

Bulletin of the

NATIVE PLANT SOCIETY of OREGON

25th ANNIVERSARY 1961-1986

To increase the knowledge of members and public in identification
and conservation of the native plants of the Pacific Northwest

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CHAPTER NEWS

Blue Mountain

17 Nov., Mon. Meeting, 7:30 pm. Far West Federal Bank, Pendleton.

Corvallis

7 Nov., Fri. SPECIAL OLD-GROWTH PROGRAM, 8:00 pm. LaSells Stewart Center, Austin Auditorium. Multi-image slide show "Old Growth Forests: A Vanishing Legacy" followed by a panel discussion. We are co-sponsoring this event with other conservation groups in Corvallis.

Emerald

4 Nov., Tues. Special presentation: MOUNT ST. HELENS RECOVERY. Biologist Peter Frezen was among the group of scientists to initiate research on the ash covered slopes. He has documented the patterns of vegetation reestablishment and surface changes on the mountain over the past 6 years and is compiling a guide to the Mt. St. Helens Volcanic Monument. His slide presentation will be at WISTEC, 2300 Centennial Blvd., Eugene, 7:30 pm. Cosponsored by WISTEC and NPSO, members of either admitted with no charge, others: General \$2, Seniors/Students \$1, Kids \$0.75.

8 Dec., Mon. CHRISTMAS SOCIAL AND SLIDE SHOW, with a refreshment potluck (bring a party food item to share). Everyone is encouraged to bring selected slides of their excursions and share details of hiking trails, special locations to view wildflowers and other adventures. At Charlene Simpson's condo Club House, 1992 Lake Isle Drive, across from K-Mart off Goodpasture Rd., Eugene. Call Charlene at home, 456-1059 or at work, 686-3221.

High Desert

25 Nov., Tues. Meeting, 7:30 pm. Room 104, Ochoco Hall, Central Oregon Community College. Bud Kovalchik, USFS Ecologist, will speak about his 2 year study of eastside riparian systems.

Mid Columbia

5 Nov., Wed. Meeting, 7:30 pm. "The Berry Botanic Garden" will be the feature slide presentation at the chapter monthly meeting to be held at Pietro's Pizza Place, The Dalles.

North Coast

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For information, contact Richard Smith (842-4324).

Portland

11 Nov., Tues.

Meeting, 7:00 pm. First United Methodist Church, 1838 SW Jefferson, Portland. Don Barr will give a slide illustrated talk on the Natural History of the North Cascades.

Siskiyou

13 Nov., Thurs.

Meeting, 7:30 pm. Room 171, Science Bldg., SOSO, Ashland. Dr. Frank Lang will give a slide presentation and talk on the History of Botanical Exploration in the Illinois Valley.

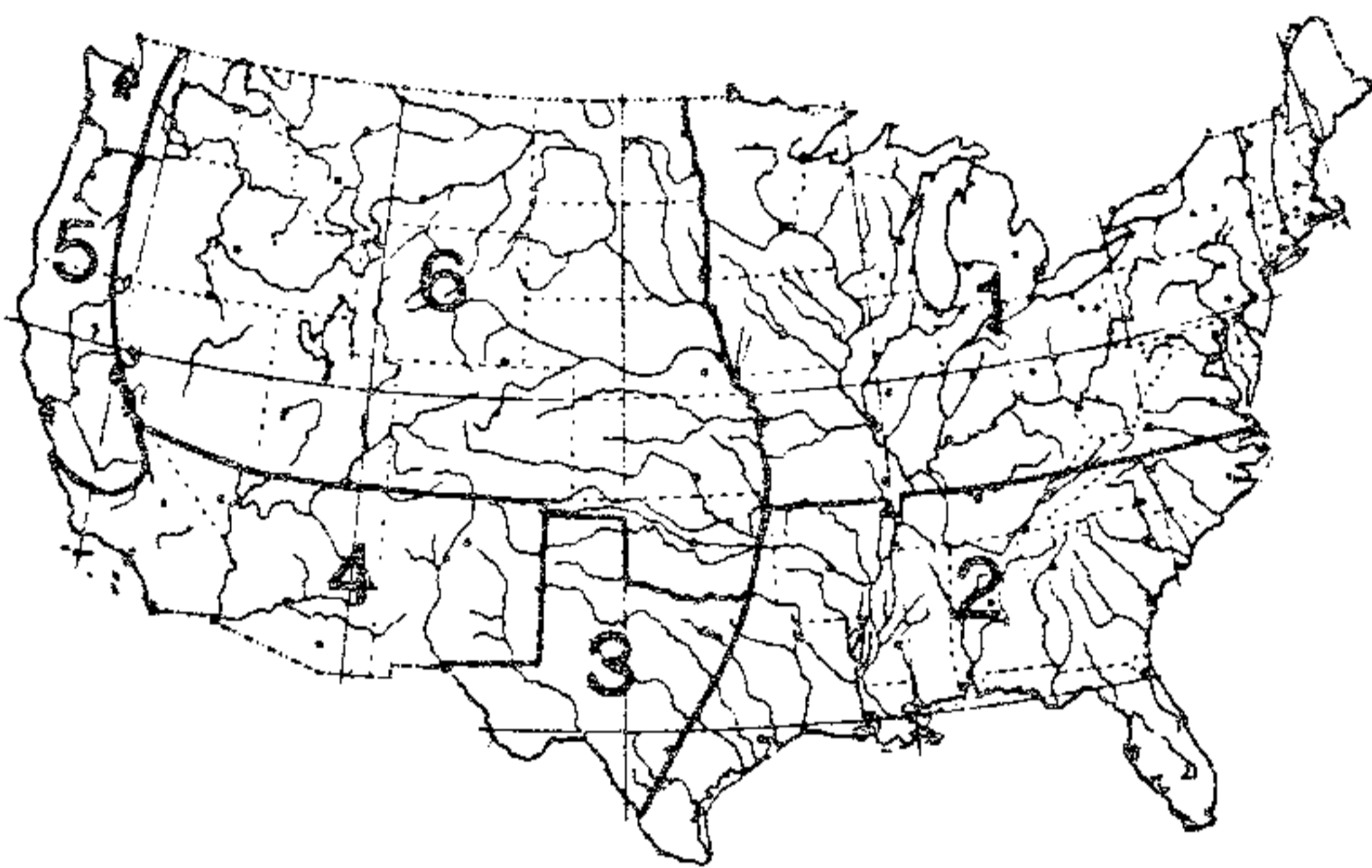
Willamette Valley

17 Nov., Mon.

Meeting, 7:30 pm. First United Methodist Church, Carrier Room, Salem. Julie Kierstead will speak and show slides on Plant Conservation at Berry Botanic Garden.

Wm. Cusick

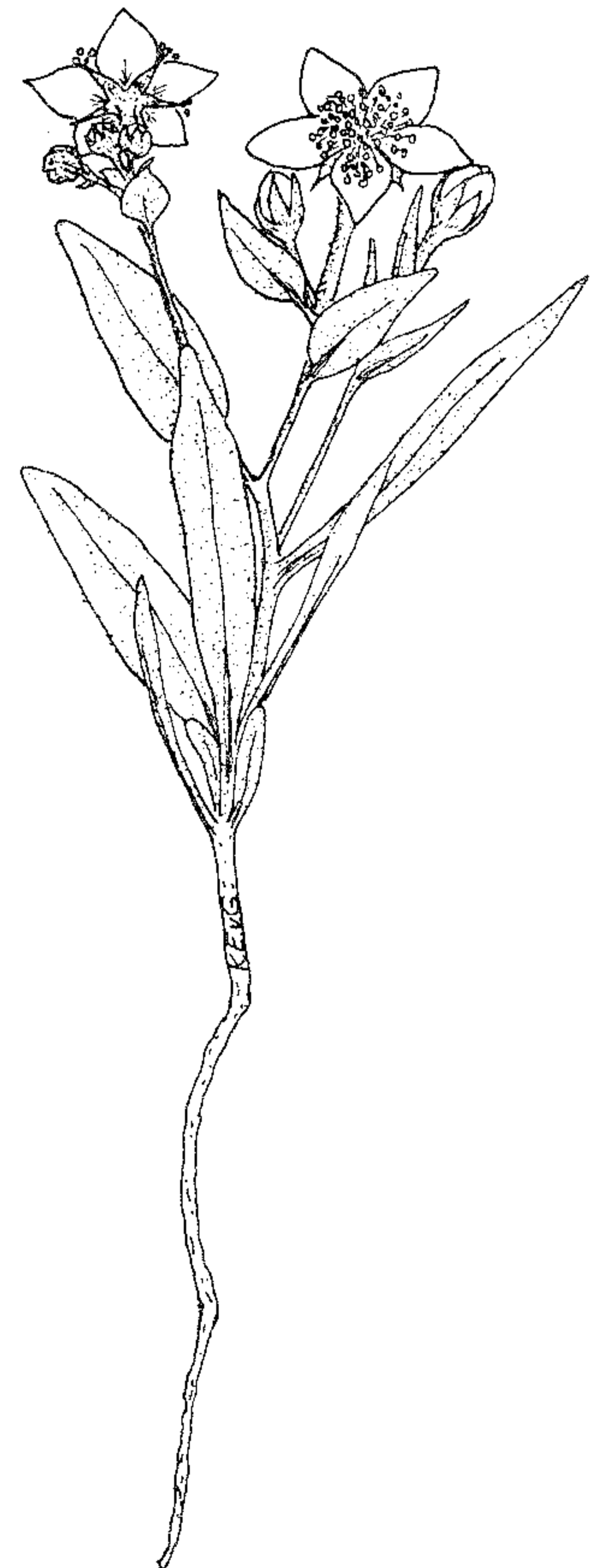
For information, contact Rachel Sines (963-0674).



Wild Flowers of the United States

by

Harold W. Rickett



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(Illustration from Threatened and Endangered Vascular Plants of Oregon: An Illustrated Guide.)

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Please send information on Wild Flowers Vol. 3--Texas--if you reprint it!!

MAIL TO: Scientific Publications Department;
The New York Botanical Garden;
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PRESIDENT'S LETTER . . .

AN ENDANGERED SPECIES LAW FOR OREGON:
87 CAN BE THE YEAR!

Dear Fellow NPSOers,

Here we go! As we bring to a close our 25th year as a society dedicated to the conservation of Oregon's native plants, we have a chance -- no, an obligation -- to help our state make an important new beginning. A most fitting climax to our quarter century of action will be our role in the passage of an Oregon Endangered Species Law.

Starting this month, we must begin to convince legislators of the need to protect threatened plants and animals in our state.

Esther McEvoy, Chair of our NPSO Legislative Committee, has been working tirelessly for four years now to prepare a comprehensive bill which will protect Oregon's rare wildlife on state land. In her efforts Esther has had the valuable assistance and advice of many individuals and groups inside and outside government and conservation organizations, and from inside and outside our state.

When the final bill is made public this month, Esther will let us know the names of the folks, agencies, and organizations that have helped with its drafting. At that point, with the years of research and writing behind us, we reach a watershed peak -- but face a challenging new climb! We must now put all our efforts into the task of getting the bill passed during the Oregon 87 Legislative Session.

Starting this month, we must begin our educational campaign. Each of us needs to contact his/her state senator and representative to inform them of the shocking lack of protection for rare species in our state. Right now political candidates are making their final appeals for voter support. This is our chance to attend rallies and meetings and ask these people for their commitment to the passage of the Oregon Endangered Species Bill. (Remind your local candidates of the dozens of Oregon "candidate species" snarled up in Washington red tap, facing extinction while they wait years for Federal protection!)

Do you need information about Oregon endangered species for this educational campaign? Do you need facts and figures for your letters and visits to Salem? The perfect source of up-to-date information is available. Wild Oregon, the journal of the Oregon Natural Resources Council (ONRC), has just appeared with its entire fall issue devoted to the subject of threatened and endangered species. Read about the bald eagle, the snowy plover, the silverspot butterfly, Nelson's checkermallow and Mrs. Barrett's penstemon. See a photo of our own Julie Kierstead in a Hi Ranger aerial basket collecting penstemon cuttings during a salvage operation at Bonneville Dam!

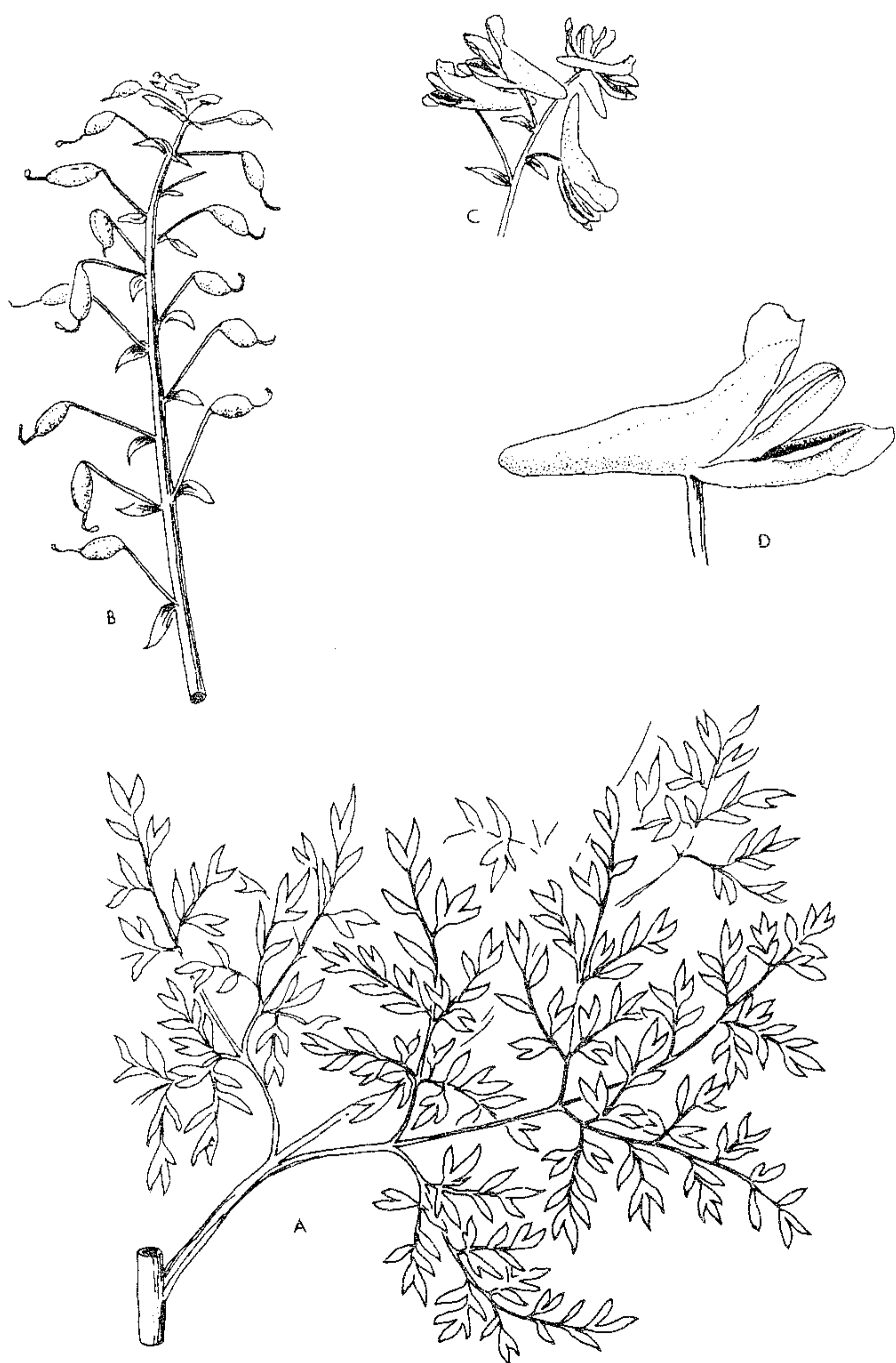
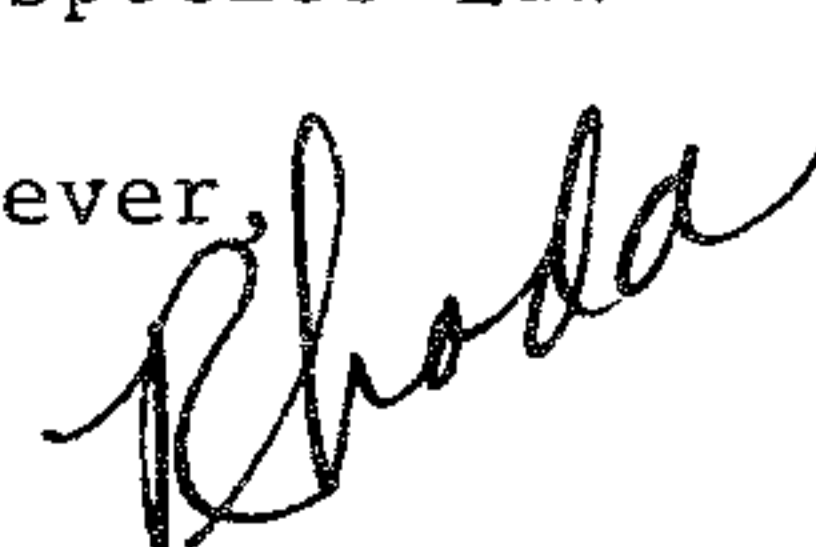
You'll want to have this issue of Wild Oregon to refer to throughout the coming legislative session. (By the way, you will also want to stock up on NPSO rare plant notecards for those letters and on copies of our beautiful wildflower poster to pass out during the educational part of our campaign.)

For a copy of Wild Oregon, write to Oregon Natural Resources Council (ONRC), 1161 Lincoln Street, Eugene, OR 97401. Please include a dollar for the fall issue. I also strongly recommend that you join ONRC and/or send them a tax-deductible contribution. Of all the groups that have helped us with the Endangered Species bill, the ONRC has been one of the most tireless, knowledgeable, and helpful.

The impression of those with their fingers on the pulse of our state is that at last the time is right for Oregon to join California, Arizona and dozens of other states in protecting our endangered plants and animals. Let's make 87 not only NPSO's 26th year but the Year of the Oregon Endangered Species Law!

Flowers Forever,

Rhoda Love



Corydalis aquae-gelidae

BIOLOGICAL CONTROL OF NOXIOUS CENTAUREA SPECIES

Knapweed is a European introduction of several species of Centaurea in the Thistle Tribe of the Compositae (Asteraceae). We have eleven species of Centaurea in the Pacific Northwest, all introduced, of which seven are called knapweed. Centaurea diffusa (diffuse knapweed) and C. maculosa seem to be the two most commonly encountered knapweeds in fields, roadsides and nearly everywhere native vegetation (forest or meadow) has been disturbed by Man.

Biological control is the deliberate use of naturally occurring organisms such as insects, mites and plant pathogens to limit the distribution and abundance of noxious weeds. Like many other weeds, the knapweeds have been accidentally introduced from Europe and Asia. These plants, entering without any of the natural enemies which regulated their populations in their native lands, rapidly increased in density and displaced more desirable vegetation. Because much of the land infested by the noxious Centaurea species is only marginally productive, investments required for the implementation of certain chemical, cultural and mechanical controls are often not economically feasible. Additionally, knapweed infestations frequently develop in sites inaccessible to herbicide application equipment. In such situations the employment of natural enemies offers an attractive alternative weed population reduction technique. If effective control can be obtained with introduced agents that will survive perennially, then the cost of control consists only of the expenditures required for finding, evaluating and releasing the organisms.

To biologically control the knapweed species, damaging natural enemies must first be obtained from areas within the weeds' native homelands that are climatically similar to those where the plants are to be controlled, thoroughly evaluated to ensure that they damage only the weeds and not any other vegetation of recognized economic or ecological value, and once judged safe by various federal and state regulatory agencies, are released against the weeds in the invaded areas. Ideally, the liberated organisms increase their populations in time and cause enough injury to the weeds so that their densities are decreased, a relationship that is maintained through time.

Insects or other organisms may control knapweeds by (1) killing the plants directly, (2) weakening or stressing the weeds' competitive abilities as a consequence of the feeding damage inflicted, (3) impairing the reproductive capacity by destroying rhizomes, flowers and seeds and (4) in the case of insects, creating feeding lesions which allow secondary pathogens to invade and destroy injured plant tissues. Natural enemy effectiveness depends upon the time of attack in relationship to plant growth cycle, the type and number of enemies affecting the plant and the amount of damage pro-

duced. Effective biological suppression of diffuse, spotted and Russian knapweed will probably require the establishment of four or more injurious organisms per weed species.

Biological control indeed can be a very effective and environmentally acceptable form of weed management. However, its utilization should not be viewed as "the solution" to the knapweed problem to the exclusion of other weed population reduction methods. The long-term solution to knapweed control is a combination of the development of effective biological controls, judicious herbicide use, employment of cultural controls, adoption of sound land management practices and the creation of a high level of public awareness.

A biological control effort against the knapweeds has been initiated and the effort will be greatly accelerated over the next five years by the introduction from Europe and western Asia of several additional insects which attack and damage only these weeds.

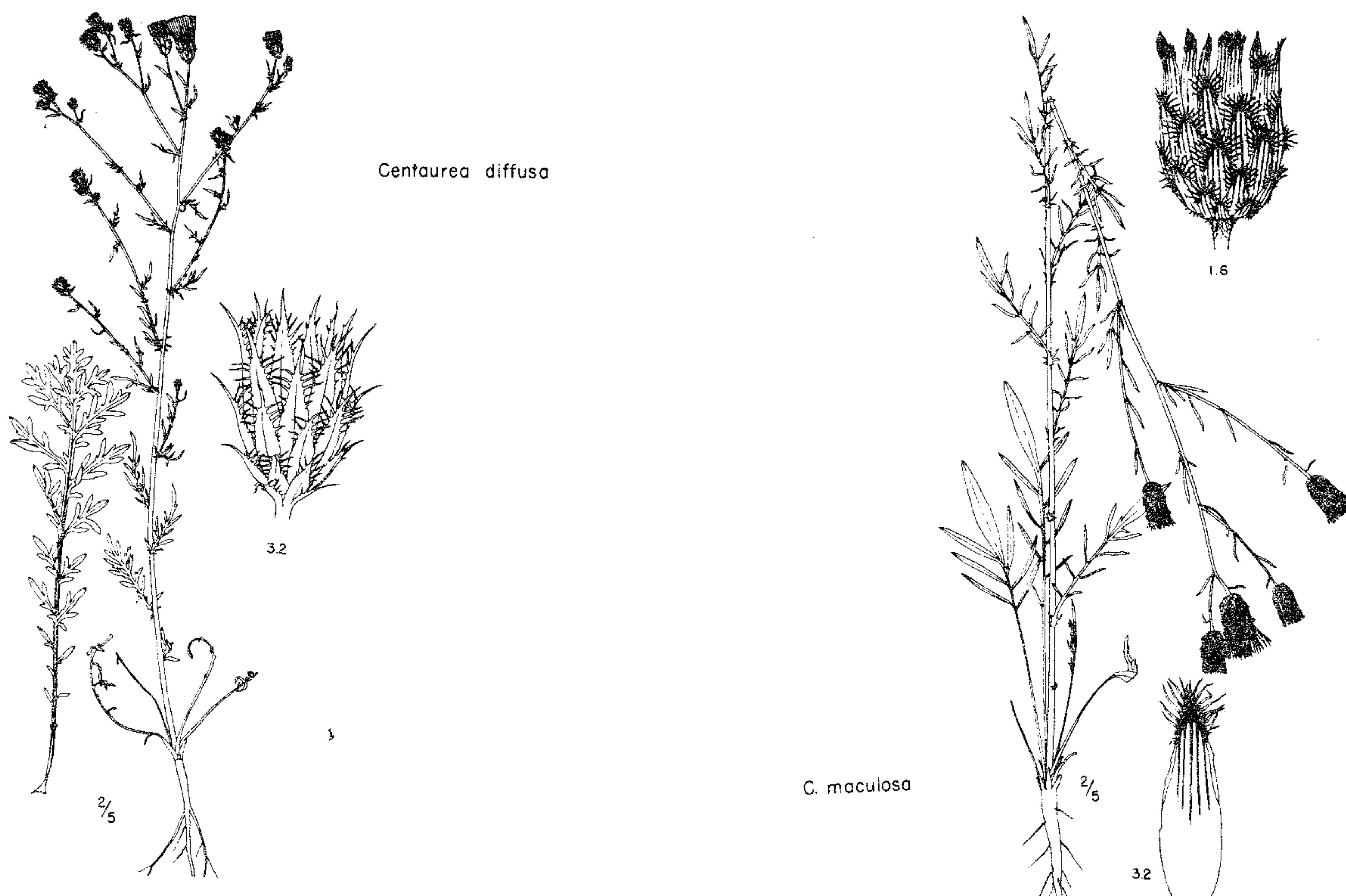
Biological Control -- Diffuse Knapweed

The first natural enemy to be released in North America against diffuse knapweed was the fly Urophora affinis Frauenfeld (Diptera: Tephritidae), the initial liberations being made in British Columbia, Canada, in 1970 and in north central Washington in 1974. Adults appear in late June and early July and mated females normally insert 1-4 eggs at a time amongst the bracts of immature flower heads, each female being capable of producing nearly 120 eggs during the several weeks that she lives. After hatching, larvae move to and begin to feed upon the receptacle (area of the flower where the seeds develop). The presence of larvae stimulates the plant to produce specialized tissue which soon envelopes each feeding individual. These growths are "galls" that are teardrop-shaped, hard walled and typically occur in the center of the head. The larvae feed upon special nutritive cells that line the gall interior. These galls increase the size of the metabolic sink in the seed heads, thereby causing the plant to divert more nutrients to affected heads. As a consequence, the quantity of nutrients available for plant growth and development is reduced resulting in the production of fewer seed heads per plant, abortion of terminal or lateral flower heads and diminished seed viability. Larvae reach maturity in about a month and overwinter within the galls. Pupation occurs during late spring or early summer. Some of the larvae (10-30%) will pupate in early August, yielding adults that will produce additional offspring within the heads before fall.

Another gall forming Tephritid, Urophora quadrifasciata, was introduced into British Columbia in 1972 by the Canada Department of Agriculture. This fly, a much better disperser than U. affinis, has since invaded Washington and now is common in all diffuse knapweed infested areas. This insect completes two generations a year. First generation adults emerge during late June and early July; second generation adults appear during early to mid-August. Like U. affinis, U. quadrifasciata females also oviposit into unopened flower heads but prefer those that are somewhat more mature and larger. Eggs are inserted into individual florets, with from 1-10 eggs being deposited in a head. Females usually lay 5-10 eggs daily over a 2-3 week period. Upon hatching, larvae migrate down the florets to the attached ovaries where they feed upon the developing ovules. The presence of a larva within the ovary causes the ovary to swell and produce a gall. Nutritive cells are produced within the ovary and are consumed by the developing larva. Larvae eventually destroy the ovarian tissues, leaving only a paper thin

layer of parchment-like gall tissue about themselves. Pupation occurs within the gall. Mature second generation larvae overwinter inside the galls. U. quadrifasciata damages the plant by destroying attacked ovaries, inducing the abortion of ovaries adjacent to those infested, reducing the number of flower heads produced per plant and decreasing viability of seed in attacked heads. Both U. affinis and U. quadrifasciata can coexist within the same flower head. When both species are present, seed production can be reduced by 95%. Unfortunately, this level of seed reduction does not appear to be sufficient to lower the density of established stands of diffuse knapweed, but is important in retarding the weed's rate of spread.

(For those who wish a fuller account of the story on biological control of knapweed species, the editor of Douglasia will mail out the full text of Prof. Piper's letter. Send a large self-addressed stamped envelope to Art Kruckeberg, Dept. of Botany KB-15, University of Washington, Seattle, WA 98195.)



(Illustrations on this page are from Hitchcock et al., *Flora of the Pacific Northwest*; used with permission from the publisher.)

THE WILD GARDEN: MAKING NATURAL GARDENS USING WILD AND NATIVE PLANTS - by Violet Stevenson, Viking Penguin, Inc. 168 pp. 1985.

Today's concept of the wild garden differs greatly from a century ago. A wild garden then was not a place for the care and protection of native plants. It was instead a contrived and romantic wilderness for plants both novel and familiar that would not fit into the precise gardening styles which then prevailed.

William Robinson (1838-1935), an Irish-born gardener of great imagination, published The Wild Garden in 1870. He encouraged wild areas not tucked away in some glade but revealed in the middle of a lawn or by a house.

Violet Stevenson traces the development and philosophy of native gardens using magnificent photographs printed in outstanding detail in Yugoslavia. She divides the book into five sections: What is a Wild Garden?, Planning the Wild Garden, Planting Successful Wild Gardens, Garden and Plant Care, and Selective Planting Guide.

Her section on planning discusses the site, soil type, what to grow, creating a natural garden, and developing an environment for wildlife. Each section has beautiful photographs showing what plants look good together in a variety of conditions. Many sections, including the one on wildlife, list recommended plants using both common and scientific names.

In Planting Successful Wild Gardens she discusses Wildflower Lawns and Meadows with a layout and species list. The Wooded Garden shows an outstanding example incorporating trees, shrubs, and ground covers. The Heaths and Heath Gardens shows how to create these gardens in peaty acid soils. Fern and Foliage Gardens combines ferns and grasses for the shaded site under trees or near water. The Herb Garden is designed for beauty, garden use, and for bees, butterflies, and birds. Water Gardens are discussed using deep water aquatic plants and waterside or marginal plants. Beautiful examples are shown and a sample layout with recommended species is included. Rock Gardens and Scree Slopes will be of interest to rock garden enthusiasts and includes a limestone garden modeled after the Burren--the gaunt limestone pavement in Ireland's County Clare.

The portion of the book on Garden and Plant Care includes a selective plant guide with cultivation requirements. Soil testing and modification, altering contours, plant propagation, and pest control. Appendices include plant lists for special situations and needs and an extensive index and glossary.

Violet Stevenson, the author, is one of Britain's best selling garden authors. She has maintained a country garden for thirty years where her theories about conservation and natural gardening have been applied.

(This article was contributed by Darryl Bullington to the Fall, 1986, issue of Douglasia; Vol. X, No. 4.)

NEW VICE PRESIDENT APPOINTED

Susan Kofahl of the Mid Columbia Chapter has accepted appointment as the state Vice President. She will replace Tammy Maurer whose current job has taken her out of the state. Susan served as Vice President during the last term of office.

The Canadian Wildflower Society publishes a quarterly magazine of wild flora titled WILDFLOWER. It is devoted to the study, conservation and cultivation of wild plants, including many from the U.S. The cost per year is \$15; foreign \$25, Canadian. Subscriptions and back issues (\$3.50 per copy) can be ordered from the Canadian Wildflower Society, 35 Bauer Crescent, Unionville, Ontario, L3R 4H3, Canada.

President Ronald Reagan, White House, 1600 Pennsylvania Avenue, Washington, D.C., 20500.

Senator Mark Hatfield, Senate Office Building, Washington, D.C. 20510; (202) 224-3753 or (503) 221-3386.

Senator Bob Packwood, Senate Office Building, Washington, D.C. 20510; (202) 224-5244 or (503) 221-3370.

Congressman Les AuCoin, House Office Building, Washington, D.C. 20515; (202) 225-0855 or (503) 221-2901 or 1-800-422-4003.

Congressman Bob Smith, House Office Building, Washington, D.C. 20515; (202) 225-6730 or (503) 776-4646 or 1-800-533-3303.

Congressman Ron Wyden, House Office Building, Washington, D.C. 20515; (202) 225-4811 or (503) 231-2300.

Congressman Jim Weaver, House Office Building, Washington, D.C. 20515; (202) 6416 or (503) 687-6732.

Congressman Denny Smith, House Office Building, Washington, D.C. 20515; (202) 225-5711 or (503) 399-5756 or 1-800-452-7889.

Jim Torrence, Regional Forester, U.S. Forest Service, P.O. Box 3623, Portland, OR, 97208; (503) 221-2877.

Charles Luscher, State Director, U.S. Bureau of Land Management, P.O. Box 2965, Portland, OR 97208; (503) 231-6273.

Rolf Wallenstrom, Regional Director, U.S. Fish and Wildlife Service, 500 NE Multnomah, Suite 1692, Portland, OR 97232; (503) 331-6171.

William Briggie, Acting Regional Director, National Park Service, Suite 212, 83rd South King Street, Seattle, Wash. 98104; (206) 442-0170.

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 Membership in the Native Plant Society of Oregon is open
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 membership chair.

BULLETIN

Editor Jan Anderson
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 Cronquist's Flora of the Pacific Northwest
 where possible. Use of both scientific &
 common names is encouraged. Genus & species
 names are underlined or italicized.

RETURN OF ORIGINALS: Manuscripts & illustra-
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The Bulletin is published as a service to
 NPSO members & the public. Your suggestions
 & comments are always welcome.

#

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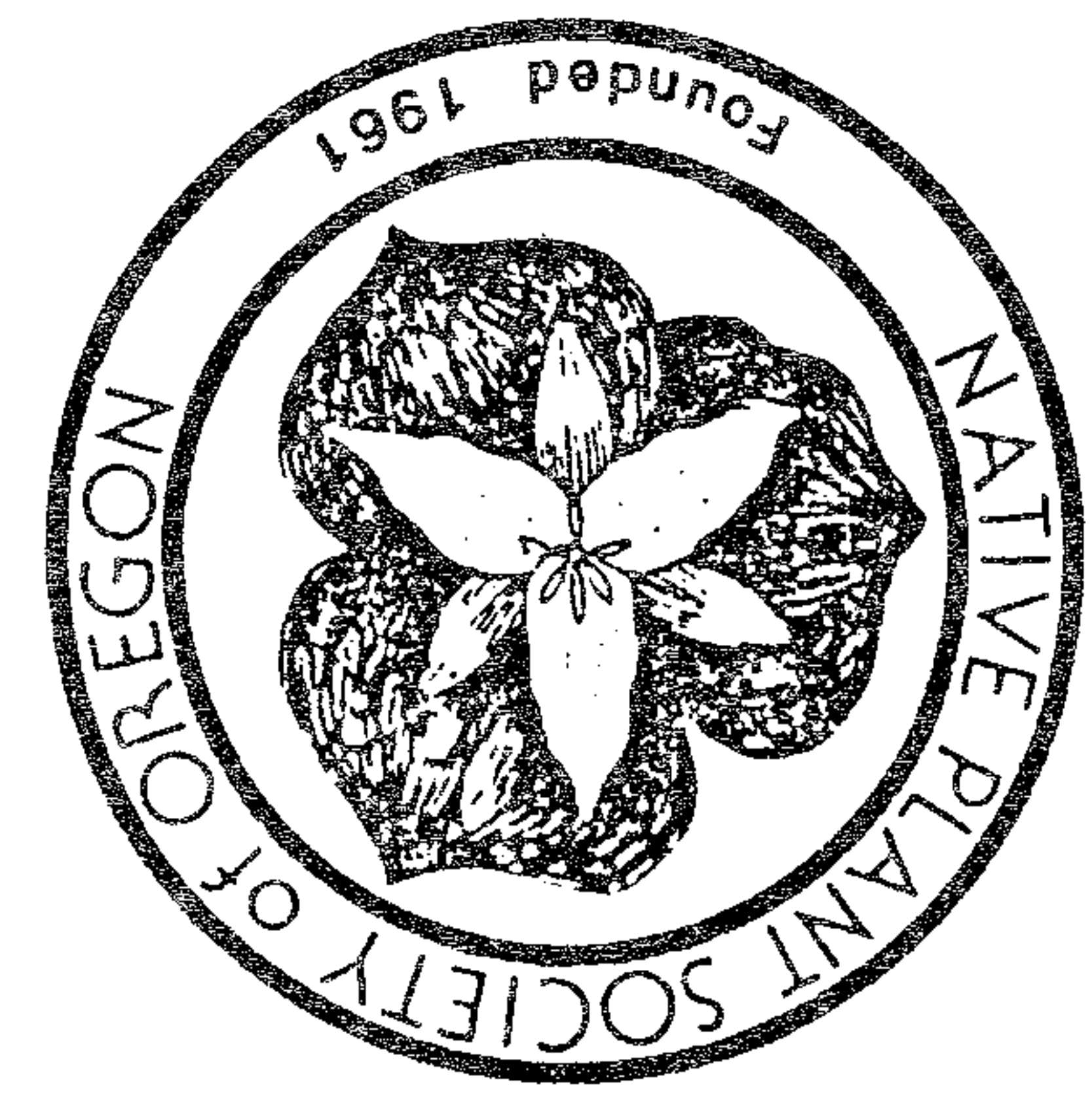
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