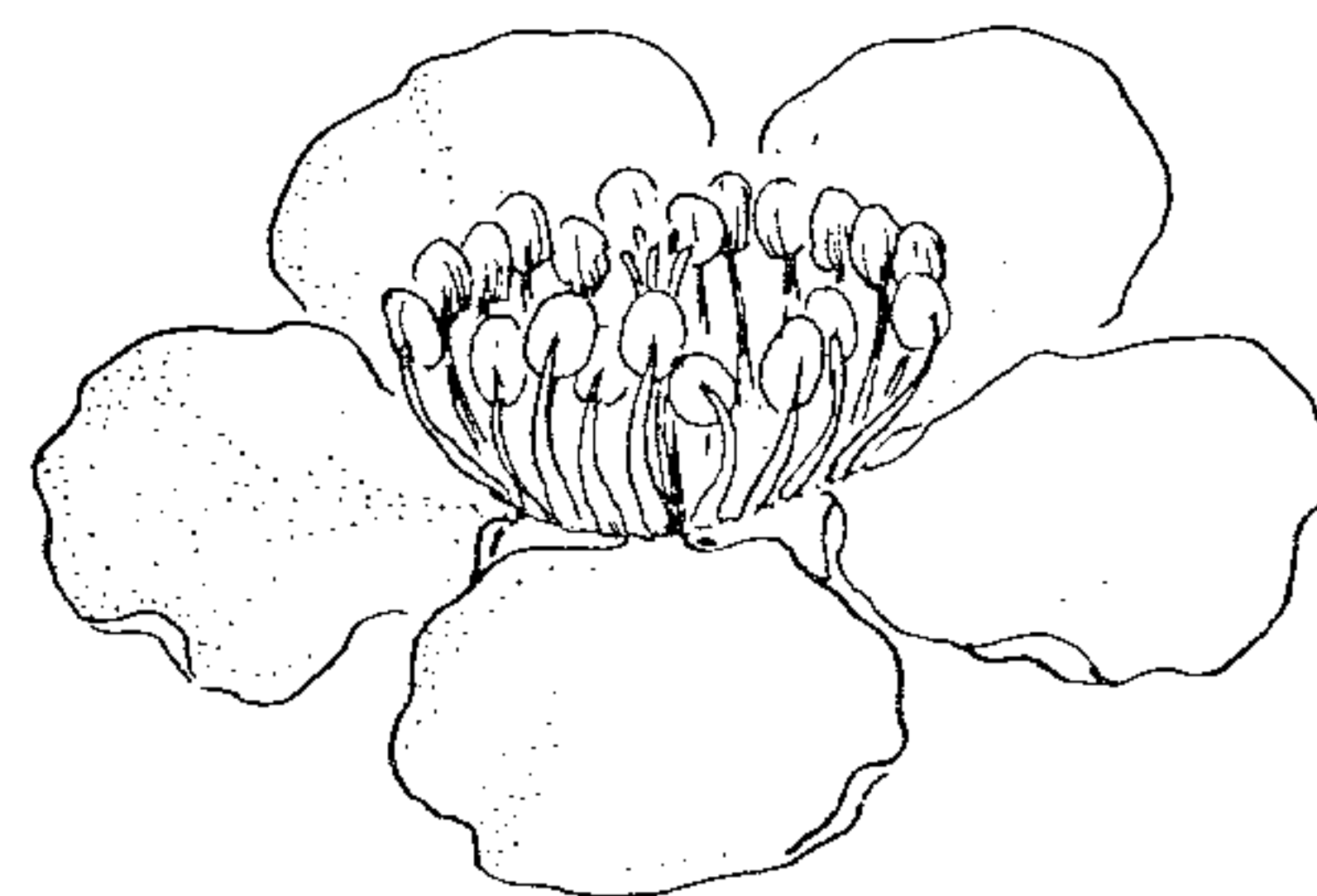
SUKSDORF'S FARM. As long-time readers of the *Bulletin* know, I have for several years been hoping to find the location of what Wilhelm N. Suksdorf called in his notes his "farm in Falcon Valley," where his WSU herbarium sheets show he collected various 10-stamen and 20-stamen hawthorns. I figured that the two varieties must have been sympatric there, at least in the late 1800s and early 1900s. And a region of sympatry could possibly be a place where significant evolutionary events took place. A great many people (some of those thanked below) helped me pinpoint the location of Suksdorf's "farm" and, I am excited to report, that this June I stood where, approximately a century ago, Suksdorf built a small shack and where he collected summer hay and hawthorns. The farm was located near Laurel, Washington, on what is now Kreps Lane just west of the OK Ranch. In fact, I had my picture taken beside the white section post which marks the northeast corner of what local residents still call the "Suksdorf 80" (Suksdorf's 80 acres). Even more exciting was the fact that no sooner did Timothy and I get close to the Suksdorf farm site than we began to find very interesting hawthorns!

BINGO! We were driving north of White Salmon on the road from BZ Corner to Glenwood when I remarked, "It's starting to look hawthorny here." Barely were the words out of my mouth, than we spotted white-flowered shrubs in a cow pasture. Timothy said, "Bingo," and stopped the car. I jumped out, slipped under the fence, and shouted, "Double bingo!" We had found 10-stamen and 20-stamen hawthorns, in bloom, side by side.

BULL. I want to testify here, that I hardly ever trespass, but there was no farm house in sight at which to ask permission, and after all these years of searching, the temptation was just too great not to go in for a peek. I got my comeuppance, however, as there was a very large black bull in the field who, as I was photographing the trees, began to roar and paw the ground! I started switching into my flight or tree-climbing mode, when, luckily for me, the big guy rounded up his harem of cows and took them away to another part of the pasture. We took photographs, and collected buds and vouchers. This material will be studied carefully this fall and winter and a paper reporting our recent findings should appear soon.

THANKS. I want to express my sincere thanks to the following, many of whom helped me locate the Suksdorf farm. Other folks here have suggested other hawthorn sites and have helped with collecting. Russ Holmes, Mike and Nancy Fahey, Stan and Glen Love, Paula Brooks, Chris Topik, Danna Lytjen, Nick Otting, Alan Dickman, Harold Cole, Chris Krueger, Bill and Mary Giersch, Keith Chamberlain, Russ Jolley, William Weber, Joy Mastrogiuseppe, Amy Jean Gilmartin, Bob and Joanna L. Frisque, Ed Alverson, Frank Lang, Art Kruckeberg, and Darvel Lloyd. Many thanks to all of you!

--Rhoda Love  
Emerald Chapter



*Crataegus douglasii* Illustration by Jeanne R Janish  
From 'Flora of the Pacific Northwest',  
University of Washington Press

## LEGISLATIVE NOTES

In retrospect, Oregon's 1991 Legislative session succeeded in passing strong laws to protect Oregon's environment. Though Republicans controlled the House, the Republican caucus voted for many environmental issues. Environmental laws that passed include regulations on gold mining, reduction of field burning smoke, further regulation of forestry practices, and legislation to encourage recycling. Many bills did not finish as strong as they had begun but are definitely a step forward.

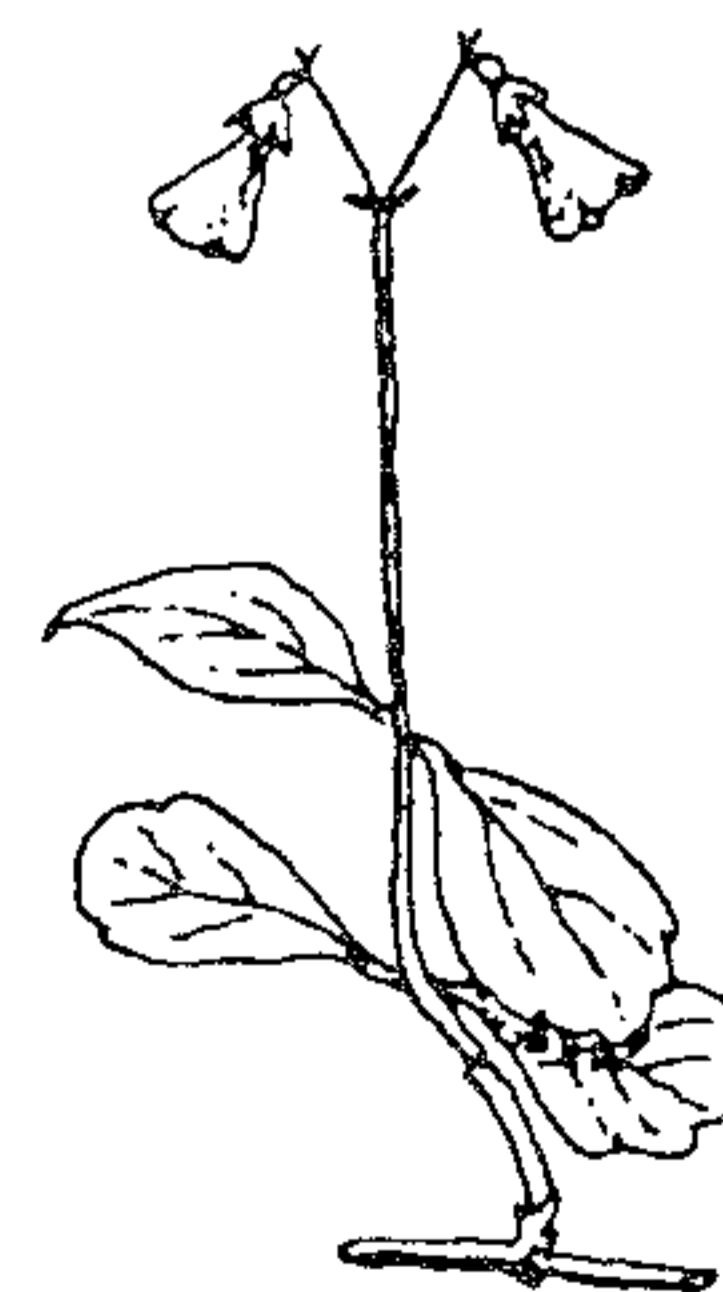
The budget of the Plant Conservation Biology Program in the Oregon Department of Agriculture remained similar to its past level. Many program budgets were cut and some programs were axed in the Department. Even though we would like to see an increase in the program's budget, the fiscal climate of the 1991 session made it impossible to request more funding. Still we must not lose hope for a future increase in this vital program for our rare plants. All the letters written in support of the Plant Conservation Biology Program did help by showing that we actively support the program and that we want more funding! Thank you for taking time to write.

Passage of HB 2244 was definitely a step forward in regulating the cyanide heap leach mining process in the State of Oregon. It is described as "one of the toughest and most protective heap leach mining laws in the country" by Sen. Dick Springer (D-Portland). Many provisions incorporated into this new law allow the public to comment upon and to be a part of the permit process. In the past the public was not included in the permit process. This law requires companies to use the best available technology to comply with environmental standards. Certification is required from the permittee by the State Department of Fish and Wildlife and the Department of Agriculture that a self-sustaining ecosystem, comparable to undamaged ecosystems in the area, has been established in reclamation. Backfilling or partial backfilling is to be determined on a case by case basis. Though this is a "tough" new law the groups that worked on the bill never reached consensus on several issues which consequently were not included in the bill. New regulations related to HB 2244 will be adopted over the next few months. Thank you for letters in support of strong regulation of cyanide heap leach mining.

The Oregon Resource Conservation Trust Fund was one of the issues that was not acted upon by this legislature. Yet one bill did pass the legislature that may have some future benefit for wildlife and parks in Oregon. Senate Joint Memorial 13 sponsored by Senate President John Kitzhaber, Sen. Paul Phillips, Rep. Bob Shiprack refers to the voters an Oregon Constitutional amendment. The amendment would allow \$250 million in bonding authority to acquire, develop, and maintain fish and wildlife habitat and park and recreation sites. I will get more details on this amendment.

Our Federal Congress is currently debating reform of the General Mining Law of 1872. The Mineral Exploration and Development Act of 1991 (HR 918) was introduced by Nick Rahall of West Virginia in February. This would have new guidelines for mineral exploration and development; establish rental fees for mining use of public lands; set strong requirements to check on claims to ensure they are being used only for mining activities; and set guidelines for environmental protection and reclamation. In June, Peter Defazio introduced the Mining Reform Act of 1991 (HR 2416). this bill is similar to HR 918 but would also include a 12.5% royalty on gross income from production. The income would fund the Hardrock Mining Impact Assistance Trust Fund to help communities mitigate the impacts associated with hardrock mining. One other proposal is HR 2635, the Mining Policy Review Commission Act of 1991, introduced by Congressman Ron Marlenee (R-MT). This bill would establish a commission to study current laws relating to location and disposition of minerals on public lands.

--Esther McEvoy  
Corvallis Chapter



*Linnaea borealis* Twinflower  
By Herm Fitz

**BOOK REVIEW:  
THE ALGORITHMIC  
BEAUTY OF PLANTS**

The Algorithmic beauty of Plants,  
by Przemyslaw Prusinkiewicz  
and Aristid Lindenmayer  
New York: Springer-Verlag, 1990  
228 pages; 150 illustrations, 48 in color

For centuries, plants have attracted the attention not only of botanists, but of mathematicians as well. Conspicuous geometric features such as the bilateral symmetry of leaves, the rotational symmetry of flowers, and the helical arrangements of scales have been studied extensively. This book explores two other factors that organize plant structures and contribute to their beauty: developmental algorithms and self-similarity.

Self-similarity is a result of developmental processes. An example is a compound leaf which has lobes or leaflets which have the same shape as the whole leaf at an early stage of development.

Developmental processes have been captured using the formalism of Lindenmayer systems, which have become developed enough to allow computer graphics to be used for visualization of development of plant structures.

Individual chapters of the book describe the mathematical modeling techniques and their applications to models of entire plants, plant organs, and cellular arrangements.

For the scholar working in this area of research, the book is valuable as a summary of the development of the science and art to date. For the botanist without a strong background in mathematics, it is interesting for the insight it provides into the orderliness inherent in plant development and morphology. For the amateur, it is a source of amazement. For all, the computer generated graphics, both black and white and color, are stunning in their beauty and naturalness.

Not recommended as a must for every botanical bookshelf, nor necessarily appropriate as a Christmas stocking stuffer for an unwary friend, this book is definitely worth asking for at the nearest scholarly library and spending a few thought-provoking hours browsing through.

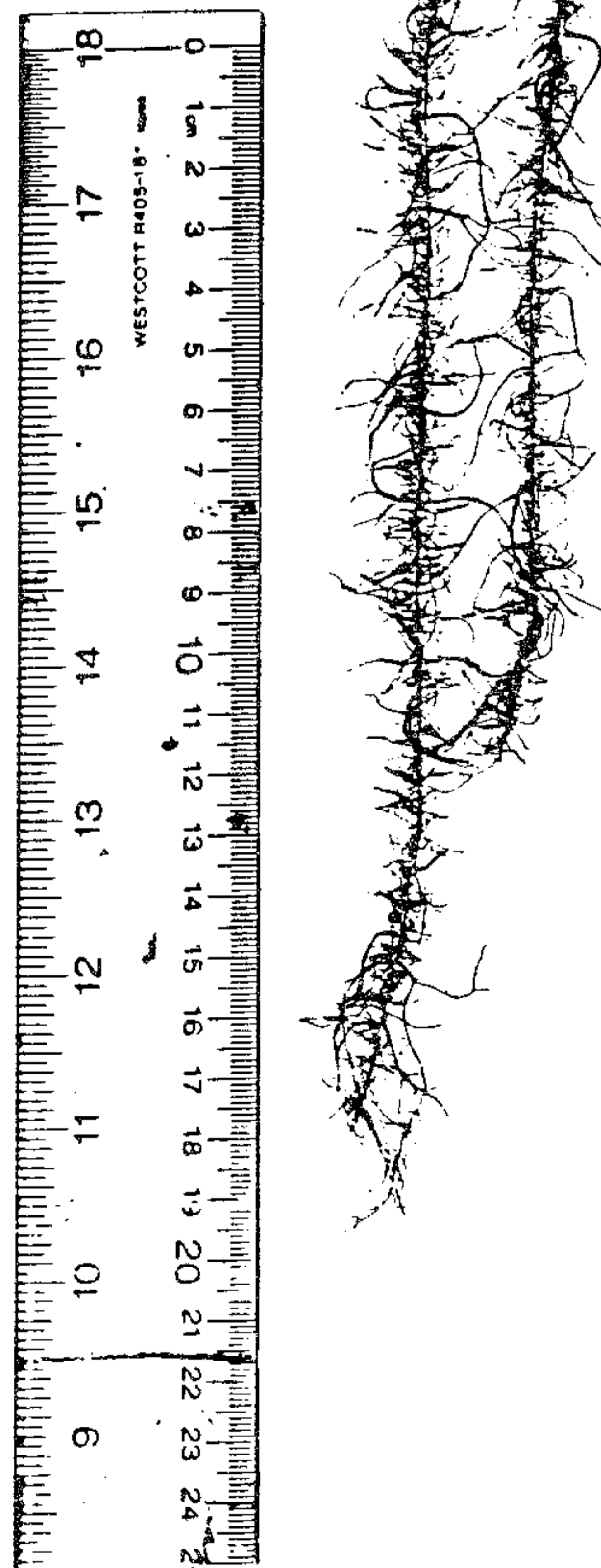
--Dave Dobak  
Portland Chapter

**USNEA STUDY**

I was awarded an NPSO grant to study the uncommon fruticose lichen *Usnea longissima*. This lichen is very sensitive to air pollution and because of this it has become extinct in much of Europe. I am locating sites where it exists in Oregon and describing its habitat, so that in the future researchers will have an idea where to search for further populations.

The name *longissima* means 'the longest', and is appropriate. The lichen looks like a very long piece of old-fashioned tinsel. It has one central strand with many approximately 2 cm long side branches (see picture). It tends to dominate a whole tree, with thalli as long as 8 meters draped from branch to branch. The only other such dramatic lichen in our area is the fishnet lichen, *Ramalina menziesii*, which is massed over the branches in spreading nets instead of the long, single strands of *Usnea longissima*. If any readers know of locations of this unusual looking lichen, please contact me. Thanks!

--Daphne Stone  
30567 Le Bleu Rd.  
Eugene, OR 97405  
503-344-3274



*Usnea longissima*

**FIELD TRIP REPORT FOR  
THE HIGH DESERT CHAPTER'S FIELDTRIP TO  
HATFIELD'S HIGH DESERT RANCH JUNE 9, 1991  
AND EASTSIDE CONSERVATION REPORT**

It was one of those amazing Central Oregon mornings. My first cup of coffee was enjoyed on the back deck with an astounding view of the Three Sisters—cloaked in brilliant white against a sky that can only be described as desert-blue. It was a good day for a field trip. thirty-one others apparently agreed with me and showed up to travel an hour east of Bend to visit a ranching couple who feel confident they have found a better way of running cattle on the high desert.

The fieldtrippers were the usual NPSO sorts: botanists, schoolteachers, a couple of librarians, a retired chemist, a psychotherapist, some folks just moved up from California last year, a couple of ex-ranchers, at least one lawyer and a doctor. We carpoled and headed east into Oregon's shrub steppe. we were rewarded with spectacular views of the geologic wonders east of Bend: the looming hulk of Oregon's largest dormant volcano--Newberry; the Badlands Volcano--soon to be Bend's own backyard wilderness; the dried lakebed of ancient Lake Millican; the extinct John Day era volcano Pine Mountain. We were fortunate to see a number of antelope; one thrilled us by racing to a nearby hilltop, leaving us in his dust.

The Hatfields has seen us coming (their vistas are grand) and grins and outstretched hands greeted us. Doc, with his white cowboy hat and tanned demeanor fitted the pictures in our minds' eyes. Connie's warm welcome and intense interest in and knowledge about her land reveals her as a strong partner in this venture. Transplanted from Montana 16 years ago, their ranch has been pieced together from early 20th century homesteads that went broke. The Hatfields run several hundred head of cattle on over 25,000 acres when you include their deeded land, other private land they lease, and their BLM allotment of 5,000 acres.

We spent the first hour getting to know one another and determining what everyone was expecting of the visit. Doc and Connie spoke eloquently of the concern for sustainable ranching. They wish to replenish the water on the ranch, restore their riparian areas, reduce the invasion of woody species (sagebrush--*Artemisia tridentata* and western juniper--*Juniperus occidentalis*), reintroduce fire into their ecosystem, and enhance the native vege-

tation. Plus they need to support themselves while doing it. Doc and Connie sell a significant portion of their beef (which is produced without hormones or antibiotics) to Japan. They get a regular check from the Bank of Tokyo!

Our first stop gave us an overview of the ranch and a close look at an old hayfield that used to provide the homesteaders with ryegrass (*Elymus cinereus*) hay but which the Hatfields have replanted to crested wheat. Doc was able to point out wheatgrass seedlings which were regenerating themselves--not a common phenomenon in this area. Doc feels that the native grasses, Idaho fescue (*Festuca idahoensis*) and bluebunch wheatgrass (*Agropyron spicata*) are better forage in the long run, but for now he needs to rehabilitate this site. In fact, in some areas we saw fescue slowly invading the crested wheat. I wish we could have seen lowlands filled with native basin wildrye (*Elymus cinereus*). Maybe in a few years.

The next stop was a fascinating mix of Idaho fescue/big sage, which had been partitioned and either {1} not grazed for 30 years and not burned, {2} grazed or {3} grazed and burned. The ungrazed (for the last 30 years) area showed large clumps of shaggy fescue with a substantial cover of sage and a fair amount of bare soil. The grazed area had the same species with more Sandberg's bluegrass (*Poa sandbergii*) but smaller, more vigorous fescue. The burn had eliminated almost all woody plants, both sage and juniper. The grasses were coming back nicely and providing a lot of forage. There was less bare ground in the grazed pastures. We were able to find some antelope bitterbrush (*Purshia tridentata*) resprouting. We saw only small amounts of exotic cheatgrass (*Bromus tectorum*).

Finally, we went to the high spot on the ranch and saw how the Hatfield's intensively graze their multiple pastures during the growing season for a short period of time and then move on to allow rest and recovery. They are believers in the principles of the Alan Savory method of Holistic Resource Management and have attended his school. They assured us that such grazing has been their practice for many years and the grasses have benefited. Doc and Connie wanted to be sure that our



