Spring 1997

1997 Friends of The University of Montana Herbarium Newsletter

Peter Lesica

David Dyer

Friends

of The University of Montana Herbarium

Spring 1997

The Friends Conduct Sucessful Cabinet Drive

The Friends of the UM Herbarium is pleased to announce that we have raised over $8500, enough to purchase ten new herbarium cabinets. This spectacular response came as a result of an appeal made to members just one year ago. These new cabinets will be ordered soon and will be in the herbarium by this summer. We are very pleased with the results thus far. However, the cabinet drive will continue. Our ultimate goal is 25 new cabinets.

In addition to relieving the current overcrowded and potentially damaging conditions, these new cabinets will allow future expansion of the herbarium. On average, the herbarium acquires approximately 1,000 new specimens per year. Space is needed to properly house these important new additions. Also, the herbarium houses a large collection of duplicate specimens intended for exchange with other herbaria. This exchange of specimens allows the herbaria involved to enrich their collections with specimens otherwise not obtainable. Our exchange program can be revitalized once we have the cabinet space to house more incoming specimens. New cabinets will remove the backlog of exchange material and provide many new collections from the western mountain regions.

Herbarium cabinets may seem to be only a storage unit of little interest or sophistication. However they are a very specialized item, engineered specifically for archival storage of herbarium specimens. First, they are made of heavy-gauge steel with double-wall construction. This provides an insulating layer that guards against potentially damaging fluctuations in temperature and humidity that can occur in the herbarium. Also, the cabinet tops are designed to prevent water leakage from a dripping roof or pipes. The cabinet doors close against a neoprene seal which makes the cabinet virtually airtight. This important feature assures that the specimens are protected against insect pests, dust, and air pollution. Even the finish on the cabinets is specifically designed for museum storage. A non-reactive, solvent free, baked powder coating is used. This type of finish will not release fumes that could be destructive to plant specimens. Also, cabinets are now available in white or other light colored finishes. This makes it easier to keep the interior of the cabinets clean, to inspect for insect damage, and allows less light to be used in the herbarium. This not only saves on electric bills, but prevents fading of delicate specimens and inks on historic labels.

We would like to thank the following donors who have made contributions to the cabinet drive as of 1 April 1997.

Katherine Ake
Alplains Nursery
ASARCO
Bighorn Environmental
Blake Nursery
Clark Fork Chapter -
Montana Native Plant Society
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Steve Cooper
Crown Butte Mines
Jerry DeSanto
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MT Native Plant Society
MT Natural Heritage Program
Gary and Sheila Morrison
Craig Odegard
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James Poell
David Ramsden
John Rider
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Dee Strickler
Peter Stickney
Virginia Vincent
Tad Weaver

Remember, we're just a little less than half way to our goal of 25 cabinets. Please think of us again this year. See the membership donation form in this newsletter to add your name to this list! Contributors of $900 or more to the cabinet drive may choose to dedidcate an herbarium cabinet. A brass plaque will be placed on the cabinet door with your dedication (e.g."Contributed by. . . .", or "Dedicated to the memory of. . . .").

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 Gay Allison

1997 Friends of the UM Herbarium Annual Meeting

The annual meeting of the Friends of the UM Herbarium will be held Saturday, November 8 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. A tour of the Herbarium will be included.

MONTU People

Richard Pemble

The land above treeline holds a strong fascination for many of us in Montana. So it should be no surprise that several biologists at the University of Montana have been active in alpine research. Jim Habeck studied vegetation at Glacier Park's Logan Pass, Tom Nimlos described soils from the Beartooth Plateau, and Klaus Lackschewitz specialized in our alpine flora. Klaus' studies and monumental collections were preceded and perhaps inspired by those of Richard Pemble, a graduate student in Botany at UM in the early 1960's.

Pemble graduated from Simpson College in Iowa in 1963, receiving his undergraduate degree in biology and secondary education. He moved to Missoula that fall and began a Masters program in Botany. Under the tutelage of LeRoy Harvey, who was curator of the UM Herbarium (MONTU) at the time, Pemble undertook an ambitious project: describing the distribution patterns of Montana's alpine flora. He spent much of the short alpine summer of 1964 collecting plants east of the Continental Divide in Glacier National Park and west of the Divide in the Bitterroot Range. Pemble had a productive summer. Along with LeRoy Harvey, he made the first Montana collections of the arctic-alpine grass, *Festuca baffinensis*, and was first to collect *Cassiope tetragona* in the Bitterroot Range, an extension south from Glacier Park. He and Sam Bamberg of Colorado published these findings in the journal Rhodora in 1968. Unbeknownst to him, Pemble also made the first Montana collections of *Luzula arcuata, Carex petricosa* and *Lycopodium lagopus*, all with Harvey in Glacier National Park.

Although Pemble's alpine collections were impressive, they were limited to two major alpine ranges out of 23 in the state. He used the legacy of Montana collectors who came before him to fill in the gaps. Pemble went through all the collections at MONTU to determine which plants occurred above treeline and in which ranges they had been collected. He then went to the herbarium at Montana State University (MONT) and at Missoula's Forest Sciences Laboratory (MRC) to add information. Inspired by Eric Hulten and William Weber, he used this data set to describe the

(*Continued on page* 6)

UM Herbarium Collectors

LeRoy H. Harvey

Some of the most significant collections housed in the University of Montana Herbarium have been made by its curators. In addition to their collections, these men and women made important contributions through their care and maintenance of the specimens procured by themselves and those that came before them. From 1946 through 1977, approximately one-third of its life, the UM Herbarium was curated by LeRoy H. Harvey.

Harvey received his undergraduate degree in 1936 from the College of Education at Western Michigan. He completed his M.S. in 1937 at the University of Michigan and continued on for a Ph.D. studying the taxonomy of the grass genus *Eragrostis*. However, his studies were interrupted by World War II. Harvey was drafted into the army in 1942 and remained in service for 44 months. During this time he met and married his first wife, Marie. Shortly after leaving the army in 1946 LeRoy Harvey secured a job as professor at the University of Montana (then Montana State University) at Missoula.

Harvey finished work on his dissertation over the next two years and received his Ph.D. from the University of Michigan in 1948. In this work he provided a preliminary revision of the genus *Eragrostis* in North and Central America, including descriptions of five new species. His dissertation was put on microfilm at the University of Michigan. At the time this was considered valid publication under the international rules of nomenclature. However, in 1951 zoologists petitioned that microfilm no longer be considered publication under international codes. Harvey responded immediately with a letter to the journal *Science* vigorously defending the practice. Nonetheless, in 1952 the Seventh

International Botanical Congress declared that microfilming of manuscripts could no longer be considered valid publication. In 1954 Harvey validated his five new species, four from Mexico and Central America, and one from the Great Plains, by publishing in the Bulletin of the Torrey Botanical Club.

During his first 13 years at UM Harvey was professor of Botany for nine months on the Missoula campus and during the summer he taught plant taxonomy at the UM Biological Station at Yellow Bay. He served as acting Director in 1959 and as Assistant Director in 1960, 1961, and 1963. He gave up teaching at the Station after 1963 in order to have his summers free for collecting *Eragrostis* in Mexico and the adjacent U.S. During his thirty years at UM, Harvey taught the local flora class, agrostology, and introductory biology. He advised many graduate students including Richard Pemble and Eugene Addor who studied wind-pollinated plants in the Missoula area. He directed the Ph.D. program of John Witherspoon who monographed a portion of *Eragrostis*.

During his summers at the Yellow Bay Biological Station, Harvey collected plants throughout nearby Glacier National Park, continuing a long tradition that began with Morton Elrod, the founder of the Station. He collected hundreds of specimens in the Park. In 1954 he published a list of approximately thirty new records for Glacier Park, most of which he collected during the forays of the previous seven years. These included *Scirpus cespitosus*, a rare peatland plant and the two most hated weeds in the Park today, *Euphorbia esula* (leafy spurge) and *Centaurea maculosa* (spotted knapweed). Harvey also accompanied his M.S. student, Rich Pemble on a number of his collecting trips in Glacier Park, as well as the

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Notes from the Board

Many people think of a herbarium as a repository for dead plants, used primarily by academic botanists who puzzle over whether a plant such as winterfat is appropriately named *Eurotia* or *Ceratoides*. This perception has some basis in fact; however, the herbarium also has important value to consultants like me who work for both corporations involved in natural resource development and agencies that regulate natural resource projects.

The Clean Water Act (Section 404, concerning wetlands), the National Forest Management Act, and the Endangered Species Act have regulatory provisions requiring that proposed projects not jeopardize the viability of plants with special status (rare, threatened, endangered or sensitive). Typically, field surveys are conducted by consultants contracted by developers to determine distribution and numbers within a project area, conservation status, and potential of the project to adversely affect special status plants. The results of these studies are then presented to regulatory agencies for review and decision making.

The herbarium becomes important when a consultant is preparing to conduct field surveys. Many botanists have not seen the rare plants they will be looking for. They visit the herbarium to study preserved specimens and record information that is usually present on specimen labels such as location, habitat features and associated species. Visually studying preserved specimens helps botanists develop a "search image" of a specific plant and provides other information important to understanding the ecology of the species. If plants with special status appear to have been found during field surveys, the herbarium allows comparison of collected material with accurately determined specimens to help confirm identifications.

When special status plants have been found and identified, preserving a "voucher" specimen also involves the herbarium. Plants that have been evaluated in regulatory actions, such as the authorization or rejection of a proposed project, could become involved in appeals or litigation. By preserving a specimen representing a plant population involved in a dispute, it becomes a permanent record available for future reference. A herbarium in the best repository for these valuable collections because it is uniquely equipped and maintained to preserve specimens for indefinite periods of time.

The University of Montana is a recognized repository for plant specimens with established communication links among other herbaria, Natural Heritage programs, universities and research facilities. As a consultant with substantial involvement with the private sector of the economy, I find the UM Herbarium to be an essential resource for conducting business involving plant taxonomy and ecology in a professional and scientifically accepted manner.

Joe Elliott

1996 Events

The Montana Native Plant Society held four herbarium nights in 1996. In January MNPS members had a work night, cleaning cabinets, replacing cabinet door seals, and organizing press materials. The place shined like a new penny when they were done. Diane Pavek and Roberta Walsh presented a magnificant exposé of the Orchid Family in February. Nothing like orchids to bring in a crowd. In March Peter Stickney let loose with some of what he knows on forest evergreen herbs, especially the wintergreens. Master of minutia, Peter Lesica, worked hard to get people interested in our native rushes in April.

RECENT RESEARCH AND ACQUISITIONS AT MONTU

New Acquisitions

The UM herbarium accessioned ca. 575 specimens in 1996. This is lower than in previous years and reflects a more tightly focused accession policy resulting from the lack of cabinet space. Exchange specimens remain unmounted in boxes until expanded facilities are in place. Specimens accessioned were collected by Peter Lesica (426, primarily from a Pine Butte Swamp Preserve Flora project), Jim Vanderhorst (130, 44 of which are *Botrychium* spp. from northwest Montana), Cindy Talbott (35), Bonnie Heidel (13), and Wally Albert, Mark Behan, Jerry DeSanto, Tara Luna, Maria Mantas and Andrea Pipp. Many of these represent populations of rare plants or significant range extensions within for Montana. MONTU did accession one exchange from the Canadian Museum of Nature of 48 specimens from Alberta and British Columbia.

Loans for Research

The UM Herbarium processed 5 loans in 1996 totaling 134 sheets. These included:

Toby Spribille and Jeanette Oliver at Flathead Valley Community College preparing a treatment of section Atratae of the genus *Carex*, possibly for inclusion in the *Flora of North America*.

Jennifer Lyman at Rocky Mountain College borrowed 12 sheets of Poaceae, presumably for teaching purposes.

Bonnie Heidel with the Montana Natural Heritage Program borrowed specimens of *Lesquerella carinata* and *Astragalus lackschewitzii* to help prepare illustrations for publication.

Mike Merigliano and Peter Lesica received a loan of pre-1900 reed canarygrass (*Phalaris arundinacea*) specimens from the U.S. National Herbarium. They hope to determine the native range of this aggressive grass in the Northern Rocky Mountains.

Research Using MONTU Specimens

Heidel, B. 1996. Noteworthy Collections. Montana. Madrono 43: 436-440.

Lesica, P. and D. Hanna. 1996. Vascular plants of Pine Butte Swamp Preserve. An annotated checklist. The Nature Conservancy, Helena, MT.

Luken, J. O., J. W. Thieret and J. R. Kartesz. 1993. Erucastrum gallicum (Brassicaceae): invasion and spread in North America. Sida 15: 569-582.

Visitors to MONTU

There were 60 recorded research visits to the UM Herbarium in 1996. These included personnel from the following agencies and research institutes:

Confederated Salish and Kootenai Tribes- Sue Antiste, Joanne Bigcrane, Rod Daniel.
Craighead Wildlands Wildlife Institute- Lyn Baldwin, Lisa Classen, Marc Jones.
Glacier National Park- Tara Luna
Montana Department of Natural Resources- Steve Kohler.
Montana Natural Heritage Program- Bonnie Heidel, Jim Vanderhorst.
U.S. Forest Service- Jack Greenlee, Diane Pavek.

MONTU also had visits from consultants Scott Miles and Lisa Roe. Students E. Barker, Mike Cooperman, Jay Hall, Andrea Pipp, Mike Merigliano, Z. Renbarger and Maarten Schreuder used the herbarium for their projects. Jack Nisbet who is writing a book on Pacific Northwest ethnobotany stopped by to look at collections of *Nicotiana*, trying to discover the origin of the name "Tobacco Plains" for a northwest Montana valley. John Thompson from Washington State University conducts research on the coevolution between plants and their pollinators; he examined our specimens of *Lithophragma* looking for study sites.

Richard Pemble (*Cont. from page 2*)
composition and distribution of the various floristic elements in Montana's alpine flora. Pemble's five elements are lowland, arctic-alpine, cordilleran, Pacific coast and endemic. He then went on to explain overall distribution patterns in terms of age, area of origin, geology and climate. Pemble completed his M.S. work in 1965. That spring he and his wife Helen, who he met as an undergraduate in Iowa, were married. She helped him inventory the alpine collections at MONT and typed his thesis.

By the Fall of 1965 Richard Pemble was enrolled in a Ph.D. program at the University of California at Davis. He wisely chose Jack Major, the famous western plant ecologist, as his advisor. He again decided to work in the alpine, but this time studying plant community ecology. He and Helen spent the summers of 1967 and 1968 sampling over 200 stands along the east side of the crest of the Sierra Nevada west and south of Mono Lake. He described nine alpine plant associations and showed how the distribution of the vegetation varied with topography and soil parent material. He received his Ph.D. in 1970.

In the fall of 1969 Richard moved back to the Midwest and took a position at Moorhead State University in northwest Minnesota. He has been a professor there for the past 27 years. During that time he has been curator of the herbarium and taught general ecology, field biology of plants, plant taxonomy and an ecology class for non-biologists. More than 13,000 students have taken that class from him since he began teaching it in 1970. He was chairman of the Biology Department from 1985 to 1994.

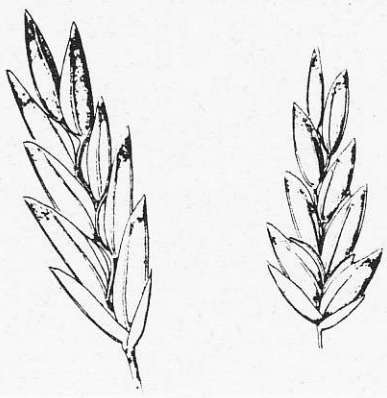
Although the nearest alpine was a long way off, Pemble was out on the Great Plains and still doing a pretty good job of avoiding trees. His research has centered on plant succession and restoration of Great Plains grasslands. He has also been active in identifying significant natural areas for The Nature Conservancy and the Minnesota Department of Natural Resources. He was presented the Minnesota Conservation Achievement Award by the Minnesota Nature Conservancy in 1996. He and Helen continue to live in Moorhead, while their three children are grown and have left home for school or careers. Although it doesn't sound like Rich gets up into the high country anymore, his interest in floristics, plant ecology and conservation started in western Montana's land above the trees.

LeRoy H. Harvey (*Cont. from page 3*)
Bitterroot Range in 1964. Pemble and Harvey made the first Montana collections of *Festuca baffinensis, Luzula arcuata, Carex petricosa* and *Lycopodium lagopus*.

Once free of his summer Biological Station responsibilities, Harvey turned his attentions to the taxonomy and distribution of the large, primarily subtropical and tropical grass genus, *Eragrostis*. Beginning in 1966 Harvey resumed collecting trips to southern North America. In 1966 and 1967 he collected mainly in Texas and adjacent states. In the former year he was accompanied by Joe Elliott, then a graduate student in Botany at UM. In 1968 he covered a great deal of ground collecting in Florida, Louisiana, Maryland, Mississippi, Oklahoma and Virginia, as well as Texas. Harvey spent much of the summers of 1970-72 collecting throughout Mexico, as well as Texas and Arizona. He spent the final summer of his Mexico trips with his student, John Witherspoon. At least a thousand grass specimens were collected during these trips and are housed at the UM Herbarium.

LeRoy Harvey retired from the University of Montana in 1977, one year after the death of his wife. Soon thereafter he moved to the Washington D.C. area to accept an honorary position at the U.S. National Herbarium at the Smithsonian Institution. He continued his studies of *Eragrostis* and met and married his second wife, Eleanor. Harvey continued his studies at the Smithsonian for about five years. Since then he has been retired and living in nearby Maryland.

During his thirty years at the University of Montana Harvey exposed many undergraduates in floristic and taxonomic botany, some of whom are still out there poking around in the bush. He compiled a huge plant taxonomy reprint collection and filing system that is housed in the herbarium. He was also responsible for acquiring many exchanges and building the UM herbarium with his collections and those of others.



The Oldest Herbarium Specimen?

The Herbarium contains many specimens that are valuable for their historic interest as well as for scientific purposes. We have often wondered what is the oldest specimen in the UM Herbarium. Since all the specimens are not yet entered on a database, we cannot easily search for the oldest collection date. So, for about three years we have kept an informal list of the oldest specimens that we have found to date in the collection. These are not specimens that we have systematically searched out, but ones that we have come across during our normal daily activities.

Specimens from the 1880's and 1890's appear rather often, so to make the "Oldest Herbarium Specimens" list, a plant must have been collected before 1880. So far, there are nine records on this list. We thought for a while that we had a record from 1816, a specimen of Pedicularis sylvatica that was probably collected in Europe. However, judging by the handwriting and label style I now believe it is from 1876. Thus, our oldest record is a small fragment of a type specimen of Smodingium andrieuxii, a sumac (Anacardiaceae), collected in Mexico by W. Andrieux in 1834. It is only a single small leaf, preserved in a fragment packet. Other fragments from this same specimen are no doubt in a few other herbaria. The next oldest is also a type fragment from Mexico, a related species, Smodingium virletii. This was collected by Virlet d'Aoust in 1850. Though there is no locality data on the label, it is known only from the type locality in the State of San Luis Potosi.

Another early record is an 1867 specimen of Berteroa incana (Brassicaceae), a European weed. Unfortunately, there is no locality data with this specimen. Also, there is a record of Botrychium dissectum, Cut-leaved Grape-fern (Ophioglossaceae), from Hancock, Massachusetts. It was collected on 20 August 1870 and has a lavish, printed label, typical of that time period, with the inscription "F.E. Stratton's Herbarium". This is the oldest documented specimen from the United States that we have found so far. I think now we should begin a list of the oldest specimens collected from Montana. No doubt some of the collections of Morton J. Elrod, an active collector who first came to Montana in 1897, will be on that list.

David Dyer

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 made payable to UM Foundation/Friends of UM Herbarium and sent to: Herbarium/Divison 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	_____	