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

Volume 18 No. 2 February 1985

CHAPTER NEWS

Blue Mountain

--- For information about February activities, call Chapter President Harry Oswald, 276-1241 (days).

Corvallis

18 Feb., Mon. MEETING, 7:30 p.m., Cordley Hall, Room 2087, Oregon State University campus. TREES, TRUFFLES, & BEASTS, by Dr. James Trappe.

Emerald

Nominees are needed for President & Vice-President of the Emerald Chapter. Please call nominating chair Gaylee Goodrich, 485-3453, with your suggestions.

11 Feb., Mon. MEETING, 7:15 p.m., Amazon Park Community Center, north craft building. Robin & Ken Lodewick will speak on PENSTEMONS.

High Desert

--- There will be no meeting this month of the High Desert Chapter.

Mid Columbia

6 Feb., Wed. MEETING, 7:30 p.m., Mosier School.

Portland

2 Feb., Sat. WORKSHOP, 10:00 a.m., First United Methodist Church, 1838 SW Jefferson. NORTHWEST ALLIUMS, with Cal Burt.

9 Feb., Sat. (note change) WORKSHOP, 10:00 a.m., First United Methodist Church. LEARN THE LICHENS, with Glenn Walthall. Please bring lichens to be identified, hand lens, scissors, tweezers, & The Lichens by Mason E. Hale.

10 Feb., Sun. 2ND ANNUAL POTLUCK, 1:00 p.m. at the Leach Garden, 6704 SE 122nd, Portland. Call Elizabeth Handler, 244-5320, for details & to tell her the number in your party.

12 Feb., Tues. MEETING, 7:00 p.m., First United Methodist Church. Alpine flowers, SWITZERLAND 1984 by Dave Dobak.

23 Feb., Sat. WORKSHOP, 10:00 a.m., First United Methodist Church. PLANT COMMUNITIES AS FOREST ECOSYSTEM INDICATORS, with Nancy Halverson.

2 Mar., Sat. WORKSHOP, 10:00 a.m., First United Methodist Church. UNDERSTANDING THE PRONUNCIATION OF BOTANICAL LATIN, with Father Martin Thielen.

Siskiyou

14 Feb., Thurs. MEETING, 7:30 p.m., Rm. 171, SOSC Science Bldg., Ashland. Dave Danley, botanist for Sunriver, will speak.

Willamette Valley

18 Feb., Mon. MEETING, 7:30 p.m., First United Methodist Church, corner of Church & State Sts., Salem; in the Carrier Room. Jean Siddall, author of "A Very Artificial, Siddall Idiot Key to Mustard Genera in Oregon", will conduct a workshop on Oregon mustards.

SALEM BLM BOTANY REPORT READY

The 1984 Salem BLM Botany Annual Report is now available to botanical groups such as university & college biology departments, botanical gardens, natural history societies, conservation groups, et al. Contact the Salem BLM office, botany section, 1717 Fabry Road SE, P.O. Box 3227, Salem, OR 97302. Copying costs for the 283-page report are too high to send it to individuals.

All past Salem BLM Botany Annual Reports are available to be read at the Botany Department's Herbarium Library of Oregon State University; the reports run from October 1978 to October 1984.

ROADS INTO RANGELAND

Stephen Dow Beckham, Professor of History at Lewis and Clark College, examines the historical development of the range industries in eastern Oregon and the evolution of Federal regulations for public rangelands. This is one of a series of programs on forests and grasslands, presented by The Nature Conservancy and Western Forestry Center. Feb. 13, Wednesday, at 7:30 p.m. in Miller Hall of the Western Forestry Center, Portland; free and open to the public.

NOMINATIONS STUCK--YOUR HELP NEEDED

The nominating process for state NPSO officers is behind schedule--we are having a difficult time finding willing nominees, and several of the current officers do not want to be re-elected. However, elections will be held in March as usual. Nominees and their resumes will be published in the March Bulletin, which will also include a ballot for electing next year's officers, including three Board members. Any member willing to serve as an officer or Board member should call President Herm Fitz immediately (yesterday if possible!).

HOW ABOUT A T-SHIRT?

The New Year is time for a new T-shirt! NPSO T-shirts are available in three designs, featuring drawings of western trillium (Trillium ovatum--green on yellow shirt) and prickly pear (Opuntia polyacantha--black on silver-grey shirt) by Julie Kierstead, and cobra lily (Darlingtonia californica--black on plum-lavender shirt) by Linda Vorobik. The heading "Native Plant Society of Oregon" appears above the drawing on each shirt. Shirts are shortsleeve, preshrunk 100% cotton in men's sizes S, M, L. Opuntia is also available in XL. Cost is $7.00 to individuals, plus $1 postage. Most chapters have a few shirts on hand to sell at meetings (chapters may purchase shirts for $6.00). Special orders such as French cut, long sleeve, & sweatshirts are possible with a minimum order of 12 of one color. When ordering, please indicate size and design, and a second choice, if there is an acceptable one. Make checks out to Emerald Chapter, NPSO. Order from: Leighton Ho, 1826½ Lincoln St., Eugene 97401; phone 345-3252.

WINTER PICNIC FOR THE GORGE

The Third Annual Winter Picnic in celebration of supporters' efforts to preserve the Columbia Gorge is scheduled for February 23 at the Yamhill Marketplace, sponsored by the Friends of the Columbia Gorge.

For those wishing to indulge in the picnic fare donated by Portland's finest traditional restaurants, and dancing afterwards, admission is $15. Picnic fare will include hot soups, sandwiches, fruit, desserts, and coffee. The doors will open at 7 p.m., with dinner beginning at 7:45 p.m. After 9:00 p.m., tickets for dancing only will be available for $5.

The pace is "fun". Revelers will be able to join in a sing along with the Wham Bam Banjo Band, and then enjoy dancing music. All evening long, wine & beer will be available for purchase. Other entertainment will include a multi-media show, The Columbia Gorge: Who Is Watching, and dancing by cloggers.

Tickets for the Winter Picnic, which are limited, are available at the Friends of the Columbia Gorge office at 519 SW Third Avenue, Suite 810 in Portland. Early purchase is recommended as the Picnic was sold out early last year. The public is invited to call for more information at the Friends of the Columbia Gorge office at (503) 241-3762.

FLOWERS FOREVER

by Rhoda Love

I would like to celebrate the beginning of 1985 by writing about a wonderful new book that came to my attention this holiday season.

Actually, I learned about this marvelous volume because a building on the University of Washington campus in Seattle was dedicated to C. L. Hitchcock in October! As a former student of Hitchy's, I was invited to the dedication but could not attend. Instead I sent a note of greeting to my former professors and a bit later I received a reply from Dr. B. J. D. Meeuse, a delightful Dutchman (from the East Indies) who had been my plant physiology professor a number of years ago.

Among other matters covered in his letter, Dr. Meeuse happened to mention that he had just published a new book, The Sex Life of Flowers! I have always loved one of his earlier books, The Story Of Pollination (Ronald Press, 1961), so of course I replied at once requesting a copy of the new volume.

I was thrilled when I saw the book! It is truly gorgeous. The photos by co-author Sean Morris of Oxford Scientific Films are stunning, the best I have ever seen anywhere of flowers and their pollinators.

Because, of course, The Sex Life of Flowers is about pollination! And that is one reason why I feel that it is a proper subject for my monthly column.

Allow me to briefly outline the book's contents. The first chapter reviews some theories about the evolution of sexual reproduction in plants. Then comes a close look at flowers, their structure and function. Next the author looks at the important topic of nature's taboo against incrossing (self-pollination) and how this proscription has encouraged the close ties between flowers and their pollen vectors. The next chapter on Adaptation and Co-evolution is my favorite. Here Meeuse gets down to the finer points of specific pollination relationships (orchids and wasps, clover and bumble bees, yuccas and yucca moths and so on). Next he focuses on what he calls the "unacceptable face of pollination"--a discussion of flowers that attract dung beetles, carrion flies, fungus gnats and their ilk. He also covers here those flowers which may entrap and kill their insect visitors. He goes on to describe pollination which depends on vectors other than animals and finally closes with a review of the importance of pollination and pollinators to mankind.

This brief review indicates the broad coverage of The Sex Life of Flowers, but it does not do full justice to the work. Meeuse has always been a genius at taking tough evolutionary and ecological theories and bringing them--via brilliant wit and analogy--within the grasp of the common reader. This he does marvelously here. In so doing, however, he sacrifices none of the scientific accuracy of the work. For example, throughout Sex Life, scientific as well as common names are used for all organisms (plants and animals), making the work as useful to the professional ecologist as it is interesting to the everyday reader.

The book is global in scope, with examples taken from plant-pollinator relationships on every continent. However, Bulletin readers will be pleased to know that, because Meeuse has spent many years in Seattle, many of his examples are drawn from the Pacific Northwest.

May I insert a bit of nostalgia? For years Dr. Meeuse has been fascinated with arum lilies. These are the plants in the monocot family Araceae, like skunk cabbages, calla lilies and lords-and-ladies which have the flowers crowded on a fleshy spadix with this surrounded by a (often) showy spathe. As some Bulletin readers probably know, when arum flowers are ready for pollination, the spadix gets hot! Metabolism in the structure is extremely rapid, causing an astounding rise in temperature. In Dr. Meeuse's physiology classes, all those years ago, we students spent many hours studying Krebs cycle reactions using ground up spadices of Sauromatum, the so-called voodoo lily, a marvelous purple

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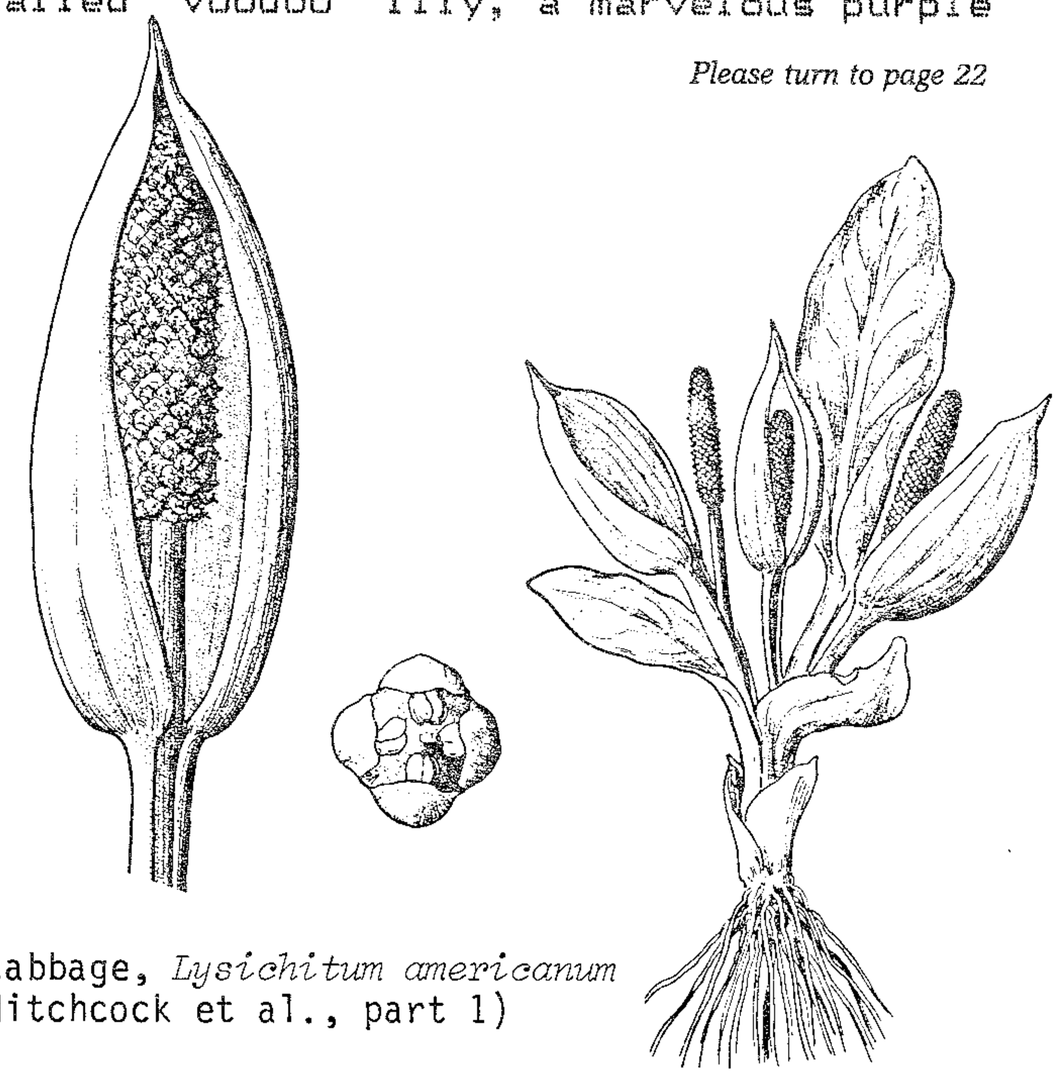


skunk cabbage, *Lysichitum americanum* (from Hitchcock et al., part 1)

Conservation Alert

DESIGNATION NEEDED:
GRANDE RONDE & WALLOWA RIVERS
AS OREGON SCENIC WATERWAYS

Early in June of 1982 a group of NPSO Portland Chapter members took a three day float trip on the Wallowa and Grande Ronde Rivers, from Minam to Troy. It was a wonderful experience--the scenery was especially beautiful, the botanizing was a nice challenge, and the river was swift enough for some whitewater excitement, but no fear. There were quite a few unfamiliar plants that we worked to key out. Two of those that interested me most were Clematis columbiana var. columbiana, on the March 1982 review list of the Oregon Rare & Endangered Plant Project, and Cypripedium montanum, which was described in the 1979 Interim Report of OREPP as "Very Endangered in Oregon". Protection is in order for some other plants of the area too.

Many of us want to take this delightful trip again. However, there are threats to the free flow of the Grande Ronde and Wallowa Rivers. Hydroelectric projects have already been proposed. The way to prevent something like that from happening to this wonderful area is to get sections of these rivers designated as Oregon Scenic Waterways. They easily meet the qualifications of being free-flowing, outstanding for recreation, scenic, and large enough to handle increased usage while still maintaining their natural qualities. The management program works from the condition existing at the time of designation, and allows changes that do not alter the natural beauty greatly. The only things absolutely not allowed are dams, impoundments, and placer mining.

In order to accomplish this status, the Transportation Commission and Oregon Water Policy Review Board must agree to recommend that the rivers be designated as Scenic Waterways. Then Governor Atiyeh makes the final decision. Citizen input is essential. A brief letter stating your support is what is needed now. Please send one to each of these three people:

Tony Yturri, Chairman
Oregon Transportation Commission
135 Transportation Bldg.
Salem, OR 97310

Rolf Hakanson, Chairman
Oregon Water Policy Review Board
Water Resources Dept.
555 13th St. NE
Salem, OR 97310

Governor Vic Atiyeh
State Capitol
Salem, OR 97310

Thank you all,

Jeanne Huffstutter
Portland Chapter

LEGISLATIVE NOTES

As newly appointed legislative chairperson, I am drafting legislation for an Endangered Species Act for the State of Oregon. I welcome your input either in letter writing, lobbying, phoning or compiling information .

On November 4, 1984 I attended the session on legislation at the Rare Plant Conference in Eugene. Dave Wagner and Rick Brown reviewed the progress that has been made to the present date on native plant legislation. We discussed lobbying efforts, support and policies of different state agencies, and thoughts about future work on legislation.

Starting with the above notes I then proceeded to assemble information on the work Ann Whitmyer did in submitting the "Endangered Species Inventory Act of 1981". The act was introduced to the Committee on Environment and Energy, yet it never got out of the committee because there simply was no support for the bill.

On December 14,1984 Rhoda Love organized a meeting in Eugene. We met with Wendell Wood and Andy Kerr of the ONRC, Sydney Herbert of the Lane County Audubon and Michael Axline of the University of Oregon Law School. We discussed a number of key issues including : the listing process, co-ordination of a plant-animal Endangered Species Act, enforcement policies, lobbying, legislation of other states, and what department might administer a bill. We felt we needed a summary sheet or statement to be used as a basis for rallying support of any bill we hoped to achieve in the near future. Rhoda has agreed to draft a summary. Below is a brief outline of some of the key points we feel should be included.

WHY DOES OREGON NEED AN ENDANGERED SPECIES ACT?

1. Although the Federal ESA was passed in 1973, to date only 3 plant species out of 267 proposed in Oregon have been listed.

2. Candidate and Proposed species are not protected under the existing law.

3. Ecosystems and habitats receive no official protection.

4. At the rate of 1 Oregon species receiving Federal protection every 4 years, how many species face extinction each year?

5. The Federal ESA must be reauthorized every two years. Industry groups such as American Petroleum Institute, American Mining Congress and National Forest Products Association are organizing to seek potentially crippling ammendments to the Federal Act during this years reauthorization.

6. Species such as Darlingtonia californica will never receive Federal listing because the F & W Service has changed its status to 3C, "too abundant for listing", yet this species is under pressure in Oregon where it is being dug and sold commercially. Only a state law can protect species which are abundant elsewhere but liable to local extinction in Oregon.

Please send me your comments.

Esther Gruber McEvoy
Corvallis Chapter

Books

Sacred Cows at the Public Trough was reviewed by Rick Brown in the NPSO Bulletin's August 1984 issue. It bears another review, for those of you who missed it the first time around, or who remain unconvinced. Grazing and livestock-related habitat destruction on public lands loom as the greatest threats to eastern Oregon's native plants & ecosystems.

Sacred Cows at the Public Trough, by Denzel & Nancy Ferguson, 1983. Maverick Publications, Drawer 5007, Bend, OR 97708. 250 pp. $8.95.

Here is a book that anyone who cares about the flora of the western United States should read. You will either love it or hate it. If you have ever knelt in a cow pie while trying to photograph a wild flower on federal land, you will love it. If you are a cowboy or rancher or have loved ones who are and who use federal lands, you will hate it.

The book is a thorough denunciation of the western livestock industry and their lackeys in government for their misuse and overgrazing of federal lands. The Fergusons have carefully researched their book and present their point of view in a straightforward but often inflammatory style. "While cowboys have been twirling their lariats and strutting around in their pointy-toed boots, Americans have gone to the moon and launched the computer age. A cow is no longer a big deal." Those words are enough to make a fellow swallow his chew.

The book has sometimes funny cartoons by Ginny Rosenberg, references, and an index. Their sources of information include scientific journals such as Ecology and Wilson Bulletin; applied journals such as Journal of Range Management and Journal of Wildlife Biology; government publications; and first-hand observation. They lived and worked at the Malheur Field Station in Harney County for about ten years. They know wherof they speak.

The Fergusons use an historical (some would say hysterical) approach to developing their version of the rape of the western ranges. The book includes chapters on cowboy philosophy; the effect of overgrazing on rangeland, water resources, and wildlife; the introduction and establishment of weeds; the effects of predator control; range improvement; the wastefulness of public subsidies; the charade of multiple use; and a call for change.

Here are some modified excerpts:

> The U.S. Treasury spends $33.6 million more than it collects in a year to support private grazing on public land.

Only 3% of the nation's beef is produced on western public lands. The rest is produced by ranchers on private land, mostly in the eastern U.S.

American beef consumption has declined from a high of 95 pounds per capita in 1976 to 77 pounds in 1982.

In AUMs (the amount of forage to feed a cow & her calf, a horse, or five sheep or goats for a month), 3.1 elk equal one cow.

Malheur Wildlife Refuge: in 1940, 40,000 AUMs, duck nesting success 65%; in 1964, 111,600 AUMs, duck nesting success 24.7%.

A feedlot cow produces 34 cubic feet of manure a year.

In Nevada, 883 miles of riparian habitat are either deteriorated or declining because of livestock grazing.

In 1983 the Forest Service and the BLM took in about $25 million in grazing receipts, of which about $9.4 million will go to the U.S. Treasury. Each year Americans spend $517 million on birdseed. In 1980 100 million Americans spent $40 billion in outdoor recreation, hunting, fishing, hiking, nature photography, and the like.

Others may wish to interpret the information presented by the Fergusons differently. I would be interested in their rebuttal.

The people I have talked to in government agencies have agreed that the Fergusons are essentially correct. They criticize them for being so intemperate in their choice of words. I haven't had the nerve to ask a rancher what he thought of the book. Read it; it has an important message for those of us who care about the stewardship of public lands and ALL the organisms that live there.

Frank A. Lang
Siskiyou Chapter

ARABIS IN SOUTHWESTERN OREGON: KEYING SPECIES

LINDA ANN VOROBIK, EMERALD CHAPTER

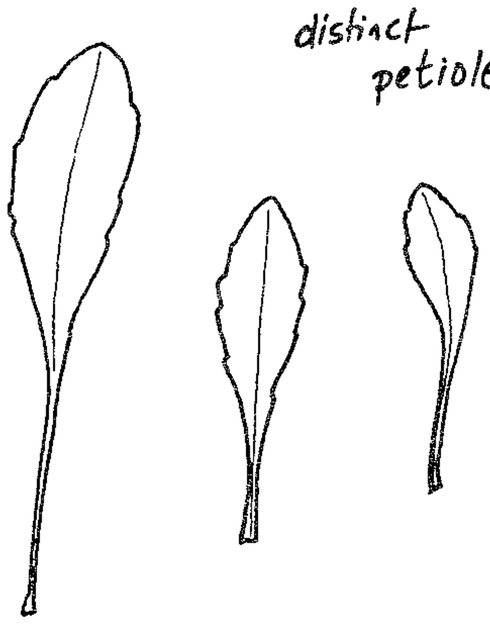
In this fourth and final chapter on southwestern Oregon rockcress, I had intended to discuss the evolution within the genus. I decided, instead, to provide you with some tools for keying Arabis species. First I will briefly discuss some of the characters used in keying Arabis; next I will present parts of a key to Oregon Arabis, including those species not found in Hitchcock and Cronquist. My hope is that you will be inspired to learn the species when you encounter them in the field. For those special few who are, as I am, truly excited about the genus, I would be happy to send you a copy of the complete key if you would be kind enough to send me $2 to cover postage and photocopying. I also would be glad to identify specimens. If collecting specimens, please remember:

1. Follow NPSO guidelines,
2. Learn and avoid collecting the RT&E species (here marked with an * including "Watch List" species), and
3. Collect complete specimens (flowers and fruits, whole plants) and provide complete label information (collector, date, precise locality, habitat, associated species).

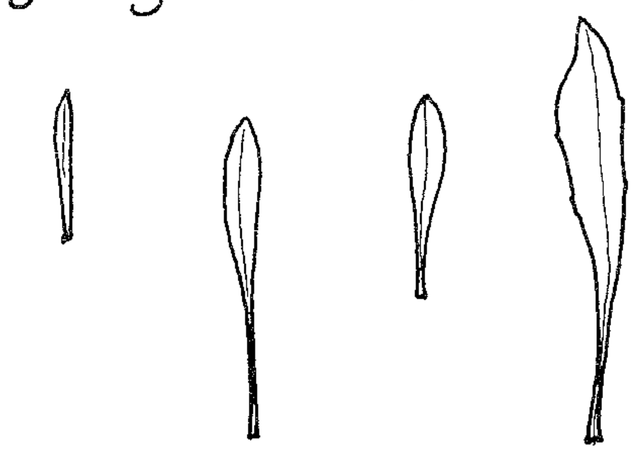
At present, I am still at the Department of Botany, University of Texas, Austin, Texas, 78713.

Basal leaves

linear to linear oblanceolate



Basal leaves obovate to broadly oblanceolate with distinct petiole



Basal leaves spetulate to narrowly oblanceolate, narrowing gradually to the petiole

CHARACTERS USED IN KEYING ARABIS

BASAL LEAF SHAPE. Three general types of leaf shapes are found in Oregon Arabis. A broadly-obovate to oblanceolate or spatulate, usually lobed leaf is found in members of the "true" Arabis (basic chromosome number equal to 8). Members of what has been described as the genus Boechera (Arabis species with a basic chromosome number of 7) have narrowly obovate to oblanceolate, often entire leaves. It should be noted that there is some degree of overlap between these two leaf types. The third leaf shape type, narrowly linear-oblanceolate to linear, is found in A. cusickii.

VESTITURE. Three aspects of the indumentum are important: size, type and amount of hairs (trichomes). The size of the trichomes varies from fine, or barely visible with the naked eye, to coarse, or visible as a rough edge on the leaf to the naked eye. Trichomes can be simple and acicular (needle-shaped) to forked, dendritic or stellate. Plants vary from glabrous, to densely pubescent, to hoary (appearing whitish because of a very dense coating of intertwined trichomes).

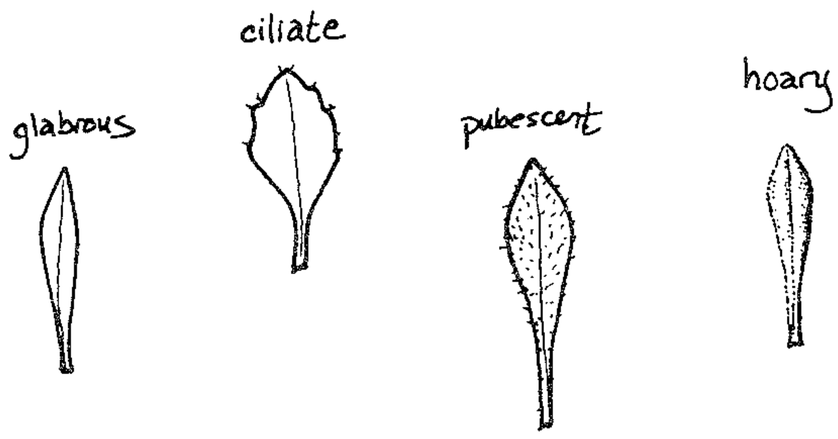
FLOWERS. Size of the flowers is a useful character for differentiating between Arabis species, as shown in this series' Part III. Although flower color is sometimes variable and hard to define, Arabis flowers are basically white, pink, or deep pink to purple. Sepals vary in their shape, from saccate to non-saccate, and in their vestiture. In fruiting populations, flowers may be found on secondary branches of plants.

SILIQUES. Mustard fruits are always important for identification of species. Arabis siliques vary in position, shape and size. In flowering populations, skeletons of last year's fruiting stems can usually be found.

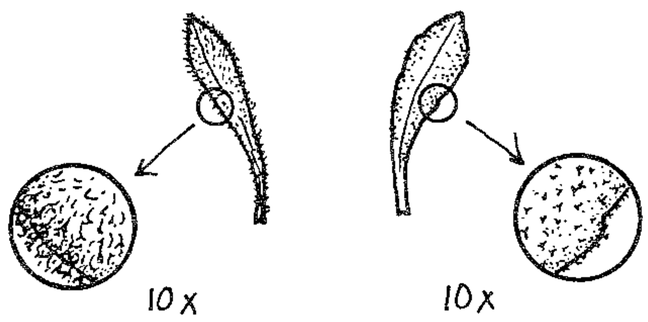
SEEDS. Although Arabis seeds provide very useful characters, they are often difficult to obtain. Unless mature (dry to dehiscent) siliques are found, seed characters can only be extrapolated from the silique size and from immature seeds. Seed position (uniseriate vs. biseriate) can only be determined from mature fruits; seed size is proportional, though less than, silique width; seed wings vary from absent to broad.

Please turn to page 20

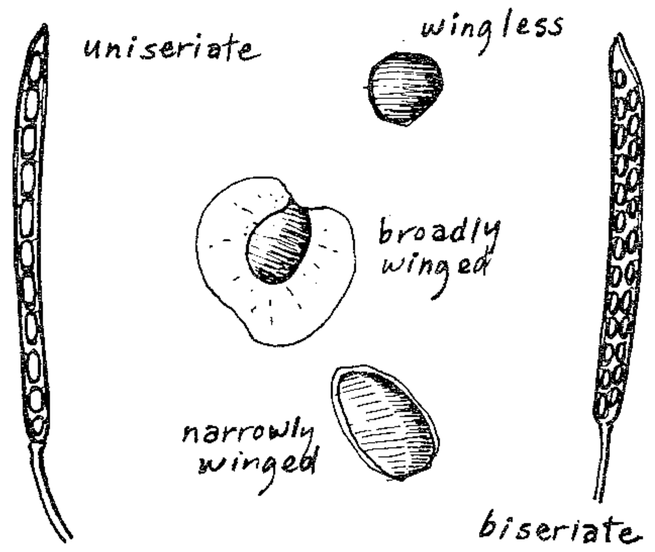
BASAL LEAVES



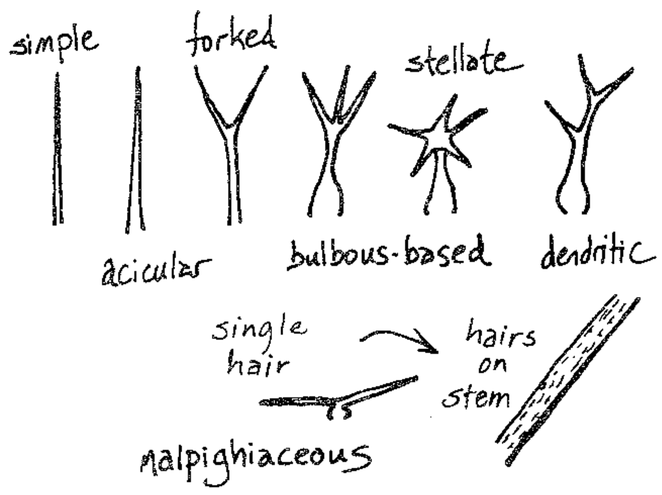
VESTITURE TYPE



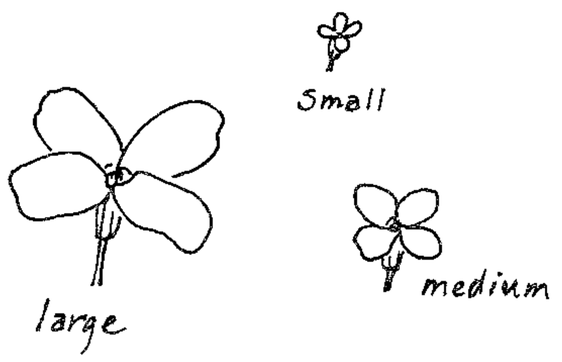
COARSE FINE



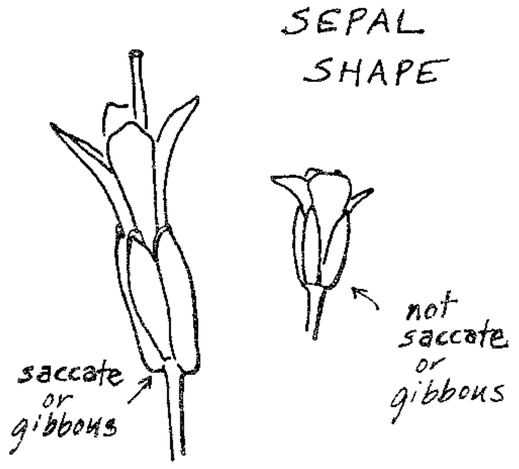
SEEDS



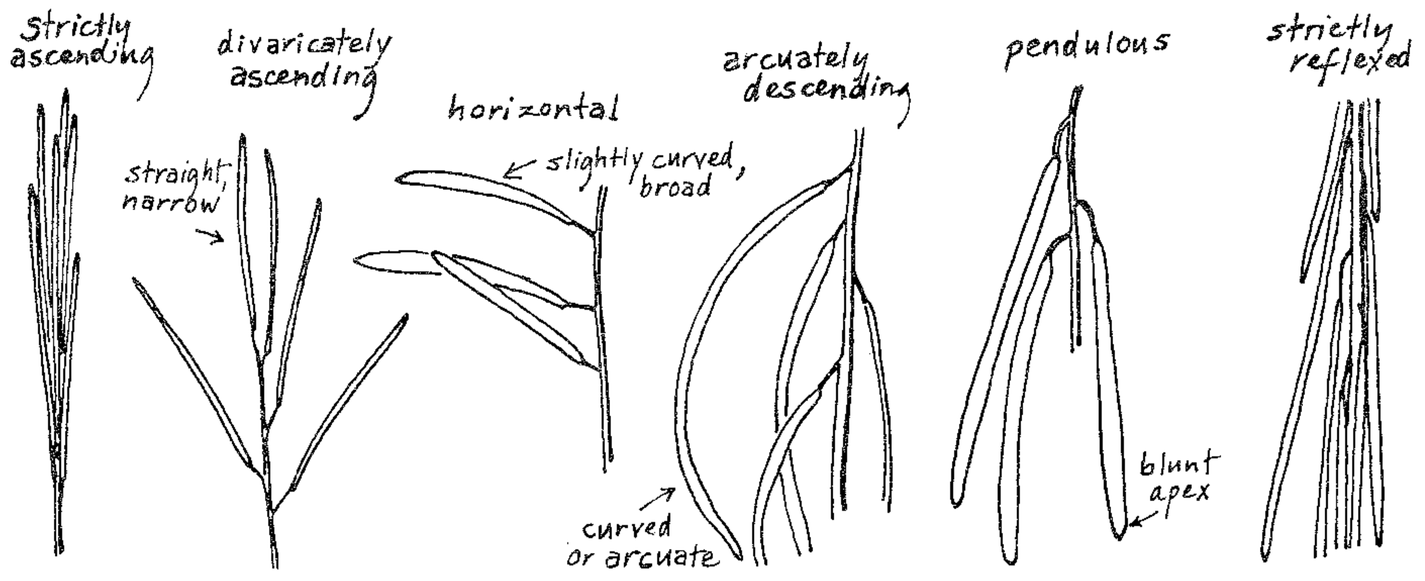
TRICHOME TYPES



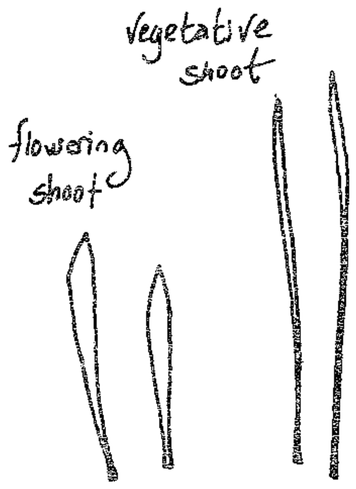
FLOWERS



SEPAL SHAPE



SILIQUES



Basal leaves of vegetative and flowering shoots dimorphic

SUBPINNATIFID CAULINE LEAF

ARABIS KOEHLERI AND ARABIS BREWERI

Plants numerous stemmed perennials, stems mostly less than 3 dm tall, glabrous or densely to sparsely pubescent below; flowers pink to purple, petals 7-10 mm long; siliques ascending to spreading, arcuate. Plants of sw OR w of the Cascades and s into nw CA.

1a. Caudex woody, much branched and covered with peg-like leaf bases; stems entirely glabrous to sparsely pubescent below with appressed trichomes; basal leaves sparsely to densely pubescent with fine dendritic hairs; cauline leaves and sepals glabrous or nearly so; pedicels glabrous; flowers bluish-purple. Shrubby rockcress.
A. koehleri Howell*

a1. Siliques sessile, only slightly curved; cauline leaves few. Known only from rocky hillsides near Roseburg, Oregon. var. koehleri*

a2. Siliques shortly stipitate, strongly curved; cauline leaves numerous, imbricated. Plants mostly of serpentine soils; Josephine and Curry Co.s, OR s to nw California. var. stipitata Rollins*

1b. Caudex much branched, but forming caespitose mats and not covered with peg-like leaf bases; stems hirsute below with simple or rarely forked, spreading hairs; hairs of basal leaves coarse; cauline leaves and sepals pubescent; pedicels pubescent to rarely glabrous; flowers pink to reddish-purple. Plants not of serpentine soils. Rocky ridgetops and talus slopes of low to montane elevations; foothills of Cascades e of the Medford-Ashland valley, s to California. Brewer's rockcress. A. breweri Watson

ARABIS SUBPINNATIFIDA

The closest relative to A. subpinnatifida is A. pubercula. Both species have basal leaves of vegetative and flowering shoots of two forms (dimorphic), with a dense coating of minute stellate or dendritic hairs (hoary). They also have pendulous, straight to slightly curved siliques, 2-3.5 mm broad.

1a. Cauline leaves entire or the lower irregularly toothed, not subpinnatifid; sepals green with a narrow scarious margin, not saccate; siliques blunt at apex. Foothills to middle elevations e of Cascades; WA s to CA, e to ID. Hoary rockcress.
A. pubercula Nuttall (in H&C)

1b. Cauline leaves subpinnatifid to irregularly dentate; sepals purplish with prominent scarious margins, saccate; siliques acuminate. Serpentine soils; sw OR s to NW CA. Ashy rockcress. A. subpinnatifida Watson

ARABIS RECTISSIMA

The most similar species to A. rectissima is A. holboellii, especially var. retrofracta. Both have strictly reflexed, straight, narrow siliques and densely pubescent basal leaves.

1a. Margins of basal leaves always ciliate with large, acicular hairs, surfaces hirsute with simple and forked hairs; fruiting racemes long, 1-4 dm. Open pine forests and edges of mountain meadows; Cascades in Klamath Co., OR s to Sierras in CA. Bristly-leaved rockcress.
A. rectissima Greene

1b. Basal leaves not ciliate with large acicular trichomes, surfaces densely pubescent with stellate hairs; fruiting racemes usually less than 1-4 dm long. Sagebrush and ponderosa pine slopes to subalpine and alpine meadows; AK s to CA, e to Rockies and e Canada. Holboell's rockcress. A. holboellii Hornem (in H&C)

ABBREVIATIONS USED IN THE KEYS

AK - Alaska
CA - California
CRG - Columbia River Gorge
H&C - Hitchcock and Cronquist
Flora of the Pacific Northwest
ID - Idaho
NV - Nevada
OR - Oregon
SRC - Snake River Canyon
WA - Washington

n - north
s - south
e - east
w - west

ne - northeast
sw - southwest
etc.

THE "PURPLE FLOWERED ARABIS" AND THEIR RELATIVES

Siliques 2-2.5 mm broad, not arcuate, divaricately ascending, never strictly erect; basal leaves with a broad blade narrowing to a distinct petiole, obovate to broadly oblanceolate, often obtuse and rounded at the apex, dentate to lobed (entire in A. nuttallii), usually forming a flat rosette at the base of the stems; cauline leaves not auriculate or sagittate.

1a. Plants pubescent with forked to stellate hairs (rarely glabrous); basal leaves usually more than 3 cm long, often thin, leaf surfaces dull

2a. Flowers white, small; petals 6-8 mm long. Wet banks and coniferous woods; SRC, WA to wc ID, in Oregon known only from Hat Point. Cross-haired rockcress.

A. crucisetosa Const. & Rollins (in H&C)

2b. Flowers pink to purple, large; petals 12-20 mm long. Plants of sw OR and nw CA

3a. Basal leaves with coarse, 2-4-rayed, bulbous-based hairs, sometimes with a few simple or fine dendritic hairs mixed in, or sometimes nearly glabrous but then ciliate with a few 2-4-rayed, bulbous-based hairs; stems mostly 1.5 -3.5 dm tall, coarsely hirsute with spreading hairs or rarely glabrous. Rocky ridgetops, foothills to montane elevations; e of the Medford-Ashland valley, and sw of Ashland s into nw CA. Oregon rockcress.

A. oregana Rollins*

3b. Basal leaves with fine, 3-5-rayed, non-bulbous-based hairs, uniformly pubescent; stems mostly 3-6 dm tall, uniformly pubescent with appressed, several-rayed hairs. Banks of the Rogue R., OR and Klamath R., CA. Rogue R. rockcress. (Included in A. oregana by Goforth.)

A. modesta Rollins*

1b. Plants glabrous or pubescent with simple to forked hairs; basal leaves often less than 3 cm long, often thickish, leaf surfaces often shiny

4a. Petals usually less than 10 mm long, white or tinged with pink. Plants not on serpentine, rather of n or e OR

5a. Plants entirely glabrous; stems 0.5-1.5 dm tall; basal leaves thickish; seeds 1.5 mm long, winged all the way around. High elevations; in OR known only from the Blue Mts. in Baker Co.; disjunct from the Sierras. Davidson's rockcress.

A. davidsonii Greene*

5b. Plants with some simple to forked hairs, or if glabrous then stems taller and plants of the n Cascades in OR, or seeds wingless and plants of e OR

6a. Basal leaves glabrous to ciliate with simple to forked hairs, thickish; seeds 1.5-2 mm long, winged on ends only. Alpine and subalpine slopes and ridges in the Olympic Mtns., Cascades in WA and n OR, and in the CRG. Fork-haired, Cascade, or CRG rockcress.

A. furcata Watson* (in H&C)

6b. Basal leaves glabrous to strongly ciliate and hirsute below with long simple to forked hairs, thin to coriaceous; seeds about 1 mm long, wingless. Moist flats, often sheltered by shrubs. Foothills to montane; far e WA s to e OR and NV, e to Rockies. Nuttall's rockcress.

A. nuttallii Robinson (in H&C)

4b. Petals pink to purple, 12-20 mm. Plants of serpentine soils; sw OR to nw CA

7a. Seeds wingless, plants glabrous throughout, plants mostly more than 1.5 dm tall. High elevations in Josephine and Curry Cos., OR, and Siskiyou Co., CA. Serpentine rockcress. (Included in A. macdonaldiana by Goforth.)

A. serpentinicola Rollins*

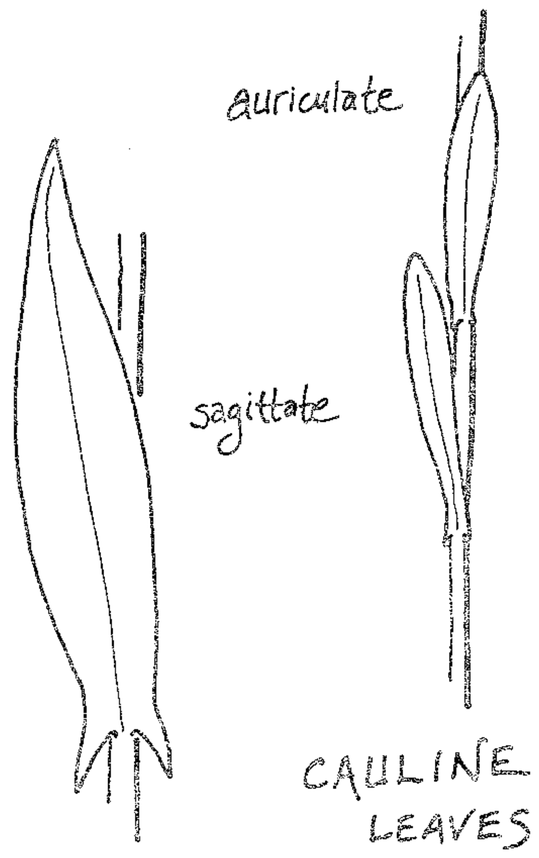
7b. Seeds winged at least distally; plants with sparse to dense pubescence; stems short to tall

8a. Plants pubescent with large, often bulbous-based, simple to forked hairs. Dry gravelly ground; Douglas, Curry and Josephine Cos., OR s to Del Norte Co., CA. Waldo rockcress. (Included in A. macdonaldiana as subsp. aculeolata by Goforth.)

A. aculeolata Greene*

8b. Plants glabrous except for a few marginal hairs on the basal leaves. Dry gravelly ground; extreme se Curry Co., OR s to nw CA. Mcdonald's rockcress. (A. macdonaldiana subsp. macdonaldiana according to Goforth.)

A. macdonaldiana Eastwood*



(Note: Duane Goforth is a Master's student at Humboldt State University, who has studied the "Purple Flowered Arabis" and their relatives. My reference to his revised classification comes from a key that he sent to me in 1982.)

Continued from page 15

arum which is native to the Old World. The mashed spadix material was placed in small flasks, provided with substrate and gently agitated while we took readings of oxygen consumption. In this way, we verified what Dr. Meeuse told us Otto Warburg, the great German physiologist once said, that "Die Zelle ist kein Ofen" (a cell is not a stove). I wasn't at all surprised to find the arums particularly well covered in this book!

In closing, I want to recommend The Sex Life of Flowers to every Bulletin reader. You'll love it and so will your children. Your friends will marvel at the photographs. The book is readable as well as gorgeous. Furthermore, The Sex Life of Flowers has an important message which is this: Everyone loves flowers, but loving them is not enough. Unless we become aware of the various bees, wasps, ants, butterflies, moths, birds, beetles, flies and gnats which carry pollen from one blossom to another, and unless we work hard to preserve these members of our ecosystems along with the flowers, trees and grasses, unless we fight for preservation of entire communities, we can never be certain that indeed we will have flowers forever.

* * *

Welcome New Members

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NEW NPSO NOTECARDS ARE HERE !

NPSO CAMPAIGNS GET RESULTS FROM BLM

Excerpts from a letter to Stu Garrett from Paul Vetterick, Associate State Director of the Oregon State Office, BLM:

"Thank you for your letter of Nov. 9, 1984 expressing your concern for the status of Malheur Wire Lettuce (Stephanomeria malheurensis). The Bureau is also concerned about the apparent low population level of this listed species.

The Bureau became aware of the special nature of the species in the early 1970's. In 1975, a 160-acre plot was fenced to exclude livestock. This was an effort to reduce possible impact from livestock grazing and recognized the need to do something to help keep a healthy population of the species. We have documented extreme fluctuations in the numbers of plants since inventories were instituted. However, at the present time, it appears that population numbers are at a seriously low level.

Monitoring studies conducted by BLM during 1984 only confirmed two live plants. This extremely low population of plants will obviously reduce the seed production for the next growing season.

Causes for the apparent low population level are only conjecture at this time and include competition from other species (especially cheatgrass), abnormally cool wet spring weather, rodent use and some other unknown environmental factor(s).

At this time, no specific research studies are being conducted on the survival of the plant. However, the draft recovery plan for the species should be available sometime in January 1985. Dr. Robert Parenti of the U.S. Fish & Wildlife Service is responsible for preparing the document and may be able to answer questions regarding suspected reasons for the population decline...

For your information, our Burns District office has been authorized a new botanist position this year. This new position is being created, in part, due to the concerns of people like yourself, the Native Plant Society, and our own internal concerns for accomplishing a high quality botanical program. I am confident that you will find that this action will increase the attention and emphasis placed on BLM's botanical program in eastern Oregon..."

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Membership in the Native Plant Society of Oregon is open to all. Membership applications, from this page or from chapter presidents, should be sent to the membership chair. Changes of address, including old address & zip code, should also be sent to the membership chair.

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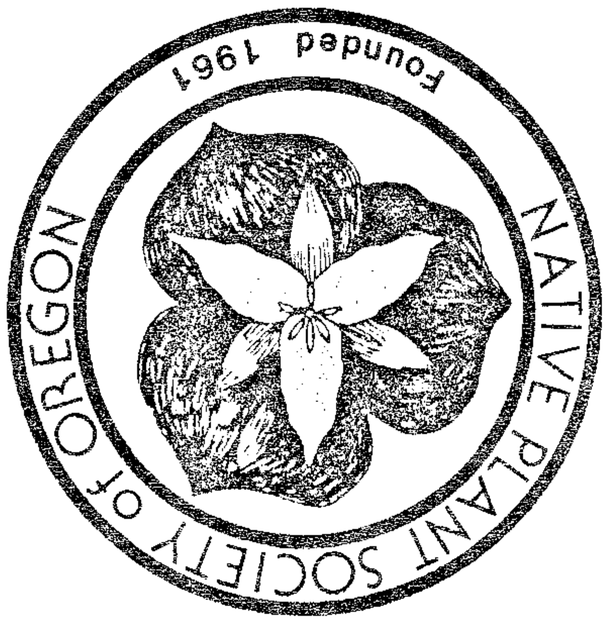

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