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Spring 1999

### 1999 Friends of The University of Montana Herbarium Newsletter

Peter Lesica

David Dyer

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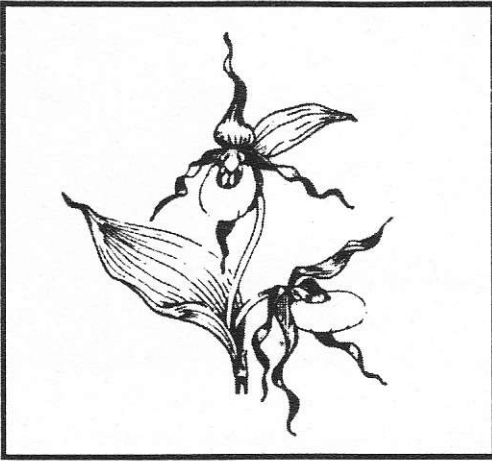
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# FRIENDS

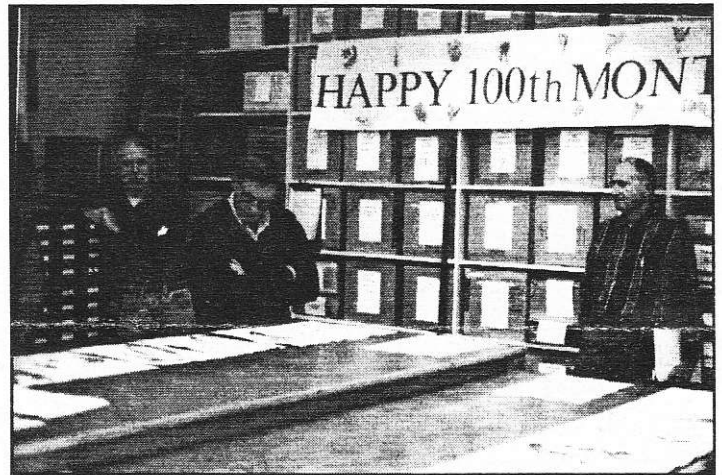
*of The University  
of Montana*

# HERBARIUM

Spring 1999

## MONTU Celebrates One Hundredth Anniversary

The University of Montana Herbarium was founded by Morton Elrod, shortly after his arrival at UM in 1897. Last November 7 approximately 30 people got together to celebrate MONTU's 100th anniversary as part of the Friends of the UM Herbarium annual meeting. Attendees included retired faculty Charles Miller and James Habeck, Randall Terry, the current systematics professor, and Kathy Ahlenslager, the former collections manager who drove over from eastern Washington to join the celebration. After a Board of Directors meeting we had a pizza lunch and listened while Jim Habeck summarized his recent historical research into the lives and times of botany, biology and the herbarium at The University of Montana. Jim had many good stories as well as a handout with faculty pictures taken over 30 years ago, including one of himself in which he looks a lot like Buddy Holly, if you can imagine that. After lunch had settled we viewed a display of Kelsey and Anderson herbarium specimens made around Helena and Great Falls in the 1880's and



*Peter Lesica, Joe Elliott, and Peter Stickney celebrate the 100th Anniversary of The UM Herbarium on Nov. 7th, 1998.*

got a demonstration of the INVADERS weed database website that got its start years ago in the herbarium. We finished by watching a film on the role of Missouri Botanical Garden's herbarium in tropical conservation. We all went away primed for the next 100 years. (Articles on the UM Herbarium appeared in the *Great Falls Tribune*, 29 Nov 98 and the *Missoulian*, 31 Jan 99).

*(See article on the history of The UM Herbarium on p. 3)*

## *Thank You!*

*The following individuals and organizations have become new members or contributed to the Cabinet Fund, between the last newsletter and April 1, 1999:*

Loren Bahls  
Clark Fork Chapter—  
MT Native Plant  
Society  
Weber Greiser

Shannon Kimball  
Scott Mincemoyer  
Rocky Mountain Elk  
Foundation  
Peter Stickney

### 1999 FRIENDS OF THE UM HERBARIUM ANNUAL MEETING

The Annual meeting of the Friends of the UM Herbarium will be held Saturday, November 20, from 10a.m. to 2 p.m.

The meeting will be held in Room 202 of the Natural Sciences (Botany) Building on the UM Campus. This is the annual meeting of the Board of Directors and is open to the membership.

## FRIENDS

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of Montana

HERBARIUM



**BIOLOGICAL SCIENCES  
UNIVERSITY OF  
MONTANA  
MISSOULA, MT 59812**

*The Mission of the  
Friends is to secure  
support for and to enrich  
the collections and  
operations of  
The UM Herbarium.*

### BOARD OF DIRECTORS

Joe Elliot  
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The *Friends Newsletter* is edited by  
Peter Lesica and David Dyer.  
Layout by Kim Todd

## Notes from The Board

*The U of M Herbarium is useful to the Montana farmer and rancher. It is a catalog of plant life growing in the state. Much of the business of agriculture is growing the plants that become the food for people and feed for live-stock.*

*I do not know if the UM Herbarium has been used by genetic engineers searching for specific plant characteristics. It will almost certainly be used for this purpose in the future. At the present time there is a full-blown debate going on about the merits of genetically engineered crops. Genetic engineering has been a fast growing field with huge investments being made. Herbaria in general have been important to this development.*

*Plant identification is a basic aspect of crop and range science. Use of a herbarium is important to the researcher and instructor in range science, weed control and poisonous plant study. The range manager needs to know if the desired plants are increasing or decreasing, and if decreasing, whether it is because of new invader plants. The range manager also needs to be aware of noxious weed infestations. Thus, the herbarium is a useful resource for the agricultural community. -- H. Bruce Maclay*

## 1998 EVENTS

The Clark Fork Chapter of the Montana Native Plant Society held three Herbarium Nights in 1998. In January, former grad student Andrea Pipp brought in a bunch of lichens she collected and put them under microscopes to show members their anatomy. That following Saturday, Joe Elliott showed many of the same members the wonders of moss anatomy, and we set out on a field trip into Hellgate Canyon to see how many species of mosses and lichens we could find. The next month, Peter Stickney reviewed the state's mariposas and sego lilies, and we used the collections to compile range maps. In March, members keyed out locoweeds and milkvetches, members of Montana's second largest genus, *Astragalus*.



# A History of the Herbarium at The University of Montana

By James Habeck

MONTU, The University of Montana Herbarium, was originally part of UM's first museum. The biology curriculum was taught and the first museum efforts took place in University Hall (Main Hall). Morton J. Elrod began his 38 year career at the University of Montana in February, 1897. He was assigned the life sciences (botany, zoology, biology) with the title: Professor of Biology. Elrod's space included rooms in the basement and partially on the first floor. Whether he was assigned the task by the president of the university or took it upon himself, Morton Elrod almost immediately began to accumulate museum materials that represented "resources of Montana." This involved collecting and gathering specimens representative of the state's geology, fauna and flora. Early day UM catalogs (1895-1909) include descriptive narratives written by Elrod of the museum collections, their availability to, and use by students. Turn-of-the-century university catalogs routinely listed origins and contributors of any item added to the museum collections. For example, Joseph Blankenship, pioneer botanist at Montana State University, Bozeman, is listed as the donor of about 250 plant specimens. Most of these materials were collected in Montana.

I suspect that Dr. Elrod collected and photographed

spring flora with the help of undergrads during the academic year but continued to make collections during summer months. In later years he was a summer naturalist in Glacier Park. The University of Montana began a summer biological station at Bigfork in 1899, located on the banks of the Swan River near where it flows into Flathead Lake. Dr. Elrod was assigned to launch this venture. The Biological Station's original role was as an investigative and research facility. This apparently included documented collections of plants, fish, birds, mammals etc., which were likely housed in the main campus museum. Shortly after the UM Biological Station was up and running, it began publishing monographs of species collections based on specimens housed at the UM Museum.

Joseph Kirkwood was hired to chair the newly established Department of Botany around 1910. His later publications demonstrate his interest in plant taxonomy, plant geography, and plant ecology, and there are many of his vascular plant collections in MONTU, many from the Selway-Bitterroot. Elrod and Kirkwood were encouraged to increase public service by identifying seeds, plants and plant diseases sent by citizens, teachers and various professionals. MONTU no doubt served as a reference collection for these plant determinations.

Kirkwood died in the summer of 1928 while conducting

(Continued on page 6)



## MONTU PEOPLE

### Clark Schaak

Many botanists have studied the spectacular taxonomic diversity of the Snapdragon Family (Scrophulariaceae) in western North America. David Keck, Francis Pennell and Noel Holmgren spent much of their careers working with groups such as *Penstemon*, *Pedicularis*, and *Castilleja*. The smaller but no less interesting group of *Synthyris* and *Besseyia* were most recently studied here at the University of Montana in the 1970's by Clark Schaack.

Clark grew up in Mineral Point, Wisconsin, a small town in the southwest corner of the state. He left Wisconsin in the early 1960's and did undergraduate work in botany at Northern Arizona State University at Flagstaff. He started graduate work at Washington State University in 1966 under Marion Ownby but was forced to leave and return to Wisconsin for a medical operation. He returned to Flagstaff in 1967

(Continued on page 4)



Clark Schaak with a canine buddy.

# ...Clark Schaak

(Continued from page 3)

## New Acquisitions

The UM herbarium received a total of 650 specimens for accession in 1998. These include exchange material: 145 from the **University of Idaho** (Idaho) and 312 from **New York Botanical Garden** (western U.S.), including isotypes of *Penstemon tiehmii* and *Cercocarpus ledifolius* var. *intermontanus*. **Charles Sheviak** (New York State Museum) contributed 4 specimens of the Federally-listed *Spiranthes diluvialis*; **J. B. Phipps** (University of Western Ontario) contributed 42 specimens of *Crataegus*; **Jim Vanderhorst** (Montana Natural Heritage Program) contributed 81 specimens from Montana; **Peter Lesica** submitted ca. 240 specimens with duplicates from throughout Montana, and **Andrea Pipp** donated 64 lichen specimens from her MS thesis work in Washington.

## Loans for Research

The UM Herbarium sent out seven loans to researchers in 1998. In addition MONTU loaned a teaching collection to the U.S.

Forest Service to train technicians conducting avian ecology research.

**Richard Halse**, Oregon State University--  
*Antennaria*, *Carex*, *Hieracium*

**Maria Mantas**, Flathead National Forest--  
*Botrychium* (annotation by W.H. Wagner)

**Sylvia Kelso**, Colorado College--*Primula*

**Theodore Cochrane**, University of Wisconsin--  
*Carex*

**Larry Hufford**, Washington State University--*Synthyris*

**Rupert Barneby**, New York Botanical Garden--*Lupinus*, *Oxytropis*

**Debbie McNiel**-- specimens for illustrating  
*Flora of Glacier National Park*

## Publications

Mantas, M. 1998. *Vascular flora of the Flathead National Forest*. Flathead National Forest, Kalispell, MT.

Shelly, J. S., P. Lesica, P. G. Wolf, P. S. Soltis, and D. E. Soltis. 1998. "Systematic studies and conservation status of *Claytonia lanceolata* var. *flava* (Portulacaceae)." *Madrono* 45: 64-74.

and began graduate school. During this time he met and married his wife Barbara. He received an M.S. degree in 1970 for his study of the alpine flora of the San Francisco Peaks, a high isolated range just outside of Flagstaff. He discovered two state records doing this study and published the results in a special issue of the journal *Madrono* in 1983.

Clark and Barbara moved to Missoula, and Clark began a PhD program under Robert Irving. Art Kruckeberg at the University of Washington suggested that the genus *Synthyris* needed study, so Clark set to work. Over the next six years he collected specimens of *Besseya* and *Synthyris* throughout the West, attempting to visit hybrid populations and type localities. He and Peter Stickney collaborated on a paper for the Montana Academy of Sciences that delineated the type locality for the Montana endemic *Synthyris canbyi* in the Mission Mountains. In Montana he visited the Bitterroot, Bridger, Mission and Swan ranges. During the winters he conducted taxonomic analyses using morphology, cytology, flavanoid chemistry and hybridization between members of the group. Clark worked as a teaching assistant during parts of the school years, helping LeRoy Harvey teach undergraduate plant taxonomy. His wife Barbara worked for the School of Forestry during this time. Although field and lab work went well Clark had bad luck with his advisors. Robert Irving, Clark's original advisor, left in the early 1970's. Tom Watson took over as Clark's advisor in 1974 but he was denied tenure and left after only a few years. Without a stable advisory committee Clark was unable to complete his dissertation, so in 1977 he and Barbara returned to Flagstaff.

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**"Over the next six years he collected specimens of *Besseya* and *Synthyris* throughout the West, attempting to visit hybrid populations and type localities."**

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For the next ten years, Clark was an adjunct faculty with the herbarium at Northern Arizona State. He taught summer courses in botany, worked at the arboretum and as a gardener on the campus. He finished his PhD dissertation and returned to Missoula in 1983 to defend it with a new committee headed by Sherman Preece. He was awarded a PhD that same year for his monographic treatment of *Synthyris* and *Besseya*. Although never officially on the faculty of Northern Arizona State, Clark helped many botany students, including Mike Windham who went on to become curator of the herbarium at the University of Utah.

In 1987 Clark's parents became ill, so he and Barbara moved to Madison, Wisconsin to help out, and they have been there ever since. Clark became an adjunct faculty and went to work for Hugh Iltis at the University of Wisconsin Herbarium, while Barbara got a job as support staff with the Botany Department. The University of Wisconsin obtained the Catholic University herbarium, and for 2 years Clark worked on integrating it into the main holdings and moving all the specimens into new compactor cabinets. Since then he has been working as a free-lance photographer and a rock gardener at the Oldrich Botanical Garden. He is also using his photography skills and his knowledge of plants to produce a popular wildflower guide for the north-central U.S.

# Floristic Surprises in North America

By Barbara Ertter, University of California

(from a talk delivered at the Missouri Botanical Garden, 10 Oct. 1998)

The assumption that the North American flora has already been fully explored and catalogued, with nothing of consequence left to discover, is no more true today than it was 100 years ago. Granted, the ongoing discoveries tend to be the rarest of the rare, but this only increases their significance in an era dominated by land-use management decisions that will irrevocably determine the fate of our floristic heritage.

Even for those botanists who are most actively involved in describing new taxa from North America north of Mexico, the sheer magnitude comes as a surprise. In a new publication, Hartman and Nelson of the Rocky Mountain Herbarium tallied 1,197 vascular plant taxa described from 1975 through 1994. This translates into approximately 60 per year, and the rate has remained remarkably steady. This suggests that at least 1,800 taxa, nearly 5% of the total North American vascular flora, are still undescribed.

Furthermore, while most discoveries do in fact result from explorations of remote areas and/or monographic revisions, a surprising number result from new discoveries in well-populated and well-botanized areas: *Ionactis caelestis* within sight of Las Vegas, *Nevisia cliftonii* along a well-travelled highway, *Clematis morefieldii* within the city limits of Huntsville, Alabama, *Lomatium observatorium* among the buildings of Lick Observatory near San Jose. Some are even distinct enough to qualify as monotypic genera, the most recent being *Sibaropsis hammittii* from southern California. Nor are dramatic discoveries limited to vascular plants. *Verrucaria tavaerisae* described just last year

from the central California coast, is noteworthy not only in being one of the few known marine lichens, but the only one with a brown algal symbiont.

So who is doing the discovering and describing? A diverse crowd, consisting of emeriti, museum-based systematists, agency biologists, environmental consultants, and amateur

enthusiasts. It might be argued that the increasing pool of para-systematists will suffice, but this neglects the reality that para-systematists get their start as a result of encouragement and training from regionally-based professional systematists actively involved in the local flora. Without a professional core the system is in danger of collapsing, or at the very least

suffering from a lack of professional-level training and quality control. In this light it is particularly ominous that the largest herbaria in two states, Montana and Nevada, lack faculty-level systematists, and that not a single faculty-level systematist in Colorado is actively involved in describing the regional flora. This is a direct result of the fact that the current academic infrastructure actually discourages alpha taxonomy on the regional flora.

What taxonomists have been up to is nothing less than one of the most massive scientific endeavors ever undertaken: namely a centuries-long, internationally collaborative effort to model global biodiversity. If this does not qualify as "Big Science," I don't know what does! In an era when crucial decisions are being made that will determine the face of life on the planet, it is imperative that these decisions be made with the most comprehensive information possible. It is bad enough that we risk losing 5% of the floristic diversity in our national "backyard" by ignorance alone; if this be willful ignorance, then we have only ourselves to blame.

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**"While most discoveries do in fact result from explorations of remote areas and/or monographic revisions, a surprising number result from new discoveries in well-populated and well-botanized areas..."**

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## IN MEMORIUM--REED ROLLINS

Reed Rollins, foremost expert on the Mustard Family in North America died last April at the age of 86. He was a native of Wyoming who taught systematics and genetics at Stanford and was director of Harvard's Gray Herbarium from 1948 until 1978. Reed was always willing to put aside his own work to help others. In 1982 Klaus Lackschewitz sent some puzzling specimens to Rollins, who responded by saying they were undescribed species. In the summer of 1983 Reed, his wife and sister climbed St. Mary's Peak in the Bitterroot to collect plants, and a year later he published a new *Arabis*, two new *Lesquerellas* and two new *Physarias* from Montana, most based on collections at MONTU. Ten years later he described two more new *Lesquerellas* from the state. His monograph on the *Cruciferae* of North America was published in 1993. There is no one who can replace him.



## VISITORS TO MONTU

There were 43 recorded visitors to the UM Herbarium in 1998, including the following:

**U.S. Forest Service**— Darlene Lavelle, Scott Mincemoyer, Peter Stickney

**Glacier National Park**— Shannon Kimball

**Montana Natural Heritage Program**— Jack Greenlee, Bonnie Heidel, Jim Vanderhorst

**MSU Extension Service**— Helen Atthowe

**Montana Crime Lab**— Annalivia Harns

**Consultants**— Scott Miles (Riparian Resources), John Pierce, Lisa Roe

**UM Researchers**— Mark Behan, Scott Godfrey, Marilyn Marler, Randall Terry, Cathy Zabinski

**UM students**— Will Grant, Monique Kolster, Alison Perkins, October Seastone, Pamela Wilson

Nathan Beckwith, a teacher at Victor High School stopped by as did Gary Jahrig from the Missoulian and J. Stendler from Florida. Betty & Ned Lowry from Renton, WA came with Polly & Mike Stone from Loch Ness, Scotland to have a look at our *Phlox* and *Synthyris*.



## ...History of the Herbarium

(Continued from page 3)

studies on Flathead Lake. Between 1928 and 1931 the herbarium was under the direction of Esther Larsen, a former UM graduate and PhD student at Missouri Botanical Gardens, and Francis Pennell filled in for one year prior to the arrival of C. L. Hitchcock in 1932.

C. Leo Hitchcock undertook the reorganization of the herbarium which, along with the zoological museum, had been moved to the east side of the second floor of the Natural Sciences Building in the 1920's. Hitchcock exchanged specimens with and processed loans to other herbaria. He began adding steel cases to supplement the wooden ones, but there wasn't much space. It's likely the director's office, mounting tables and storage space for specimens and material were all in that same small room. Hitchcock was a major collector who took many sets of duplicates and exchanged these with other herbaria. The 1934 annual report states: "about 1,200 specimens were mounted by means of C.W.A. labor" (paid for by the Federal Government during the Depression Era); a precursor of our modern-day "work study."

By autumn of 1937 Hitchcock had been replaced by Fred Barkley who was working on a monograph of the Family Anacardiaceae. During 1938-39 Barkley added 4,000 sheets to the herbarium and sent out 6,000 sheets for exchange to other herbaria.

Barkley left in 1942 and officially resigned in 1945. He was replaced by LeRoy Harvey in 1946, shortly after his discharge from the army. He continued to replace wooden cabinets with steel cases. As he transferred the collections he discarded many specimens that had inadequate label data. He added 10,000-12,000 new specimens; 1,500 of which were from Glacier National Park and western Montana. Harvey spent a lot of time assembling teaching collections for the Missoula campus and the UM Biological Station. The Natural Sciences Building was vacated by all but the Botany

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**"The UM Herbarium has become a more valuable asset to The University and the Montana public with the encroachment of exotic species into native communities."**

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Department in the late 1950's. By then the 40-year-old building was worn and tattered. In the course of remodeling and repair the herbarium was moved from the second to the third floor, where it resides to this day. Harvey continued to add specimen cases until he retired in 1977.

Robert Irving was hired to replace Harvey, and he, in turn, was soon replaced by Tom Watson who was trained at the University of Texas in the new field of chemical taxonomy. Watson studied the distribution of endangered species, but after a few years he also departed UM. In 1981 Kathleen Peterson was recruited to teach plant systematics and be Director of the Herbarium. It was during this time that MONTU accessioned its 100,000th specimen. Peterson also created the position of Collections Manager and hired Kathy Ahlenslager, her former graduate student to fill the post. Peterson resigned in 1988, and the herbarium has been curated by the collections manager since that time. After Ahlenslager left in 1990, Dave Dyer was hired in 1993 to manage both the zoology museum and the herbarium.

The UM Herbarium has become a more valuable asset to The University and the Montana public with the encroachment of exotic species into native communities. The UM plant collections are now visited by dozens of scientists and educators each year. Computer-based mapping and information storage, especially of exotics, are now a part of MONTU, but continued cataloging of the state's flora, specimen exchanges and loans are still an important part of the herbarium's mission.

Have you renewed your membership?


Are you still waiting to join?

To keep current on Herbarium activities and to be sure to receive our next newsletter, please take a moment to fill out the form below. Thanks for your support!



**YES!** *I want to help protect the irreplaceable collections and enhance the facilities of The University of Montana Herbarium.*

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Dues are for a period of **two** years. All contributions to the Friends are tax deductible to the full extent provided by law. All checks should be made payable to UM Foundation/Friends of the UM Herbarium. If you are contributing to the cabinet fund, please write "Herbarium Cabinets" in the memo space on your check.

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