Bulletin of the
NATIVE PLANT SOCIETY of OREGON

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

IMPORTANT NOTE TO FIELD TRIP PARTICIPANTS

Field trips will 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. Your participation is at your own risk. Bring water and lunch.

Blue Mountain

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For information, contact Bruce Barnes (276-5547).

Corvallis

10 Dec., Sat. **Annual dessert potluck.** 7:30 pm at Dan Luoma's house, 2912 NW Arthur Av., Corvallis (758-8063). Bring a dessert to share and ten favorite slides to show.

Emerald

12 Dec., Mon. **Meeting.** 7:45 pm at Amazon Community Center, 2700 Hillyard St., Eugene. Holiday social and slide show. Bring a snack to share and ten or so of your slides.

High Desert

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For information, contact Joyce Bork (389-5579).

Mid-Columbia

7 Dec., Wed. **Meeting.** 7:30 pm at Mosier School. Bruce Meyers will present a program on *Penstemons*, rescheduled from an earlier month.

4 Jan., Wed. **Meeting.** 7:30 pm at Mosier School. Doug Daoust, silviculturist with the Mt. Hood National Forest, will relate the beargrass commercial foraging issue to us with proposal for monitoring future activity.

North Coast

1 Dec., Thurs. **Meeting.** 7 pm at State Office Building, 3600 3rd St., Tillamook.

For information, contact Clarice Maxwell (842-7023).

Portland

13 Dec., Tues. **Meeting.** 7 pm at First United Methodist Church, 1838 SW Jefferson St., Portland. Variety slide show -- members should bring up to 15 slides to show.

18 Feb., Sat. **Potluck dinner** at Leach Botanical Garden. Mark your calendar now; more details later.

Siskiyou

8 Dec., Thurs. **Meeting.** 7:30 pm at Rm. 171, Science Building, SOSC. Slide and lecture presentation on "Ecological Effects of Fire" by Dr. Paul Lemon, adjunct professor of biology at SOSC.

Willamette Valley

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No meeting in December. For information, contact Pat Rogers-Rochna (769-4669).

Wm. Cusick

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

NPSO Annual Meeting Announced

Mid-Columbia Chapter will host the 1989 NPSO Annual Meeting Friday, May 5 through Sunday, May 7, 1989. Mark your calendars now; there will be more details in forthcoming *Bulletins*. It still should be prime wildflower time in the Gorge!

State Board Meeting - January 28

The next NPSO State Board meeting will be on January 28 at 10am in the PGE Room of the Salem Public Library. More information will be in the January *Bulletin*, including a map. Send agenda items to Dan Luoma.

Portland Spring Flower Show

Portland Chapter will host its annual Wildflower Show at the World Forestry Center on May 20 and 21, 1989.

Honey Bee Foraging Plants - Which Ones Are They?

The Nectar and Pollen Plants Committee of the Oregon State Beekeepers Association has asked for comments and observations by NPSO members on plants that are particularly attractive to honey bees. Decreasing habitat and food sources for many pollinators is causing a decline in their numbers. One way to offset this decline is to plant nectar and pollen producing flora.

Also, there are two publications currently being prepared. One is a revision of a 1942 bulletin on nectar and pollen plants of Oregon. This should be available in early 1989. The other is a cross reference of Soil Conservation Service recommendations for conservation and forage plantings with nectar and pollen producing plants in Oregon. This one should be available now.

To comment on plants used by bees or for information on these publications contact the Nectar and Pollen Plants Committee, Oregon Beekeepers Association, 19919 Summit Street, Blodgett, Ore. 97326.

NOMINATING COMMITTEE SEARCH FOR CANDIDATES

It is that time of year when NPSO must locate candidates willing to serve on the State Board of Directors. Candidates are being sought for the position of President, Vice President, Secretary, and three Director at Large positions. The duties of each position can be found in "A Summary of Leadership Positions" included in this issue of the Bulletin.

Please discuss these positions at your chapter meetings. Chapter Presidents should send the names of those members who are interested in serving in any of the positions listed above to the Nominating Committee Chair by December 15. Interested persons can also contact the nominating committee directly if they desire.

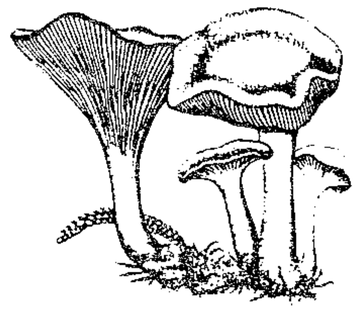
NPSO is a viable and effective force in the State of Oregon. The 1987 Endangered Species legislation is just one example of the many accomplishments of NPSO that have had a significant impact on our native flora. The results of your labors can be most rewarding. Please seriously consider serving the Society in 1989.

Members of the nominating committee are listed below. Remember the committee should be contacted with the names of people willing to serve on the Board of Directors by December 15.

Russ Holmes, Nominating Chair
322 Arcadia Drive
Roseburg, OR 97470
672 4635 (home)
672 4491 (office)

Carolyn Wright
467 2218

Stephanie Shulz
485 1868



Soliciting New T-shirt Designs

Emerald Chapter is running very low on T-shirts, but before we order more, new plant designs are being sought. If you are interested in submitting a design, please send a 8.5 x 11 inch black and white drawing in ink, as soon as possible, to Nadine Smith, 1128 Jackson, Eugene, OR 97402.

A SUMMARY OF LEADERSHIP POSITIONS - PLEASE CONSIDER SERVING NPSO

WHAT IS THE GOVERNING BODY OF THE NATIVE PLANT SOCIETY OF OREGON?

Composition

Elected Positions

Four statewide officers: President, Vice-President, Secretary, and Treasurer.
Immediate Past President
Six Directors-at-large
Presidents of all affiliated local chapters

Appointed Positions

State Conservation Chair
State Legislative Chair
State Membership Chair
R/E Chair
Bulletin Editor

Description of Duties for Elected Positions

President

Presides at Board Meetings which are held three times a year, and any other general membership meeting as may be called for. This includes gathering and organizing agenda items. Acts as spokesperson for the Society. Handles various telephoning and correspondence according to need. Current President estimates time spent in an average month on Society business to be approximately eight hours. Serves one-year term.

Vice-President

Presides at meetings in the President's absence, and performs additional functions as required. Minimal telephoning and correspondence. Current Vice-President estimates less than two hours per month average spent on Society business. Serves one year.

Secretary

Keeps minutes during all meetings of the Board and any statewide membership meetings. Also prepares other directives, documents, or correspondence as are needed and authorized by the Board or President. Current Secretary states she spends about eight hours after each Board Meeting organizing the minutes in report form for the next meeting and in brief summary for the next issue of the Bulletin. Serves one-year term.

Treasurer

Maintains accounts of the Society's transactions. Makes deposits as well as disburses funds as ordered by the Board. Remits portion of membership dues to local chapter treasurers. Makes periodic maintenance payments to the Bulletin. Accepts and records funds from the Poster and Notecard promotions. Arranges for audits as required for State charitable tax status and for the annual Statewide Meeting. Prepares reports for each Board Meeting. Current Treasurer estimates her time commitment about two to three hours each month for each Board Meeting. Current Treasurer estimates her time commitment to be two to three hours each month with slight increase around the annual Statewide Meeting. Serve one-year term.

Board Members - Directors-at-Large

Attend Board Meetings; provide input, vote on issues of concern. Three new directors are elected every year to serve two year terms. Travel and attendence at board meetings require about three days time per year.

It should be emphasized that the amount of time spent in any officer capacity is most dependent upon the individual's own interest level and time frames rather than any rigid structure or formal expectations.

Nomination and Election Timeline

Nominating Committee members canvas their local memberships for willing candidates prior to December 1st. Preliminary slate of candidates presented in January Bulletin. Amended slate of candidates (include additional candidates as well as brief capsule resume of each candidate) presented in February Bulletin.

Official voting ballot goes to the membership in the March Bulletin. Votes to be returned by April 1st and counted by Ballot Committee. New officers installed at the annual Statewide Meeting.

BRADSHAW'S LOMATIUM BECOMES A FEDERAL ENDANGERED SPECIES

by Peter Zika, Emerald Chapter

Bradshaw's lomatium (Lomatium bradshawii) is a Willamette Valley endemic. It grows in bottomland prairie dominated by tufted hairgrass (Deschampsia cespitosa). More than 99 percent of this wet grassland community has been destroyed in the last 150 years, and the once common lomatium is now on the brink of extinction. For a number of years botanists in the NPSO and The Nature Conservancy have been expressing their concern over the fate of lomatium.

After considerable study, the U. S. Fish and Wildlife Service officially declared Bradshaw's lomatium is a federal endangered species. The announcement was published in the Federal Register on September 30, 1988. It is expected that the Oregon Dept. of Agriculture will follow suit shortly, and declare Bradshaw's lomatium a state endangered species. The federal Endangered Species Act protects listed plants on U. S. government lands, and on lands affected by federal funds, but does not specifically protect plants on private property.

Prairies with Bradshaw's lomatium also harbor a number of other rare species, including Curtus' aster (Aster curtus), and the endemic Willamette Valley daisy (Erigeron decumbens). Protection of lomatium habitat will favor these species as well.

The U. S. Fish and Wildlife Service should put together a "recovery plan" soon, designed to preserve and enlarge the remaining lomatium populations, and establish sound land management practices for its habitats.

NEW NAMES FOR AN OREGON SENECIO

by Peter Zika, Emerald Chapter

Tucked away in the journal of the New England Botanical Club is an article describing two new varieties of Senecio streptanthifolius Greene from Oregon. Bain (1988) includes a key, photographs, descriptions, range maps, and taxonomic information for seven varieties of Rocky Mountain butterweed, also called cleft-leaved groundsel.

Senecio streptanthifolius var. wallowensis J. F. Bain.

Oregon stations are in Wallowa Co., in the Eagle Cap Wilderness of the Wallowa-Whitman National Forest: Ice Lake, the Matterhorn, Jewett Lake, Pete's Peak [Point], and a Cusick collection from "steep mountain sides of Imnaha River." The holotype (Bain 199 ALTA) is from Ice Lake. The variety is also cited from Mount Rainier NP in Washington, and Mt. Rose, Washoe Co. in Nevada.

S. streptanthifolius var. laetiflorus (Greene) J. F. Bain.

Oregon locations are in Crook Co., Grant Co., Harney Co., Klamath Co., Lake Co., and Malheur Co. This variety ranges into California and also Nevada.

For a reprint you can write to:

John F. Bain
Dept. of Plant Science
MacDonald College
Ste. Anne De Bellevue
Quebec, Canada
H9X 1C0

Citation

Bain, J. F. 1988. Taxonomy of Senecio streptanthifolius Greene. Rhodora 90: 277-312.

Washington Plant Lists Available

Washington Native Plant Society has available plant lists from all over the state of Washington. They are available for only a copying fee and postage. Some of the lists are very local, while others cover larger areas. Most deal with just natives, but some include exotics.

The 4 page index to the lists costs 25 cents. Individual lists cost 5 cents per page. Contact
Sarah Cooke, 3911 First Ave., N.E., Seattle, WA 98105; include a stamped, self-addressed envelope.

Discover the Local Flora: A Course Designed with NPSO in Mind

Increasing membership is important to gain popular and financial support for the ideals of NPSO and to broaden the educational reach of our programs and field trips. Speakers and trips are always interesting but people have to know about them. During 1987-88 Emerald Chapter began to increase the visibility of local NPSO activities. Advanced notification of programs and trips in newsletters of all local environmental organizations, newspapers, and Parks & Recreation schedules and posters on boards in college science departments, museums, community centers, YMCA, and libraries were important. During 1987 membership increased by 10 people and attendance at programs numbered between 30 and 50. Of some concern was the high attendance on field trips and the impact so many botanists might have on the environment.

This past spring a new activity was added to introduce people to NPSO and other local "botanical opportunities". I designed a one credit course, "Discover the Local Flora". This was offered through the Science Dept. at Lane Community College and organized around Emerald Chapter activities. For example, class meetings were on the same evenings as our Chapter meetings and all Emerald Chapter field trips and workshops were included in the course. Additional activities such as an Herbarium tour, Arboretum hike, flower identification sessions, and a lecture on endangered species rounded out the course. In all the course offered 14 botanical activities of approximately 3 hours' duration and the students had to attend 10. The course attracted individuals, most of whom were first time botany enthusiasts. The class was designed for them as well as students concurrently enrolled in a more technical botany class and for those who had taken a botany course and wanted to continue or expand their study of the local flora. At the end of the course the students completed a questionnaire about their experience in the course. Field trips were the overwhelming favorite; students stated that they would join NPSO to keep informed about the trips. All students were exposed to new botanical activities that they would not have explored on their own.

The course does take some time and energy to organize but it is easy and fun once it gets going. The majority of the course is attending activities led by a guest speaker, not the instructor. I had two class meetings at the beginning of the quarter and one at the end. I would add one mid-quarter although the students were content with the way I had organized the meetings and liked the varied format.

If you would like to organize a similar program for your chapter, I would be happy to provide my course syllabus and more detailed information to anyone who is interested. Please note my new address below. The staff at LCC and Emerald Chapter members contributed greatly to the success of the course.

Gail Baker, Emerald Chapter
P.O. Box 1515, Duvall, WA 98018-1515
(206) 883-0052

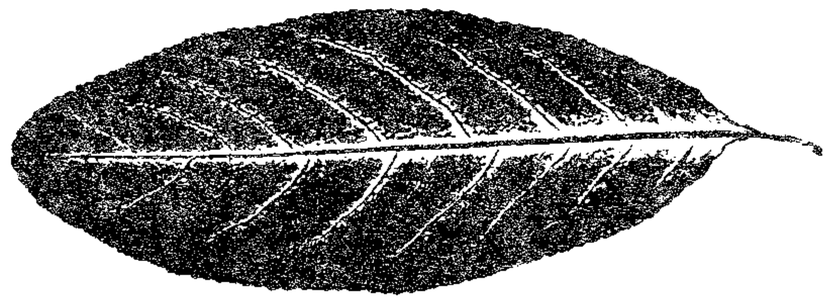
PLANT PUZZLE

Sponsored by the Emerald Chapter

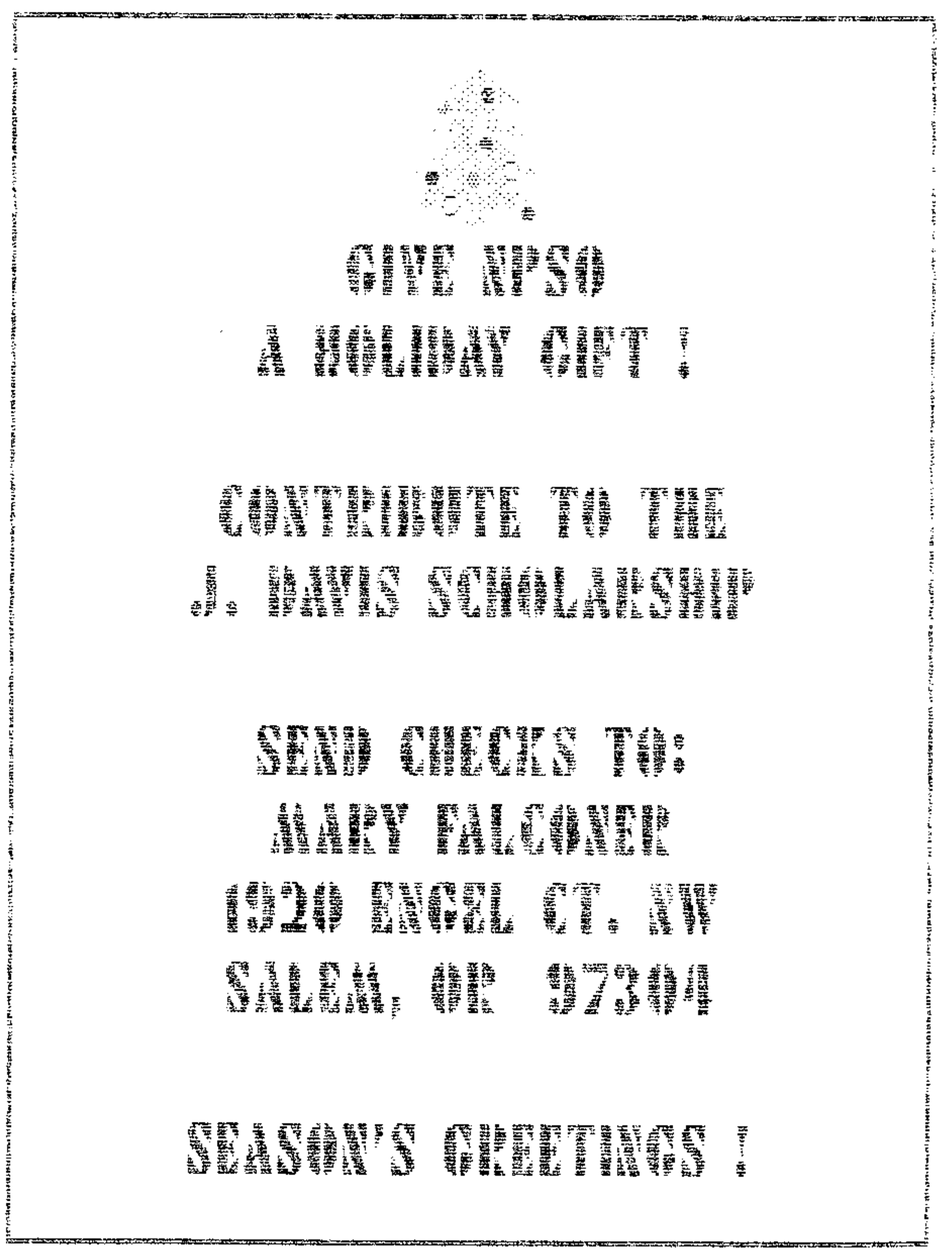
Can you name this plant? The first person to give the correct scientific name will win a prize. The leaf illustration is from a woody plant growing wild in Oregon.

Send your guess on a postcard to:

Peter Zika
28681 Peoria Rd.
Halsey, OR 97348



The November Plant Puzzle, Umbellularia californica (California laurel, or myrtle) was identified by Veva Stansell of Gold Beach. She wins a box of NPSO notecards, compliments of the Emerald Chapter.



This article has been reprinted from the October 1988 *Fremontia* (a journal of the California Native Plant Society) with permission.

James Mills and Jochen Kummerow are faculty members at San Diego State University.

ROOT PARASITISM IN INDIAN PAINTBRUSH

by James N. Mills and Jochen Kummerow

A springtime walk through the chaparral rewards the adventurous hiker with an astonishing display of forms and colors. The landscape in the Southern California mountains is dominated by the blue flowers of white-bark lilac (*Ceanothus leucodermis*) and white-flowered cupleaf lilac (*C. greggii*). Against this background a small shrub with bright scarlet flower spikes stands out. Crimson-tipped floral bracts contrast with gray-green foliage to make Indian paintbrush (*Castilleja foliolosa*) one of the most striking and attractive plants in the chaparral throughout the state.

Gazing at this colorful beauty the student of biology might recall that the Indian paintbrush is a partial parasite. But how can such a beautiful shrub lead such a free-loading lifestyle?

Parasitism in Vascular Plants

Parasitic vascular plants are generally divided into two broad groups. Those that lack chlorophyll and depend on the host for all of their water, mineral, and nutritional requirements are often called holoparasites. Holoparasites are obligate parasites; they cannot survive and reproduce in the absence of a suitable host plant. Familiar examples are dodder (*Cuscuta*) and broomrape (*Orobanche*). Many plants, however, are only partial parasites. They depend on their hosts for only part of their metabolic requirements or during only part of their life cycles. A partial parasite (also called a hemiparasite) usually contains chlorophyll and may be an obligate or a facultative parasite (which can complete its life cycle without a host).

In many instances the relationship between parasite and host is obvious. The climbing stems of dodder and the debilitating and deforming brooms of the mistletoes (*Arceuthobium* and *Phoradendron*) are common examples of parasitism that have been recognized since the days of Theophrastus (about 300 B.C.). The ordinary appearance of some parasites, however, gives no clue to their dependent habits.

The Parasitic Castillejas

Parasitism is not unusual in the Scrophulariaceae, or figwort family, to which the Indian paintbrush belongs. Members of this family illustrate the entire array of parasites, from complete parasites to those that show no outward signs of parasitism but resemble self-supporting plants with green leaves. Below ground, however, they all make parasitic connections with the roots of various host plants. These connections are made by finger-like projections of parasite tissue called haustoria that penetrate the host and transfer substances to the parasite.

The genus *Castilleja*, consisting of facultative parasites, is widespread in western North America; about thirty-four species are native to California. Although studies by Heckard (1962) have shown that some *Castilleja* species are capable of surviving and reproducing in the greenhouse without a host, plants grown in this fashion are must less vigorous than those grown with hosts. These are the kinds of situations that bring the terms obligate and facultative into question. Should *Castilleja* be considered an obligate parasite because it is not known to occur without a host in its natural environment? Or is it a facultative parasite because it can be grown in the laboratory without a host?

The association between parasitic plants such as *Castilleja* and their hosts is finely tuned and highly integrated. Seedling establishment and haustorial bridge formation are important early events in the life cycles of parasitic plants, which have necessarily evolved fast and efficient methods for locating and attaching to suitable host tissue.

Although most hemiparasites, including *Castilleja*, lack specific germination requirements, others will germinate only in the presence of host roots, in response, apparently, to some yet unidentified root exudate of the host plant. The host-recognition response of *Castilleja* begins after germination in the young seedling root tips. At this stage a host root exudate may be the important stimulus for haustorial formation.

Baird and Riopel (1985) successfully induced haustorial initiation in *C. coccinea* using host roots or haustoria-inducing chemicals and made detailed observations of the initial haustorial formation. The first indication of haustorial formation is a lateral enlargement of root cells near the root apex. Around the base of this "haustorial mound" appear many short haustorial hairs. The haustorial hairs are single-celled structures that elongate from epidermal cells of the growing haustoria. Haustorial hairs were only recently shown to be distinct from ordinary root hairs. Unlike the latter, which have a smooth, homogeneous surface, haustorial hairs have an outer coating of globular material that forms a sticky sheet when the hairs contact host roots or other structures. Thus haustorial hairs appear to attach the haustorium to the host root. Although initiation of the haustorium may require the presence of a host root or root exudate, attachment of the haustorium apparently is non-discriminatory. Haustorial hairs will readily attach to artificial substrates in the laboratory, and plants in the field have been excavated with haustoria attached to rocks, pipes, and even other roots of the same plant. As one might guess, *Castilleja* does not appear to be host-specific.

As the growing haustorium presses against the host root tissue, a peg-shaped structure called the endophyte develops from the haustorial tissue at the host surface, penetrates the host, and forms a connection with the host's vascular system. At its tip is a series of large, elongate, finger-like cells called digitate cells, with a high capacity for enzymatic activity. These cells are the first to invade host tissue. A single digitate cell may intrude between two host cells and then divide and expand, crushing host cells in the process. Their action probably involves a combination of physical parting and enzymatic digestion. After penetrating the host water-conducting tissue (xylem), the digitate cell will become a conductive element called a vessel member. Meanwhile, haustorial cells will already have formed a vascular core of vessel members that will conduct water and dissolved minerals to the main body of the parasite.

The association described here seems to allow only for the transfer of water and minerals. In fact, it has generally been believed that, while non-green parasites depend on the host for photosynthetic products as well as water and minerals, green parasites rely on the host only for water and minerals. The evidence for this is ambiguous. The haustoria of root parasites only rarely contain phloem, the typical vascular food-conducting tissue in plants. However, haustoria of the parasitic Scrophulariaceae consistently possess a certain cell type, the function of which is not completely understood. These cells were discovered near the turn of the century and were named phloeotracheids in reference to their presumed dual function as water- and food-conducting elements. It has also been speculated that materials being transported in host phloem might be transferred to adjacent digitate cells of the parasite and eventually to the parasite's main root.

Stermitz and Harris (1987) recently discovered that *Castilleja* takes up secondary plant compounds such as alkaloids from the host plant. This phenomenon is of special interest because secondary plant compounds may be used as poisonous or repulsive defenses against plant-eating insects.

Effects on the Host Plant

The effect of *Castilleja* on the host plant has not been adequately studied. This effect has been assumed to be negligible when water is abundant. Certainly it is to the parasite's advantage not to kill the host, or even to greatly decrease its vigor. However, parasitism does no damage only in the case where the host has more than it can use of whatever the parasite takes. Such luxury uptake probably occurs in some plants at certain times of the year or during certain periods of the plant's life cycle, but not all of the time. Thus, parasitism is likely to decrease the host's growth and vigor in most cases. The few experiments that have been done indicate that parasitism results in lower biomass of host plants as compared to non-parasitized controls.

Chaparral natives such as chamise (*Adenostoma fasciculatum*) and California buckwheat (*Eriogonum fasciculatum*) are frequently parasitized by *Castilleja foliolosa*. Chaparral plants are growth-limited during much of the year by drought and by poor soil nutrient (especially nitrogen) capacity. The extraction of water and nitrogen from chaparral shrub roots by *Castilleja* undoubtedly has a negative effect on these shrubs. Shrubs that are prone to being parasitized would be at a competitive disadvantage in this resource-limited community. Parasitism by the Indian paintbrush is a frequently overlooked factor that might be considered along with fire, drought, temperature, competition, nutrient stress, and herbivory by plant ecologists attempting to explain the dynamics of chaparral plant communities.

References

Baird, W.V. and J.L. Riopel. 1985. Surface characteristics of root and haustorial hairs of parasitic Scrophulariaceae. *Bot. Gaz.* 146:63-69.

Heckard, L.R. 1962. Root parasitism in *Castilleja*. *Bot. Gaz.* 124:21-29.

Stermitz, F.R. and G.H. Harris. 1987. Transfer of pyrrolizidine and quinolizidine alkaloids to *Castilleja* (Scrophulariaceae) hemiparasites from composite and legume host plants. *J. Chem. Ecol.* in press.

Hylocomium splendens : A Useful Moss

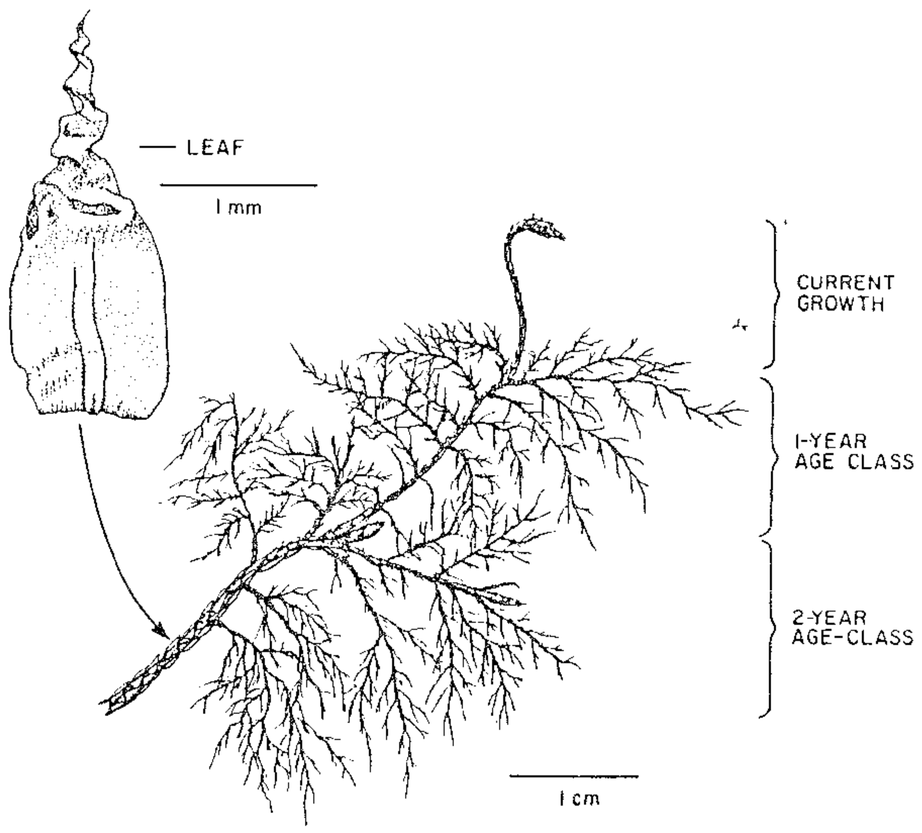
Now that most of the wildflowers have set fruit and the forest floor is damp, mushrooms , lichens and moss catch our eye. Forest hikers are probably familiar with the stairstep-like growth form of the feather moss, *Hylocomium splendens*. Each segment represents an annual growth increment. It is one of the few mosses in which yearly growth can be so easily distinguished. This characteristic, along with the fact that mosses in general are directly responsive to rainfall, make it a useful tool for pollutant monitoring.

Because moss does not have roots, nutrient and water acquisition take place on the plant's surface. These organisms, therefore, have evolved very efficient absorption abilities. Pollutants deposited by rainfall and mist are quickly incorporated into the tissue. When the annual segments of *H. splendens* are analyzed for heavy metals or other compounds, information can be gained about the pattern of pollutant deposition; how much accumulates over the years and how it is released into the soil as the moss decays.

Mosses are known to be among the first organisms to disappear from polluted areas because they are highly sensitive to pollutants. Most studies simply record that certain moss species are no longer present in an area. The growth form of *H. splendens* allows researchers to monitor its yearly growth and be alert to signs of inhibited growth or reduced vigor. Such an early warning sign could help avoid loss of *H. splendens* and other moss species.

Why is the loss or degradation of our moss flora important? There is increasing evidence that bryophytes play a significant role in the energy and nutrient cycling in some ecosystems (boreal forest, tundra and rain forest) and that they can influence the water retention capacity of an entire watershed. Mosses represent a large, perennial surface area in an ecosystem. A study of the epiphytes in a stand of big leaf maple (*Acer macrophyllum*) in the Hoh Rain Forest in Washington showed that the epiphytic biomass was approximately four-fold greater than the biomass of the leaves in the trees. The epiphytes also enhanced nutrient retention and uptake. The moss carpet you observe on the forest floor may have a parallel function.

Gail Baker, Emerald Chapter



Hylocomium splendens

Welcome New Members

Corvallis Chapter
George & Dorothy Burt

Emerald Chapter
Maxine Berg
Stella Dean
Charles & Reida Kimmel
Henry Morrison
Cathy Ross
Ethel H. Steussy
Mr. & Mrs. Orville Steward
David Struyin

High Desert
Deanne Earnshaw
Brenda Eberle
Kathy Lloyd
Ruth Paul

Mid-Columbia Chapter
Lynette Miller

North Coast Chapter
Lee & Anita Townsend

Portland Chapter
Marie Bartolet
Joe Cosenza
Dr. David Dalton
Connie Davis
Nancy Forman
Mrs. Nelson Glover
Mary Hewitt
JoAnn Klassen
Cynthia Konold
Bethanye McMichol
Glen & Betty McNutt
Joyce Mitchell
John Whisler
Steve Wright

Siskiyou Chapter
Richard Brock

Willamette Valley Chapter
Theodore Stohr, Jr.
Wm. Cusick
John Ball

Arctic Coastal Plain Threatened

The Alaska Coalition of Oregon has been organized to help save the Arctic Coastal Plain in the Arctic National Wildlife Refuge from oil and gas exploration and development. There are proposals to designate the 1.5 million acres of the refuge's coastal plain as wilderness, thereby protecting the important area from oil development. There are other proposals that would allow leasing of this land for oil and gas development. For more information contact the Alaska Coalition of Oregon, P.O.Box 42262, Portland, Ore. 97242 (503-233-7456).

STATE OFFICERS

DIRECTORS . . . . . Esther McEvoy, Russ Holmes, Dave Gross, Peter Zika, Jerry Igo, Nancy Fredericks
PRESIDENT . . . . . Dan Luoma. . . . . 2912 NW Arthur Ave., Corvallis, OR 97330; 758-8063
IMMEDIATE PAST PRESIDENT . . . . . Rhoda Love. . . . . 393 Ful Vue Dr., Eugene, OR 97405; 345-6241
VICE PRESIDENT . . . . . Marjorie Willis. . . . . 1190 21st NE, Salem, OR 97301; 581-6073
SECRETARY . . . . . Cindy Hohenleitner. . . . . 1097 Hermitage Way S., Salem, OR 97302; 588-0736
TREASURER . . . . . Daphne Stone. . . . . 1934 Cleveland St., Eugene, OR 97405; 344-3274

STATE COMMITTEE CHAIRS

RARE AND ENDANGERED . . . . . Jean Siddall. . . . . 535 Atwater Rd., Lake Oswego, OR 97034; 636-4633
CONSERVATION . . . . . Ed Alverson. . . . . Dept. of Botany, OSU, Corvallis, OR 97331; 754-4106
LEGISLATIVE . . . . . Esther McEvoy. . . . . 3290 Willamette, Corvallis, OR 97333; 754-0893
MEMBERSHIP . . . . . Mary Falconer. . . . . 1920 Engel Ave. NW, Salem, OR 97304; 585-9419
WILDFLOWER POSTERS & PINS . . . . . Susan Kofahl. . . . . P. O. Box 151, Mosier, OR 97040; 478-3576
NOTECARDS . . . . . George Lewis. . . . . 8230 Cashmur Lane, Portland, OR 97225; 292-0415
T-SHIRTS . . . . . Nadine Smith. . . . . 1128 Jackson St., Eugene, OR 97402; 344-6478

CHAPTER PRESIDENTS

BLUE MOUNTAIN (NE Oregon) . . . . . Bruce Barnes. . . . . 731 NW 5th, Pendleton, OR 97801; 276-5547
CORVALLIS. . . . . Thomas Kaye. . . . . Herbarium, OSU, Corvallis, OR 97331; 754-4106
EMERALD (Eugene area) . . . . . Diane English. . . . . 3383 West 14th, Eugene, OR 97402; 484-9287
HIGH DESERT (Bend area) . . . . . Joyce Bork. . . . . 640 NW Broadway, Bend, OR 97701; 389-5579
MID-COLUMBIA . . . . . Keith Chamberlain. . . . . Box 271, Mosier, OR 97040; 478-3314
NORTH COAST . . . . . Clara Fairfield. . . . . Whiskey Ck. Rd., Tillamook, OR 97141; 842-4362
PORTLAND . . . . . Esther Kennedy. . . . . 6124 NE 28th Ave., Portland, OR 97211; 287-3091
SISKIYOU . . . . . Wayne Rolle. . . . . 311 High St., Ashland, OR 97520; 482-0093
WILLAMETTE VALLEY (Salem area). . . Pat Rogers-Rochna. . . . . 4382 Marion Rd., Turner, OR 97392; 769-4669
WM. CUSICK (LaGrande area) . . . . . Rachel Sines. . . . . 504 C Ave., LaGrande, OR 97850; 963-0674

BULLETIN

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The Bulletin is not typeset; therefore typed, camera-ready copy is much appreciated. But no submission will be rejected because it is not typed. Please proofread & check facts.
DEADLINE: 10th of each month
FORMAT: Copy should be typed in 4½ inch wide columns, of any length. Author's name & chapter affiliation (or other organization) are typed at the end of the article. There is no standard paragraph treatment; one of these is suggested:

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- *for short articles or short paragraphs, when double spacing looks odd, indent the first word of the paragraph instead*

Type your own headline, centered, all caps. In case of special formats, e.g. plant keys, you are free to choose the layout.
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- *author--specify whether byline is desired for news items*
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