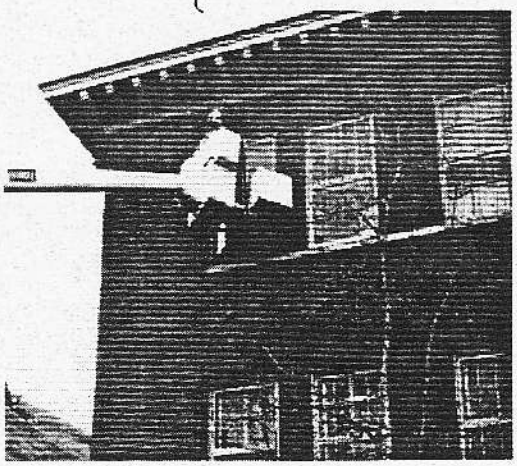
Friends

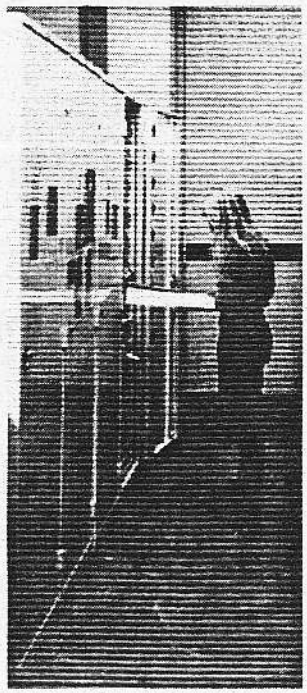
of The University of Montana Herbarium

Spring 1998

New Cabinets in Herbarium!



Passer-bys of the Botany Building last December watched as large white objects, looking a bit like caskets, were lifted by a crane into a third floor window. What they saw were ten new herbarium cabinets, purchased by the Friends, arriving at the herbarium. These are the first new cabinets acquired by the herbarium in recent memory, and they were made possible *entirely* by the generous donations of the membership of the Friends of the U.M. Herbarium. Why bring them in through the window? The Botany Building has no elevators, and carrying heavy steel cabinets up two flights of stairs would be difficult and potentially damaging to the cabinets.



These 10 new cabinets bring the total number of cabinets in the herbarium to 74 (includes 13 double cabinets; we count a double as two cabinets). The first problem that we needed to solve was the overcrowding in the existing cabinets. Our excellent work-study student, Deb Stout, spent many weeks after the cabinets arrived diligently moving specimens from the old cabinets into the new ones. Two of the new cabinets were placed in the preparation room to house specimens that otherwise would sit on open shelves awaiting processing. The remaining eight cabinets were placed in the main vascular collection. By moving collections into the new cabinets, Deb was able to relieve the overcrowding in 20 of the existing cabinets. This is a major accomplishment for the herbarium. For the first time in many years, there is room for proper storage and for expansion in many of the cabinets.

However, there still remains a number of cabinets that are overcrowded. We still have work to do, and The Friends' cabinet drive is ongoing! We hope to purchase an additional 15 cabinets for the herbarium. Cabinet donations are coming in as people are renewing their memberships. However we will accept separate cabinet donations at any time. Donors of $900 or more may dedicate a cabinet and we will place a brass plaque on the cabinet door with your dedication. Seven of these first 10 cabinets were dedicated, and the brass plaques are in place. Members are invited to stop by the herbarium to view the cabinets.

THANK YOU! to the following who contributed to the cabinet drive between the last newsletter and April 1, 1998: **Clark Fork Chapter of the Montana Native Plant Society, James Habeck, Willis J. Heron, Judith Hutchins, Nora J. Leetch, H. Bruce and Mary B. Maclay, Sheila Morrison, OEA Research, Inc., Jean and Charles Parker, John R. Pierce, Linda Pietarinen, James Poell, Riparian Resources, Merle J. Rognrud, and Phil Tourangeau.**

The Herbarium is 100 years old!

In celebration of the 100th anniversary of the UM Herbarium, special events are being planned in conjunction with the Friends' 1998 annual meeting. Further information will be mailed to all members later this year. This is yet another reason to be sure that your membership dues are paid for this year!

Friends of the University of Montana Herbarium

Herbarium
Division of Biological Sciences
The University of Montana
Missoula, Montana 59812

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

The Friends Newsletter is edited by Peter Lesica and David Dyer
Layout by Audrey Segriff

1998 Friends of the UM Herbarium Annual Meeting
100th Anniversary of the UM Herbarium

The annual meeting of the Friends of the UM Herbarium, commemorating the **100th anniversary of the founding of the UM Herbarium**, will be held Saturday, November 7th from 10 AM to approximately 2 PM. The meeting will be held in room 307 of the Botany Building on the UM campus. This is the annual business meeting of the Board of Directors and is open to the membership.

MONTU People

Jeffrey Strachan

The field of plant systematics has relevance outside the study of evolution, biogeography and biological diversity. Many researchers work toward discovering and protecting the diversity of crop and medicinal plants throughout the world, and new varieties of plants are being developed and propagated. Jeffrey Strachan, the University of Montana's last Ph.D student in systematics used his academic training in the arena of national and international economic botany.

Jeff grew up in Maryland outside of Washington D.C. He did undergraduate work at the University of Maryland and then went on to do graduate work with James Reveal from 1979 through 1981. Reveal and his students have done extensive systematics research on *Salvia*, the largest genus in the Mint Family (ca. 700 species), a group of primarily tropical and subtropical distribution. Jeff chose to work on the *Salvia dorrii* complex, the purple sage of western North America. His summer field work took him from eastern Washington to Arizona and southern California. These were productive days. Not only did he collect *Salvia* for his morphological and cytological work, he collaborated with Barbara Ertter collecting herbarium specimens for floristic studies of western North America being conducted by the New York Botanical Garden. In addition, he payed his expenses by collecting plant material for the U.S. Department of Agriculture's cancer research program. Jeff's research culminated in a Masters Degree and publication of his taxonomic revision in the journal Brittonia.

In January of 1982 Jeff moved to Missoula to do Ph.D. work in systematics with Kathleen Peterson, another former student of James Reveal. His original plan was to continue working on *Salvia* which was also Kathy's specialty. In the fall of 1982 the two of them with Kathy Ahlenslager, another of Reveal's graduate students, went to Mexico for two months to collect material for systematics research on *Salvia* funded by the National Science Foundation.

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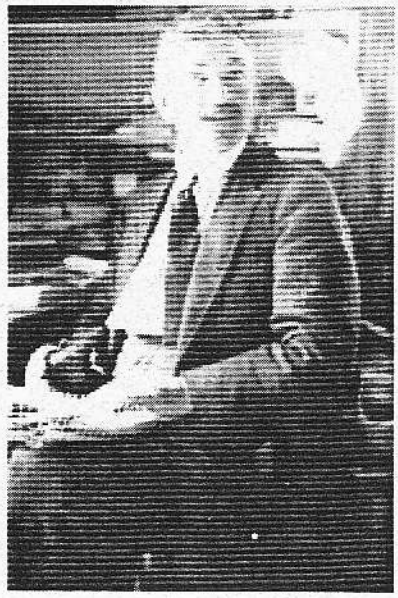
UM Herbarium Collectors

Morton J. Elrod

Last year marked the 100th anniversary of Morton Elrod's arrival at Missoula and the University of Montana (at that time Montana State University). Elrod's contributions to the university and the study of biology in western Montana were many. It was he who began the natural history collections at the university, including the herbarium.

Elrod was born in western Pennsylvania in 1863; the old ferry across the Monongahela River still bears the name "Elrod Crossing." He grew up in Iowa and received his B.A. and M.S. at Simpson College. He taught at Illinois Wesleyan University and eventually received his Ph.D. from there in 1905. Elrod came to Montana during the summers to explore and climb the mountains, and in February, 1997 he, his wife Emma and his daughter Mary moved to Missoula, a teeming metropolis of 5,000. Elrod founded the Biology Department at the university that year and soon began collecting natural history specimens throughout western Montana.

Elrod established the University of Montana Biological Station at Flathead Lake in 1899. The facility was in a rented building at Bigfork. It was not until 1912 that the University acquired property at Yellow Bay and the biological station moved to its permanent location.



Shortly after he took up his position at the University Morton Elrod and his students began making natural history collections, including birds, land snails, dragonflies, butterflies and plants. Most collections are from the Flathead region, especially the Mission and Swan ranges and the area around Flathead Lake. Elrod stated that they made thousands of plant collections (Elrod 1902); however, the number of Elrod collections from 1898-1902 are far fewer. Elrod's collections from this period have scant location and habitat data, and some are undated. Elrod was more of a zoologist than botanist, and many of his early plant collections were sent for determination to Joseph Blankenship at Montana State College, Bozeman or Jesse Greenman at Missouri Botanical Garden. In 1901 he was accompanied in his collecting trips in the Mission and Swan ranges by Daniel T. MacDougal, a botanist from the New York Botanical Garden, and many of MacDougal's duplicates from this summer are housed at MONTU. Elrod named the highest peak in one of his favorite hiking areas northeast of Bigfork after his friend. He used the name MacDougal Peak in his publications and specimen labels, but the name was changed to Mount Aeneas. Elrod also collected many plant specimens during his summers working in Glacier National Park. Most of Elrod's plant collections were housed at the UM Biological Station at Yellow Bay until 1989 when they were moved to MONTU.

In one of the first legal actions of its kind, framers and ranchers in the Deer Lodge Valley sued the Anaconda Company in 1904 for polluting their pastures and killing their livestock. Joseph Blankenship, the botany professor at Montana State College at Bozeman, testified for "The Company," and Morton Elrod testified for the plaintiffs. Shortly thereafter Elrod was dismissed from his job at the University for unexplained but easily imagined reasons. Fortunately he was reinstated the following year. Another expert witness for the ranchers was Marcus Jones, a famous botanist and plant

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Notes From the Board

The value of well-curated herbaria to rare plant conservation is inestimably high. The specimens held at facilities such as the University of Montana Herbarium form the most critical basis for the work of numerous public and private organizations engaged in plant conservation, for a variety of reasons:

1. Herbaria provide the "starting points" for intensive field inventories for rare plant species. By gathering both the geographical and ecological data from the labels on existing specimens, field botanists employed by various governmental and private organizations are able to quickly focus their initial surveys in the most likely settings. The efficiencies of this approach have been realized frequently, as the number of locations for many rare plant species in Montana has been increased by initial reference to herbarium collections. For example, Lesquerella klausii was initially known from only four locations, all of them in central Montana; by reference to these specimens, botanists for The Nature Conservancy and other organizations were able to focus surveys on likely geographic areas and habitats. The end result was the discovery of over 30 additional populations for this species during the course of ensuing field work.

2. Herbaria provide the specimens that are needed for taxonomic clarification, including cases where the systematic status of rare plants is questionable or unresolved. For example, specimens from herbaria throughout the west were used to examine the taxonomic relationships of Claytonia lanceolata var. flava, a regionally endemic plant known initially from only a few sites in southwest Montana and adjacent Idaho. Reference to a broader set of specimens, of both the rare plant and its relatives, has led to an understanding of the proper taxonomic disposition of this taxon (it is actually not properly treated as a variety within the species C. lanceolata). Furthermore, this clearer understanding of the taxonomy led to a realization that, while the plant is still found in a relatively small geographic area, it is not worthy of further formal recognition as a rare plant. This was owing to the large number of populations that were subsequently documented, both via field surveys and by reference to the herbarium specimens. As a result, conservation efforts for rare plants can thus be directed towards those species that are found to be most at risk.

3. Herbaria provide repositories for permanent, indisputable records that back up locations for rare plant species, as recorded in computerized conservation databases such as those of the Natural Heritage Programs. Having specimens as the "anchors" that substantiate such data will serve future researchers whenever questions arise as to the actual locations of such species, as well as in providing a means to verify the identification of the species of interest.

4. Herbaria provide a means of examining not only the present-day biogeography of plant species, but also a way of understanding the broadscale, ecosystem-wide changes that might have occurred for particular species in the past. For example, Calochortus nitidus, a regional endemic in the palouse grasslands and openings of eastern Washington and adjacent Idaho, has been eliminated from approximately half of its original range as a result of agricultural conversion of much of its original habitat. The remaining extant populations are found primarily on public lands, mostly in the southeastern portion of its former range. If permanent records were not available in the form of herbarium specimens, however, the former extent of its range would be "invisible" to the biogeographer or field botanist interested in ascertaining its present-day degree of endangerment. The drastic reduction in the range of this species is recorded by virtue of the permanent specimen record; such circumstances are often used to support the designation of species such as this as threatened, endangered or sensitive — and rightly so. In such cases, herbaria may provide a direct "window" to the status of such rare plant species.

In summary, the work of rare plant conservation programs, be they those of the U.S. Forest Service, the Bureau of Land Management, the network of state Natural Heritage Programs, or other organizations, would essentially be impossible without access to well-curated herbaria. And in the future, herbarium resources will undoubtedly become even more critical to the overall mission to conserve the diversity of all plant species.

---Steve Shelly

Recent Research and Acquisitions at MONTU

New Acquisitions

MONTU received approximately 1700 specimens in 1997. These include 798 exchange specimens from Wyoming, Idaho, and Colorado received from Rocky Mountain Herbarium at Laramie, Wyoming and University of Colorado at Boulder. Kathy Ahlenslager donated a specimen of *Botrychium minganense*. We received ca. 500 packets of seeds from Lawyer's Nursery which will form the foundation of MONTU's new seed herbarium. Dee Strickler contributed ca. 80 voucher specimens for his new book on *Penstemon*. Jack Greenlee, Lolo National Forest Botanist, submitted 21 specimens from western Montana. Bonnie Heidel from Montana Natural Heritage Program donated 10 specimens voucher populations of plants of special concern. Peter Lesica brought in ca. 220 specimens from throughout the state. Donald and Flora Dull contributed ca. 120 specimens from the Missoula area collected by his father while he was attending the University of Montana in the late 1920's.

Visitors to MONTU

There were 80 recorded visits to the UM Herbarium in 1997, including the following:

U.S. Forest Service--Andrea Pip, Steve Henry, Jack Greenlee, Peter Stickney, Cheryl Beyer, Michael Arvidson, Nora Leetch, Steve Shelly, Maria Mantas, Roger Juriel.

U.S. Department of Agriculture--Diane Pavek.

Montana Natural Heritage Program--Jim Vanderhorst, Bonnie Heidel.

Academic Reseachers--Mike Merigliano (UM), Calib Baldwin (U of Idaho), Marilyn Marler (UM), Cathy Zabinski (UM).

UM Students--Monique Kolster, Lisa Mosca, Todd Vojtovicz, Kim Oldehoeft, Brian Logan, Dayna Baumeister, John McKay, October Seastone, Alison Perkins.

Private Consultants--Bruce Barnes, A.D. Bradshaw (Alplains), John Beaver (Westech), Scott Miles (Riparian Resources), Marc Jones & Lyn Baldwin (Craighead Wildlands, Wildlife Institute), Lisa Roe.

Botanical illustrator Debbie McNiel, journalist Mark Mathews, herbalist and educator Robyn Klein, author Jerry DeSanto, and Shannon Kimball and Judy McCarthy.

Loans for Research

The UM Herbarium sent out five loans in 1997 totalling 131 sheets. In addition MONTU loaned a teaching collection to the U.S. Forest Service. This collection was used to train technicians conducting research avian ecology.

Curtis Hansen and Duane Atwood at Brigham Young University are preparing a taxonomic treatment of *Thelesperma*.

Ellen Dean at the University of California at Davis received loans of the five genera in the dandelion tribe of the Asteraceae:*Calycoseris*, *Rafinesquia*, *Chondulla*, *Chaetadelpha* and *Stephanomeria*.

Chris Pires and Mark Wietter at the University of Wisconsin are studying the taxonomy of Brodiaea and related genera in the Amaryllis Family.

Richard Halse at Oregon State University borrowed a specimen of *Claviceps purpurea*, the fungi that forms ergot mold on grasses.

Debbie McNiel of the Yaak Valley of northwest Montana borrowed specimens to use in preparing illustrations for a book on the flora of Glacier National Park.

Publications

DeSanto, J. 1993. Bitterroot, the Montana state flower. Lere Press, Babb Montana.

Eckel, P.M., J.A. Hoy and J.C. Elliott. 1997. *Pseudocrossidium obtusulum* (Pottiaceae, Bryopsida) new to Montana with a key to North American species in the genus. Great Basin Naturalist 57: 259-262.

Lane, M.A. 1992. New combinations in California *Grindelia* (Compositae: Astereae). Novon 2: 215-217.

Lane, M.A. et al. 1993. *Rhododendron abliflorum* Hook. (Ericaceae): one taxon or two. Rhodora 95: 11-20.

Strickler, D. 1997. Northwest Penstemons. Flower Press, Columbia Falls, Montana.

Jeffrey Strachan (Continued from page 2)

Unfortunately the species Jeff had planned to work on were not in flower that year, so he came back empty-handed but not before getting a world-class case of Montezuma's revenge.

Undaunted, Jeff cast about for a taxonomic problem closer to home, and, on the advice of Art Cronquist, chose to work on the bluebell genus, *Mertensia*. The keys for the tall bluebells were ambiguous and difficult to interpret suggesting that taxonomic revision was in order. Jeff collected research material throughout the western U.S. in the summers of 1984 through 1988. He also conducted hybridization experiments on field-collected plants growing in garden plots as well as populations growing in the Beartooth, Bitterroot, and Sapphire mountains as well as the upper Big Hole Valley. He found that taxonomic difficulties were caused by the occurrence of self-fertilization and vegetative reproduction in many populations as well as hybridization among species. His morphological analyses allowed him to construct a better key to the group. In 1984 Jeff Strachan married Janice Rogers, another graduate student in Botany. Four years later in the fall of 1989 Jeff finished his dissertation work and received his Ph.D.

After leaving UM, Jeff took a job with the USDA Plant Variety Protection Office in Beltsville, Maryland. He uses his understanding of genetic and phenotypic variation gained studying systematics to evaluate whether putatively new forms of agricultural plants should be certified as unique. Certified forms can be used commercially only by the owner. This work places Jeff at the center of the contentious debate over biological property rights. In addition to the field and literature research that occupies most of his time, Jeff lectures on this biological-legal interface at the University of Maryland and has traveled overseas to help develop international agreements on property rights.

Outside of his USDA work Jeff stays active in botany by cataloguing the flora around his family property in West Virginia and raising Christmas trees on the side. He also continues to work on bluebell systematics, and his Ph.D. treatment will be incorporated into the impending Flora of North America. With any luck, the skills he honed here in Montana will not get too rusty.

Morton Elrod (continued from page 3)

collector from Utah. Elrod and Jones became friends, and as a result, Jones taught at the Biological Station in 1908-09. He described a new species of stonecrop, *Sedum elrodii* from a collection made at Sommers on the north shore of Flathead Lake. However, the plant turned out to be *S. acre*, a European species escaped from someone's garden. Jones collected extensively in western Montana during these two years, and many of these are now housed in the UM Herbarium.

Natural history collections establishing the biological station are just one of Morton Elrod's many accomplishments. As a member of the Board of Directors of the American Bison Society he helped found the National Bison Range near Moiese to preserve bison for future generations. He influenced establishment of Glacier National Park and became its first chief naturalist from 1922-1929, writing a number of pamphlets on the Park's natural history. He helped establish The Kaimin, the student newspaper at the University of Montana and was instrumental in founding the Northwest Scientific Association. During the first two decades of this century he took numerous landscape photographs throughout the western part of the state with a large glass-plate camera. Many of these are taken from vantage points that required lugging the heavy camera up steep trails and over difficult terrain.

In 1934 Morton Elrod suffered a stroke that ended his academic career. He remained in ill health until his death in 1953. His plant collections remained housed at the UM Herbarium and in the Glacier National Park museum at West Glacier.

Further Reading

Elrod, M. J. 1902. A biological reconnaissance at Flathead Lake. Bulletin of the University of Montana 10: 1-182.

1997 Events

The Clark Fork Chapter of the Montana Native Plant Society held four herbarium nights in 1997. In January Peter Lesica used the collections to help members understand the characters separating the tribes the of Aster Family. In February Charles Miller used his fossil collection to illustrate the evolution of pines. Diane Pavek and Roberta Walsh gave a presentation on moonwort ferns in March. In April Peter Stickney gave pointers on some basic concepts needed for the study of seeds.

We are sad to announce the death of LeRoy Harvey, curator of the UM Herbarium from 1946 through 1977. Dr. Harvey died in early January at his home in Maryland.

Have you renewed your membership?

We have a current membership of about 90 friends of the U.M. Herbarium. Our thanks to those who have recently renewed or have given to the cabinet drive. However, there are still about 30 people who we have not heard from. To keep current on Herbarium activities and to be sure and receive our next newsletter, which will be a special issue commemorating the 100th anniversary of the U.M. Herbarium, 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.

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 payable to **UM Foundation/Friends of UM Herbarium** and sent to: Herbarium/Division of Biological Sciences/The University of Montana/Missoula, MT 59812. If you are contributing to the cabinet fund, please write "Herbarium Cabinets" in the memo space on your check.

Regular Member	$15	Name _____
Sustaining Member	$25	Street _____
Contributing Member	$50	City/State/Zip _____
Organization	$50	Phone _____
Special Gift	$ _____	
Cabinet Fund	$ _____	
Dedication (if $900 or more)	$_____	