

Kelseya

Spring 1989

NEWSLETTER OF THE MONTANA NATIVE PLANT SOCIETY

MONTANA'S MICROFLORA: DIATOMS

- Loren L Bahls

Diatoms are among Montana's smallest and least known native plants. Diatoms (Division Chrysophyta, Class Bacillariophyceae) are single-celled algae that sport a cell wall composed of silicate (SiO₂). Despite their microscopic size - a truly big one is one-half millimeter long - diatom cells or frustules come in a variety of geometric shapes and have intricate patterns of ornamentation, which have made them a favorite of microscopists since the early 19th Century.

Most diatom species are aquatic but a few lead terrestrial lives. Some species are generalists while others have very specific water quality requirements.

Virtually every natural water on the surface of Montana supports diatoms. The diversity of a diatom association is inversely proportional to the austerity of the habitat or the degree of pollution: a saline seep, an alpine spring and Silver Bow Creek all have very simple but very different diatom associations dominated by just a few species. At the other extreme, Flathead Lake supports over 300 taxa.

The regular and reproducible patterns of ornamentation on diatom frustules are used to distinguish species. There are roughly

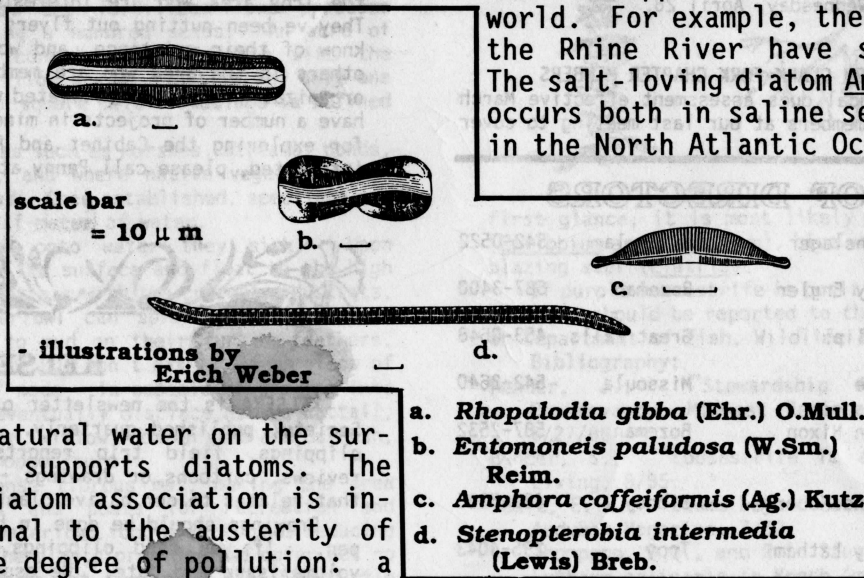
100,000 published species worldwide, although most of the world remains unexplored for diatoms. So far I have recorded 55 genera in Montana and about 1100 taxa, including varieties and forms. But most of my collections are from such ordinary habitats as lakes and streams and much of the state remains to be surveyed.

Because of their small size, diatoms are easily transported from place to place and there are few endemics. Similar habitats tend to support the same species around the world. For example, the Missouri River and the Rhine River have species in common. The salt-loving diatom *Amphora coffeiformis* occurs both in saline seeps in Montana and in the North Atlantic Ocean. Although most

Montana species are cosmopolitan, a few have a very limited distribution. One, *Navicula goersii*, has not been reported outside the state.

If Montana does support truly endemic diatoms, they will

probably be found in unique isolated environments that have remained fairly stable over the millenia. Hot springs and saline ponds are the most likely habitats for endemic diatoms.



- a. *Rhopalodia gibba* (Ehr.) O.Mull.
- b. *Entomoneis paludosa* (W.Sm.) Reim.
- c. *Amphora coffeiformis* (Ag.) Kutz.
- d. *Stenopterobia intermedia* (Lewis) Breb.

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FROM THE PRESIDENT

Thanks to each and every one of you for your support this past year. The machinery for our organization is in place. **Now let's do something!**

Start by coming to our second annual statewide meeting. Members of our newest chapter - Kelsey Chapter, in Helena - will be the hosts on May 5-7, 1989. Registration fee this year will be \$5 per person, and Rev Lowell Anderson, MNPS member in Helena, has offered us the use of his church's meeting rooms. Elsewhere in this newsletter is a preliminary meeting schedule. Come to get to know one another and to plan what we want from our group.

YES, WE ACCEPT DONATIONS

With April 15th right around the corner, don't forget the Montana Native Plant Society. We are a non-profit, tax-deductible organization. Your donations may be given towards the general budget, a favorite chapter, or to a special project.

WELCOME TO OUR NEWEST CHAPTER

In early February - right when Montana's winter was doing its worst - a group of MNPSers got together to organize the Kelsey Chapter, named in honor of F.D. Kelsey, who first collected our mascot plant, and for whom it was named. President is Lisa Schassberger, VP is Steve Shelly, and Secretary-Treasurer is Dean Culwell. The chapter has agreed to host our Annual Spring Meeting, and is doing a great job of getting things organized. Congratulations and welcome, Kelsey Chapter!

PLEASE VOTE!

Included with this newsletter is a ballot for the two offices that are up for election this year, President and Treasurer. Also, some Bylaw amendments that were proposed at the last two Board of Directors' meetings need to be voted on by the membership. These are on a separate pre-addressed sheet; please fold it in half, tape or staple and stamp it, and mail by Wednesday, April 26.

ATTENTION CLARK FORK CHAPTER MEMBERS

An additional \$5 local dues assessment effective March 9, 1989, was voted by members at our last meeting to cover

BOARD OF DIRECTORS

PRESIDENT - Kathy Ahlenslager	Missoula	542-0522
VICE-PRESIDENT - Shelly Engler	Bozeman	587-3400
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Flathead Chapter - Anne Morley	Swan Lake	886-2242
Kelsey Chapter - Lisa Schassberger	Helena	444-3009
Valley of the Flowers Chapter - Renee Cook	Bozeman	994-2903

our chapter's expenses. Please remit with check payable to "CLARK FORK CHAPTER, MNPS" to Carol J Morris, Secretary-Treasurer, 601 Ford, Missoula MT 59801. REMINDER - if you've not already paid your 1989 state dues of \$8 (due 2/28/89), make the check for \$13.

KNAPWEED SYMPOSIUM, APRIL 4-5

A symposium on current research and technical developments for management of spotted, diffuse and Russian knapweed, as well as yellow star-thistle, will be held at the Holiday Inn in Bozeman on April 4 and 5. Sponsors of the conference are the Montana Agricultural Experiment Station and Extension Service of Montana State University, and the Montana Weed Control Association. Preregistration cost is \$35, or \$45 at the door, and includes a copy of the proceedings, coffee breaks, two lunches and a dinner. Co-chairs are Dr Peter K Fay, 705 Leon Johnson Hall, Montana State University, Bozeman MT 59717-0003, 994-5061; and Dr John R Lacey, 221 Linfield Hall, MSU, 994-5601.

NATURAL AREAS CONFERENCE AND MONTANA ACADEMY OF SCIENCES ANNUAL MEETING, APRIL 21-22

The 49th Annual Meeting of the Montana Academy of Sciences will be held at Montana State University, Bozeman, on April 21 and 22, 1989. In conjunction with the MAS meeting, The Nature Conservancy is once again sponsoring a Natural Areas Conference, to run concurrently with the Friday MAS sessions. For information on the MAS meeting, write Paul Sawyer, MAS Executive Secretary, Biology Department, Montana Tech, Butte MT 59701. For information on the Natural Areas Conference, write The Nature Conservancy, P O Box 258, Helena MT 59624, or call Donna at 443-0303.

AND ANOTHER CHAPTER'S IN THE WORKS...

Penny Latham advises us that there are several folks in the Troy area who are interested in starting a chapter. They've been putting out flyers and posters to let people know of their existence, and would be happy to hear from others in the area who are members of the MNPS statewide organization but not affiliated with any chapter yet. They have a number of projects in mind, and are working on plans for exploring the Cabinet and Purcell Mountains. Anyone interested, please call Penny at 295-4043.



KELSEYA

KELSEYA is the newsletter of the Montana Native Plant Society, published quarterly. We welcome your articles, clippings, field trip reports, meeting notices, book reviews, cartoons or drawings - almost anything, in fact, that relates to our native plants or the Society.

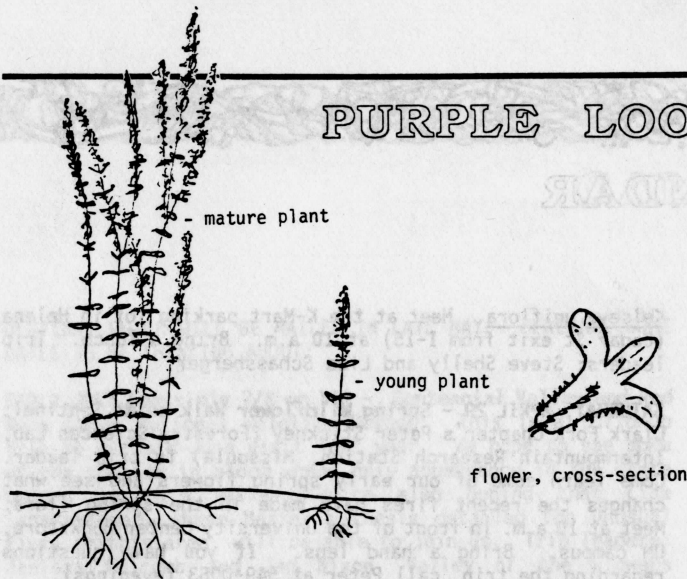
Drawings should be done in black ink with a fine-point pen. If you send clippings, please note the source, volume/issue and date. We especially need short (one to three paragraph) items which can be tucked in anywhere.

Advertising space is available in each issue at \$5/column inch. Ads must be camera-ready, and must meet the guidelines set by the Board of Directors for suitable subject matter: that is, related in some way to plants or the interests of MNPS members.

Deadline for the Summer issue is JUNE 9; newsletters will be mailed the last week of June. Send all material to: Jan Nixon, P O Box 992, Bozeman MT 59771-0992.

PURPLE LOOSESTRIFE ALERT

- Charlotte Heron



Purple loosestrife (*Lythrum salicaria*) is an erect, perennial wetland herb one-half to two meters tall with opposite, stemless leaves up to 10 cm long and reddish-purple flower spikes. This invasive and tenacious plant is cultivated as an ornamental in many areas because of its beauty. Bee keepers promote it as a honey plant and some nurseries erroneously offer it in their native wildflower seed mixes. It is possible to mail order the plant nationwide, and it is available locally as well.

This native of Europe was first introduced to North America in the early 1800s and has spread from New England north to Canada, south to Texas and west to California. It is present in North Dakota, Idaho, and throughout Washington. A few plants have now been found in the wild in Montana in Lake, Flathead and Cascade counties; the Department of Fish, Wildlife and Parks is concerned there may be a danger to our waterfowl production areas.

Purple loosestrife grows rapidly and sets seed heavily. It prefers moist fertile soil but tolerates a broad range and does well in full or partial sun. The flowers bloom June to September. In one study plants were mowed down in June and they resprouted and flowered in 46 days. A bloom spike may contain 3,000 flowers. Each fertilized flower produces a seed capsule containing a hundred seeds. An acre of purple loosestrife may contain 80,000 plants with the potential yield of 24 billion seeds. That is why only one sexually mature plant per square mile of wetland is defined as an "infestation."

It thrives in wet areas such as marshes, streams, ponds, ditchbanks, floodplains, and where native vegetation has been stressed or disturbed. Once established, seedlings can survive flooding in a half-meter of water.

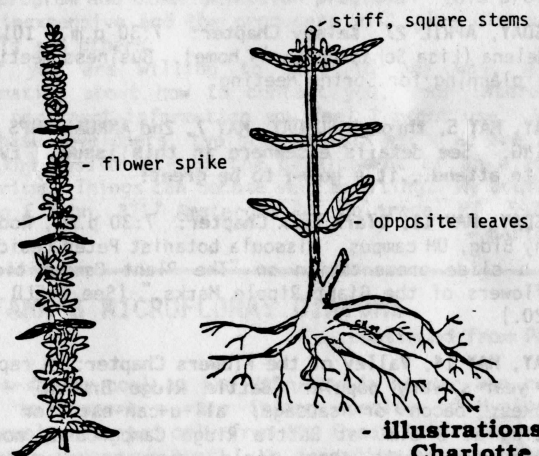
When its seeds fall onto water they sink. Upon germination they rise to the surface and float to the high water mark or travel downstream with the current. Muskrats, mink and migrating waterfowl can spread seeds or plant fragments which adhere to mud on their fur or feathers. Muskrats will cut the plant but don't eat it. Each piece of root, stem - even a leaf node - is capable of growing into a new plant which will eventually displace native cattail, canary grass, sedge, alder, willow, common reed and bulrush, resulting in an exotic monoculture.

The roots form a dense fibrous mat, making the area impenetrable to canoes and boats for recreation and excluding the desirable waterfowl food plants, thus reducing waterfowl production. The plants provide some cover but no birds have been observed to eat the seed. The bog turtle (*Clemmys mühlenbergii*) has lost the northern portions of its range in the eastern U.S. to the invading loosestrife. The black tern (*Chlidonias niger*) is declining in Wisconsin because of nest habitat shrinkage. Wild hay meadows are susceptible to invasion if they are marginal wetlands - too cold or poorly drained for cultivation. Wetland pastures that occur along floodplains and the periphery of marshes are highly vulnerable, and livestock find purple loosestrife much less palatable than the native grasses and sedges it displaces.

Southern Quebec has attempted to eradicate a five-square-mile stand of purple loosestrife for over 40 years by various natural, mechanical and chemical means, but it continues to be a chronic weed. It is highly unlikely that any population extending over three acres will be completely eradicated using presently known means. Plants can be hand pulled or sprayed with herbicide depending on time, workers and money available. Rodeo™ will kill purple loosestrife but it is non-specific and destroys other plant species as well. Dicamba and 2,4,-D have also been used on a limited basis in western irrigation ditches. Total coverage of the plant with herbicide is essential to kill it, otherwise it may resprout. Respraying each year is necessary due to the extensive seed bank. If the area can be drained and cultivated with power equipment, desirable food or cover crops may regain a foothold. If the infestation is first-year plants, many of them may be killed if the area can be flooded to a depth of one meter.

Often movement by vehicles or animals will spread stock from a single ornamental or garden planting to nearby wetlands. Varieties touted as sterile may only have reduced seed viability.

The best time to search for purple loosestrife escapees is in July and August when the plants are blooming. The reddish-purple flower spikes are easy to spot at a hundred meters, once the observer learns to recognize them. At



- illustrations by
Charlotte Heron

first glance, it is most likely to be confused with fireweed (*Epilobium angustifolium*), blue vervain (*Verbena hastata*) or blazing star (*Liatris*).

If purple loosestrife is positively identified, the plant or stand should be reported to the local weed control board or Department of Fish, Wildlife and Parks office.

Bibliography:

- Bender, J., "Stewardship Abstract," The Nature Conservancy, Midwest Regional Office, Minneapolis M, 6/27/86
- Bender, S., "Loosestrife is a Sure Thing," Southern Living, 8/85.
- Teale, E. W., "Stems beyond Counting, Flowers Unnumbered," Audubon Magazine, 7/82.
- Thompson, D.Q., and R.L. Stuckey, "Spread and Impact of *Lythrum salicaria* in North American Wetlands," Report, 1/80.
- Telephone conversation with Bev Gutman, President of Montana Association of Nurserymen, Missoula MT, 2/10/89.
- Telephone conversation with Barbara Mullin, Weed Coordinator, Montana Department Agriculture, Helena MT, 1/31/89.

Charlotte Heron, Missoula, is a freelance writer whose articles have appeared in The Mother Earth News and Montana Magazine. She and her husband, Willis, are active in the Clark Fork Chapter.

CALENDAR

MEETINGS

MONDAY, APRIL 10, Clark Fork Chapter: Joint meeting with Five Valleys Audubon, 7:30 p.m. at Washington School (Bancroft & Central) in Missoula. Steve Arno, ecologist at the Intermountain Forest Fire Laboratory, will discuss "Ecological Interactions between Whitebark Pine and Clark's Nutcrackers, Squirrels and Bears."

WEDNESDAY, APRIL 12, Valley of the Flowers Chapter: 7:30 p.m., Room 325, Leon Johnson Hall, MSU campus. Matt Lavin, plant systematist and curator of MSU Herbarium, will present a slide show/talk on "Travels of a Plant Systematist...Here, There and Cuba."

WEDNESDAY, APRIL 19, Flathead Chapter: 7 p.m., Montana Power Conference Room, 890 Meridian Rd, Kalispell. Ralph Waldt, summer naturalist at Pine Butte, will speak on rare-plant protection efforts in Montana, and specifically about the Whitefish Spruce Swamp.

WEDNESDAY, APRIL 19, UM Herbarium Night: 7:30 p.m., Room 303, Botany Bldg, UM campus. Meet the Lily Family of Montana with Kathy Ahlenslager.

THURSDAY, APRIL 27, Kelsey Chapter: 7:30 p.m., 1018 12th Av, Helena (Lisa Schassberger's home). Business meeting and final planning for Spring Meeting.

FRIDAY, MAY 5, through SUNDAY, MAY 7, 2nd ANNUAL MNPS SPRING MEETING: See details elsewhere in this issue. Everyone plan to attend...it's going to be great!

THURSDAY, MAY 11, Clark Fork Chapter: 7:30 p.m., Room 303, Botany Bldg, UM campus. Missoula botanist Peter Lesica will give a slide presentation on "The Plant Communities and Wildflowers of the Giant Ripple Marks." (See FIELD TRIPS, May 20.)

SUNDAY, MAY 14, Valley of the Flowers Chapter: A repeat of last year's very popular "Battle Ridge Brunch" - eggs, pancakes, bacon or sausage, all-u-can-eat for \$3.50. Starting at 9 a.m. at Battle Ridge Campground, north of Bridger Bowl, with short field trips to a variety of habitats following the feast. Reservations are required: call Stephen Harvey (586-1348, 994-4212), or Renee Cook (994-2903) by Thursday, May 11. Bring plate, cup and eating utensils plus a hand lens if you have one.

WEDNESDAY, MAY 17, Flathead Chapter: 7 p.m., Montana Power Conference Room, 890 Meridian Rd, Kalispell. Glacier National Park's Rachel Potter will discuss various revegetation projects in the Park.

WEDNESDAY, MAY 17, UM Herbarium Night: 7:30 p.m., Room 303, Botany Bldg, UM campus. What do kittentails, blue-eyed Marys, monkeyflowers, elephant heads and beardtongues have in common? Find out with Kathy Ahlenslager.

THURSDAY, JUNE 8, Clark Fork Chapter: 6:30 p.m., Pattee Canyon Picnic Area. The annual Spring Potluck. Bring a dish of your choice. Call Kathy Ahlenslager (542-0522) for more information.

FIELD TRIPS

SATURDAY, APRIL 15 - Stalking the Wily Kelseya: Kelsey Chapter offers us the chance to see our Society's mascot,

Kelseya uniflora. Meet at the K-Mart parking lot in Helena (Cedar St exit from I-15) at 10 a.m. Bring a lunch. Trip leaders: Steve Shelly and Lisa Schassberger.

SATURDAY, APRIL 29 - Spring Wildflower Walk on Mt Sentinel: Clark Fork Chapter's Peter Stickney (Forestry Sciences Lab, Intermountain Research Station, Missoula) is trip leader. Come learn some of our early spring flowers and see what changes the recent fires have made in the spring flora. Meet at 10 a.m. in front of the University Center Bookstore, UM campus. Bring a hand lens. If you have questions regarding the trip, call Peter at 549-0063 (evenings).

SUNDAY, MAY 14 - Battle Ridge Brunch: See MEETINGS for details.

SATURDAY, MAY 20 - Hike the Giant Ripple Marks of Camas Prairie: Flathead and Clark Fork Chapters joint trip. This spectacular geologic feature harbors a number of interesting plant communities including vernal pools and bunchgrass-buckwheat grasslands. Bring a lunch and meet at 11 a.m. at the pull-off just south of the summit of Markle Pass on Hwy 382, 13 miles north of Perma and 4 miles south of Hot Springs. If you need a ride or have questions, call Anne at 549-9203 (evenings).

FRIDAY, MAY 26, through MONDAY, MAY 29 - Pryor/Big Horn Mountains: This Memorial Weekend trip will look at one of the most botanically-interesting areas of Montana, where precipitation ranges from 20 inches down to six inches. Join us for part or all of the weekend: Friday night we'll camp at Palisades campground, on the West Fork of Rock Creek west of Red Lodge. Saturday morning, meet at the IGA parking lot, north end of Red Lodge, at 9 a.m. and the group will head eastward (down and drier) to Bridger, then to the Pryor Mountains. We'll camp Saturday night (and probably Sunday night) at the Big Horn Canyon Recreation Area (east side of the Big Horn River, east of Powell). Sunday we'll view a number of sites in the Big Horn Mountains, including (weather permitting) the Medicine Wheel. Monday we'll return through Red Lodge to Absarokee, then over the Stillwater/Bridger Creek divide. Dress for whatever weather may happen and bring food and water (probably no water available at the campgrounds). Also bring hand lens, notebook, pocket knife and (if you have one) plant press. Let trip leaders Stephen Harvey (586-1348, 994-4212wk) or Jan Nixon (587-0120wk, 587-2532) know you're coming by May 22.

SATURDAY, MAY 27 - Late Spring Forest Wildflowers: Joint field trip, Clark Fork Chapter and Five Valleys Audubon. Join John Pierce and Wil Kerling for a hike in the Rattlesnake Recreation Area and a look at some of our summer resident birds as well as wildflowers. Meet at the Recreation Area parking lot at 8:30 a.m. If you have questions, call John at 542-2640 evenings.

SATURDAY, JUNE 24, or SUNDAY, JUNE 25 - Wildflower Ramble on the Beartooth Plateau: Joint trip, Valley of the Flowers Chapter and Montana Wilderness Association, same trip each day. Join Jan Nixon for a look at "early spring" wildflowers in the alpine zone. Trip limited to 15 each day; please make reservations by Monday, June 19 (587-0120wk, 587-2532), or write P O Box 992, Bozeman MT 59771.

OTHER TRIPS ARE NOW IN THE PLANNING STAGES - A FINAL FIELD-TRIP LIST WILL BE INCLUDED IN THE REPORT OF THE ANNUAL

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CALENDAR

MEETING, WHICH WILL BE MAILED IN LATE MAY. HERE ARE SOME DATES TO BE THINKING ABOUT:

EARLY JULY (possibly 7/8 or 15) - Centennial Valley and Red Rock Lakes National Wildlife Refuge: This is a followup trip to our mid-June visit last year. We hope to see some of the species in bloom whose only appearance in the state occurs in this valley. We're also hoping that Lisa Schassberger, whose Master's thesis detailed the unusual flora of this area, will be able to join us. Trip leaders: Janissa Balcomb and Jan Nixon, Valley of the Flowers Chapter.

JULY 22 - A Look at Fire-Recovery vs Undisturbed Sites: Final location not yet set; we're looking at possible spots in the Madison Range south of Ennis or the upper Gallatin drainage near the north edge of Yellowstone Park. We plan to visit whatever site we pick for the next four or five summers, to document the changes. Valley of the Flowers Chapter and Montana Wilderness Assn joint trip, Renee' Cook trip leader.

LATE JULY OR EARLY AUGUST - Botanizing by Canoe in Southwestern Montana: Location for this trip not final yet either. Trip leader: Juanita Lichthardt, Valley of the Flowers Chapter.

ANNOUNCEMENTS

THIRD ANNUAL KNAPWEED PULLOUT, JULY 11

For the third year in a row, we're "getting a handle" on spotted knapweed and other nasties at the Kirk Hill Nature Area, just off S 19th Road, south of Bozeman. A joint effort of the Museum of the Rockies volunteers and staff, Sacajawea Audubon Society and Valley of the Flowers Chapter, we're continuing an intensive program of hand cultivation aimed at doing away with undesirable invasive species while protecting the outstanding plant diversity of this Nature Area. Come join us from 6-9 p.m., or as much time as you can spare that evening. A screwdriver makes an ideal digging tool, and you may want gloves as well. Ice cold lemonade will be provided. There will be a regular Tuesday-evening weeding crew at work throughout the summer from mid-June on, so if you can't make it on the 11th, any Tuesday from 6 p.m. until dark there'll be someone there to show you where and what to pull.

PLANT IDENTIFICATION BY PERSONAL COMPUTER

A program is being developed that will allow use of personal computers to identify Montana seed plants that have a specific character or groups of characters. Computer file(s) of any group of plants may be used for a search. The request for plant(s) with specific characters must fit exactly the character(s) listed in the data base. To reduce the size of files and the chances of typing errors of technical names and terminology, a paper has been developed that provides character descriptor codes. The codes, of letters and numbers, are very simple and easily used. For instance, the code plb2 would select upright shrubs. Selecting plb would select all shrubs; pl would select all woody plants.

Help is needed to develop a good data base for Montana seed plants. Identification keys with species descriptions are a rich source of characteristics. Listings of plant descriptors as codes may be drawn from such sources, or from characters that you have learned personally or that are

evident from a specimen available to you.

Drs Duncan and Meacham at the University of California Berkeley Herbarium are developing data bases for plants throughout the world. Their program is limited in descriptors and the capability to use other information about a plant it is evident that much of their information will be in public domain, and available to us. Although I haven't been able to load their program as yet, I believe our system is simpler than theirs and the same information will be easier to get.

There are fewer than 2500 species of seed plants described for Montana. The more help we get in developing a data base for personal computers the faster we can offer a meaningful program to individuals, public libraries, schools, etc. I am willing to act as coordinator for exchange and development of ideas and materials. I have a Kaypro with a 20 megabyte hard disk with MS/DOS WordStar, WordPerfect and Windows word processor programs. The two first-mentioned word processors have programs to convert other word processor text files to their programs. Freefile (copyrighted and not free) is very easy to use for this program and other selection programs. This program is also inexpensive and the producers will give discounts to schools and others.

If you are willing to help in any way, give me information about how to contact you, your interest and other pertinent information you feel I might use. We need data base developers, typists, artists etc. We are looking into the possibility of the development of an electronic herbarium. Things can become very exciting. My address is: Barton E Hahn, 2717 Amsterdam Rd, Belgrade, MT 59714.

- Barton Hahn

MONTANA'S MICROFLORA: DIATOMS

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A warm-spring pool on the Utah/Nevada border was recently found to support a rare inland species of *Hyalodiscus*, previously reported only from the Great Salt Lake.

For a monograph that I am preparing on the diatoms of Montana, I would welcome diatom collections from unusual or out-of-the-way aquatic habitats, including springs (hot or cold), potholes, saline seeps, bogs, fens and remote mountain lakes and streams. The collection of diatom samples is very simple: a pocket knife and a water-tight container are about all you need. If you would like to help advance our knowledge of Montana's diatom flora, please give me a call at (406) 444-2406 or write to me at the Water Quality Bureau, Montana Department of Health and Environmental Sciences, Room A-206 Cogswell Bldg, Helena MT 59620.

Sources/further reading:

Patrick, R. and C.W.Reimer, 1966. The diatoms of the United States. The Academy of Natural Sciences of Philadelphia, Monograph 13, 688 pp.
Werner, Deitrich (ed.), 1977. The biology of diatoms. University of California Press, Berkeley, 498 pp.

Loren Bahls, Helena, is supervisor of the Water Quality Management Section, Water Quality Bureau of the State Environmental Sciences Division, and a member of our newest chapter, Kelsey. He comments: "Working with wee creatures has at least one advantage: I can carry my herbarium under one arm and stow it in a corner of my office. One drawback is that I don't know what I have in a field collection until I take it home and look at it under a microscope."



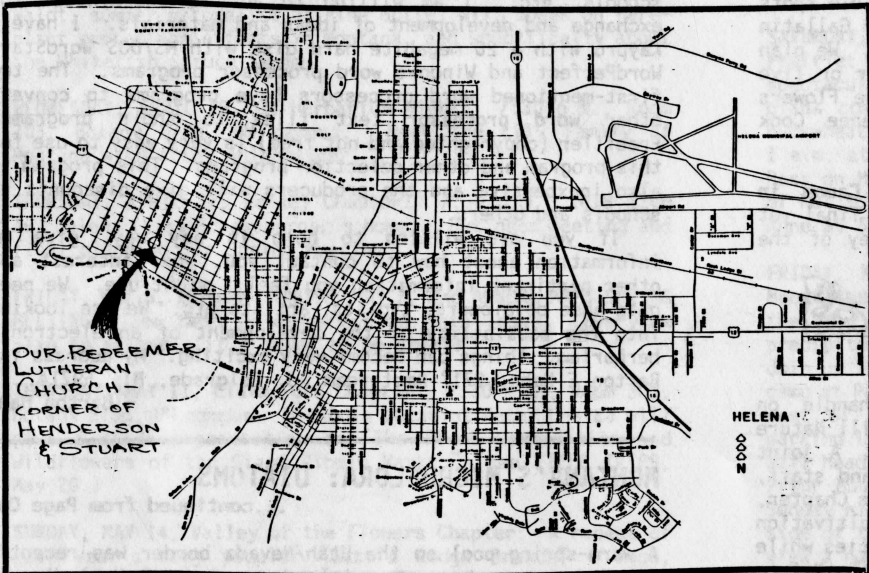
2ND ANNUAL SPRING MEETING

TENTATIVE SCHEDULE

All sessions will be held at Our Redeemer Lutheran Church, 800 Henderson, corner of Henderson and Stuart (see map) in Helena.

FRIDAY, MAY 5

- 6:45 pm Registration and check-in of Silent Auction* items
- 7:00 pm Introductions and welcome
- 7:30 p.m. Choice of:
Hands-on drawing workshop, by Falcon Press artist, DeeDee Dowden;
Movie (possible titles are "Hidden Power of Plants", "Biodiversity," or "Garden of Eden.")



SATURDAY, MAY 6

- Breakfast on your own; coffee, tea and juice will be available at the meeting.
- 8 am on Registration and check-in of Silent Auction* items
- 8:30 a.m. Installation of new officers
- 9am-noon One-hour workshops including basic plant ID (Anne Bradley, Lisa Larson, Peter Stickney); mosses (Joe Elliott); sensitive plants (Steve Shelly, Pete Lesica); possibly one more. Will be set up so you can rotate among the workshops being offered.
- 12-1:30pm Lunch on your own
- 1:30pm Keynote Speaker: Joe Duft, Interagency Fire Control Center, Boise, Idaho. Joe has long been an active participant in and leader of the Pahove Chapter of the Idaho Native Plant Society, and has done extensive gardening with native plant species.
- 2:15-4pm Committee and "interest-group" meetings.
- 4-5 pm General membership meeting and report from committees.
- 6:30-8pm Potluck supper - Kelsey Chapter will supply main dishes; out-of-towners bring salads or desserts. Everyone bring plates and serving/eating utensils.
- 7:30 pm Close of Silent Auction
- 8 pm Photography workshop and slide show - Steve Wirt and Maria Ash will show some of their own slides of western Montana plants, as well as a number of Dee Strickler's slides.

SUNDAY, MAY 7

- Breakfast on your own
- Field trips - choice of:
9am-noon Spring wildflowers - Steve Shelly
9am-1pm Mosses (in the York area) - Joe Elliott

*SILENT AUCTION

Start thinking now about items you can bring to donate for the Silent Auction...such as live plants, photos, books, gardening supplies, homemade goodies, weavings, gift certificates...let your imagination run wild and make this year's Silent Auction an even bigger success than it was last year! Chapters and individuals should canvass local nurseries, bookstores, restaurants, etc, for donations. All donors who make a commitment to give something by Friday, April 28, will be listed on the Annual Meeting Program with our thanks. And don't forget donations are tax-deductible! Let Lisa Schassberger (444-3009) know the names of your donors for inclusion on the program.

DO YOU NEED A PLACE TO STAY?

Kelsey Chapter is compiling a list of people who have room for out-of-towners to spread out a sleeping bag on Friday and/or Saturday night. Lisa Schassberger is the contact for this also. Call her ahead of time, or find out what's available when you register for the meeting.

WHY 'VALLEY OF THE FLOWERS' CHAPTER?

-Anne Banks

Why does the Southwest Montana chapter claim the title "Valley of the Flowers" when flower-filled valleys abound in Montana? Bozeman pioneer E Lina Houston tells the tale in her Early History of Gallatin County, Montana:

"There was an early tradition among the Indians of Montana that Gallatin Valley, called by them the "Valley of the Flowers," was neutral ground. The name seems appropriate because of the great variety of wild flowers found on the mountain sides as well as in the valley. According to the tradition told to early pioneers by John Richau, a half breed Indian, in ages past a band of Sioux and a band of Nez Perces, deadly enemies, met in Bridger Canyon and spent two days fighting. While they were in deadly combat the third day, darkness overspread the sun and a strange noise seemed to come from the heavens. The contending warriors stood spellbound as a sweet voice was heard singing and a white flame appeared on top of the mountain, since called Mount Bridger. The flame settled on "Maiden Rock," where the figure of a maiden was seen as the darkness disappeared. In a strange language all seemed to understand, she said, in part: 'Warriors, children of the Great Spirit, sheath the hatchet and unstring the bow. Shed not the blood of your brothers here lest it mingle with yonder foaming water and defile the Valley of Flowers below. There must be no war in the Valley of Flowers, all must be peace, rest and love. The Spirit Maiden has spoken the words of the Great Spirit.' According to Mr Richau, the truce of that day has been sacredly observed by the Indians."

Anne Banks, Bozeman, is a freelance writer, avid hiker and flower-watcher, and an active member of Valley of the Flowers Chapter.



BITTERROOTS

BABIED

- Kim Williams; submitted
by Steve Wirt

[Many readers are familiar with the late Kim Williams' work, whether through books, NPR appearances, wildflower walks, or newspaper articles such as this reprint of her column "Tidbits" from the Missoulian, which was passed along to us by Steve Wirt. Thanks, Steve, for sharing this with us!]

"It's not hard to grow bitterroots. In fact, it's easy," said Lee Magone... [Missoula] as he showed me a bitterroot plant with 29 flowers on it, some open, some faded, some in bud. Another plant had 22 buds and blooms.

The patch of bitterroot was a solid pink mass. And it was not in a rock garden. That's what amazed me. I thought you needed a bare, rocky slope to grow bitterroot. Now I have to say you don't need a bare, rocky slope or isolated rock garden to grow Lewisia rediviva.

Lee had his bitterroot, grown from seed, in good soil, even fertilized - steer manure added prior to planting of the seeds. There was a rosebush just past the bitterroot plot, and a border of nasturtium. This tells you that the area gets watered. Again, I was surprised.

"Yes, we water," Lee said. "Grace waters her nasturtiums quite abundantly. I keep my eye on the bitterroots, and when they look dry I give them water, sometimes only once in 10 days, sometimes more often. They don't seem to mind water."

Perhaps the idea that bitterroot will do well only on bare, rocky hillsides or dry, hard ground is due to the fact that those areas generally are where we find the plant in the wild. That could very likely be a matter of survival. Perhaps the bitterroot has been eliminated in the more accessible or more fertile areas.

One thing I did notice about Lee's bitterroot beds: the soil was sandy, the type you would call well-drained.

Lee gave me some other pointers for growing bitterroots successfully. "Plant the seeds in the fall," he said. "I've had no luck at all with spring planting. And plant close to the surface. I tilled the ground, sprinkled the seeds and just barely covered them with soil. Then I put a wire screen over the flowerbed to keep the cats out."

Lee puts this screen, built on a wood frame so it sits about six inches off the ground, over the bitterroots after they finish blooming. The screen keeps cats from digging up the plants when they are in the hibernation stage. This is a stage when many gardeners lose plants; they simply seem to disappear. The truth is the plants do disappear - all but the underground root which is fleshy and perennial.

I would suggest, for those people who want to try their hand at growing Montana's state flower, to follow Lee Magone's example. Keep the bitterroot bed well-outlined, separated from other plants, and cover it with a screen frame (large mesh - chicken-wire type). The screen frame will perform two duties: it will keep the cats from digging up the plants and will keep you from digging up your plants. You might forget where they were and start tilling the ground, or weeding, and the little roots would fly through the air.

Winter freeze can also un-root your plants, especially if the soil is not well drained. The frost will heave smaller plants right out of the ground. You'll have to watch and re-plant if this happens.

A south exposure is good because bitterroots need plenty of sun to bloom properly. And of course the flowers close



BITTERROOT
THE MONTANA STATE FLOWER
LEWISIA REDIVIVA
MONTANA STATE COLLEGE HERBARIUM
BOZEMAN, MONTANA

illustrations by
Frederica E Marshall

on cloudy days and at night. You have to invite your friends over on sunny days to view your patch of pink.

Lee saves seed and gives it to friends - when the plants produce seed. Last year the plants didn't produce any seed. I'd like to see bitterroot seed sold at the Farmers Market or at local seed shops. If this beautiful flower will grow in ordinary gardens we should be growing it as regularly as anemones or phlox or primroses. Just plant the seed and grow the plants.

Please do not transplant from the wild. We want to increase the number of bitterroots, not just transfer them. Leave those established plants for hikers to admire. You can collect some seed if you wish, from the tiny faded paper-like ovaries (if you can find any). Otherwise, let's start a market going: some people will sell seeds, others will buy. Planting will start in gardens and flowerbeds.

I want to walk around town in a few years and feast my eyes on Montana's state flower - up and down the streets right in the middle of the city.

PLEASE WELCOME THESE NEW MNPS MEMBERS:

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MORAN

Katy Duffy



The masthead for this issue is the second of three in the competition for the "official" drawing of our mascot plant, *Kelseya uniflora*. This design was submitted by Anne Morley of the Flathead Chapter. All MNPS members will have a chance to vote for their favorite masthead at the Spring Meeting in Helena.

Richard Prodgers
2715 Ottawa
Butte MT 59701

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REJOICE

IN THE YEAR OF THE WILDFLOWER

- Carol J Morris

The National Garden Bureau, a nonprofit garden group, has declared 1989 "The Year of the Wildflower." Of course, national garden magazines and seed companies will feature wildflower gardens this year. But what does this mean to you native plant enthusiasts?

You or your MNPS chapter may opt to join in celebrating the wildflower year. How? You can offer programs in your town, educating the public on conservation issues and the preservation of endangered species such as the rare pygmy poppy found high in Glacier Park. Members might go to schools and help students identify wildflowers or lead field trips to native plant habitats.

By publicizing slide shows of wildflowers and inviting the public to participate, members can demonstrate how plant communities may be photographed and enjoyed, yet preserved. Teaching others to treat wildflowers with respect is one way to ensure the future of Montana's native plants, for the enjoyment of generations to come.

Some chapters may gather seed and propagate plants for distribution to those with wildflower gardens. In many areas there's an interest in programs offering tips on successful gardening with native

plants. Does your local library have adequate wildflower books for novice plant-lovers? If not, a chapter fundraiser might enable you to donate some up-to-date publications illustrating and explaining Montana's colorful flora.

In this, Montana's Centennial year, what could be more appropriate? Let us celebrate the wildflower plants that have graced our landscape for centuries - long before the first settlers came.

Carol Morris, Missoula, is a free-lance writer and Secretary-Treasurer of the Clark Fork Chapter of MNPS. In addition to prior appearances in KELSEYA, an article of hers on MNPS will appear in a forthcoming Montana Magazine.



FREDERICA MARSHALL, WILDFLOWER
PAINTER EXTRAORDINAIRE

An exhibit of the work of Frederica Marshall - first director of the Department of Art at Montana State College, starting in 1896 - will be jointly sponsored by Montana State University and the Valley of the Flowers Chapter June 19-July 14, 1989, at the Haynes Hall Gallery, S 11th Ave on the MSU campus. An opening reception is scheduled on Tuesday, June 20, at the Gallery from 6-7 p.m., followed by a slide show and discussion of her work. Among the more than 300 wildflower paintings and other work Mrs Marshall left to MSC is her copyrighted "official" drawing of the state flower, *Lewisia rediviva*, the bitterroot. Call Mary Ann Kelly (587-8554) for more information.

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