FRIENDS
Of The University Of Montana
HERBARIUM

Spring 2002

A Friend in the Herbarium

By Peter Lesica

There's a new face in the University of Montana Herbarium these days, and she's making things happen. Nearly all of the day-to-day work at the UM Herbarium is done by work-study students. Most of the student help has been great. Unfortunately, student workers stay for one or two years at the most, and then they lose their funding or graduate. Students mount, catalog and file specimens and prepare loans, but they rarely gain the understanding required to locate misfiled specimens or make decisions about the value of gift or exchange material. Most large herbaria have a staff technician, with intimate knowledge of the museum's workings, who works right along with the students. Such a person brings continuity to the operation of the herbarium. The UM Herbarium has never been assigned a technician position. The Friends of the UM Herbarium have always been on the lookout to rectify this situation, and now we think we have the answer.

Virginia Vincent gleefully tending to the plant collections at the UM Herbarium

Enter Virginia Vincent. Virginia is a septuagenarian with a long history in western Montana. A graduate of the University of Vermont, she came to Missoula in 1956 to study Wildlife Biology at the University of Montana, and she never left. Since 1970 she has been a fire lookout on Stark Mountain northwest of Missoula every season but one. For the last 30 years she has studied and made plant collections near her summer home in the mountains. Virginia has become a well-known Missoulian, with appearances on television and an article about her mountain life in the Washington Post. And she's no stranger to natural history museums. Virginia worked in the vertebrate museum and the Botany Department during her student years at UM and has collected plants for the Forest Service herbarium on the UM campus. Now she's helping out in the UM Herbarium.

Virginia started volunteering in the herbarium in January of last year, and a lot has happened since. She and Erinn, the work-study student, prepared and filed nearly 400 specimens. They assembled

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2002 Friends of the UM Herbarium Annual Meeting

The Annual Meeting of the Friends of the UM Herbarium will be held Saturday, November 16, from 10 a.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

Of the University 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

The *Friends* Newsletter is edited by Peter Lesica and David Dyer

Layout by Drake Barton and Kathy Lloyd

Activities

The Clark Fork Chapter of the Montana Native Plant Society held three meetings in the herbarium in 2001. Matt Lavin helped members make sense of the wheatgrasses. Peter Stickney gave a presentation on Montana's Lily Family. Peter Lesica taught members to identify asters and fleabanes.

Notes from the Board

Professional field-oriented biologists need to know an area's flora, and frequently make use of UM's herbarium collections while engaged I n their field studies. For example, plant ecologists, range managers, foresters and wildlife biologists often find themselves describing and classifying plant communities, or assessing habitat quality using information gathered on plant cover. This is often done by collecting numeric data on plant community composition. Correct plant species identifications are absolutely critical to this work, and biologists are benefited by having formal training in plant taxonomy. A university's herbarium, like UM's, serves an important role in this training.

However, in the field it's not uncommon for some plants to be initially tabulated as "unknown" because they lack mature features. The immature plants are collected anyway and later, hopefully, identified using published floras and herbarium collections. Most herbarium specimens, however, represent mature plants, not often the early developmental stages. Therefore, special keys or notes are prepared by field botanists that utilize only vegetative features for species identification. Dr. C. Leo Hitchcock did just this for Montana grasses back in the 1930's! In my own experience, plant ecology students at the University of Wisconsin often spent their lunch breaks brainstorming the construction of vegetative keys to "unknowns" so that plot data could be connected with a plant name. When possible, ecologists collect a mature specimen to serve as a voucher, confirming the earlier identification, and these may be submitted to the herbarium for permanent storage.

With continued contact and persistence, field botanists eventually learn to give correct names even to newly germinated seedlings, needing neither flowers nor fruits as clues. This has been particularly true amongst botanists and foresters studying early post-fire recovery in western Montana forests or on disturbed ground being invaded by weeds. It might be functionally useful for herbaria to collect and preserve a range of developmental stages of each plant species, but limited space precludes storing such collections.

Current students at UM, emphasizing their training in plant ecology, are exposed to a wide assortment of botanical subjects that stress mathematical and chemical features of plants and plant interactions. These ecology students still need to know the basics of plant systematics and taxonomy, and the role of the UM Herbarium will continue to be an important component in their professional education and re-

MONTU People

Jeff Hart

Ethnobotany is an active area of biology where a field-based knowledge of natural history is still considered important. As plants and aboriginal peoples are being lost at an ever increasing rate, universities, botanical gardens and pharmaceutical companies are rushing to discover how indigenous peoples used plants before that knowledge is lost forever. We think of this research as being carried out in the tropical forests of the Amazon or Indonesia, but ethnobotany is an active field in North America as well. The premier study of indigenous people's use of plants in Montana was conducted by UM graduate student Jeff Hart 25 years ago. Jeff received a grant from the Montana Bicentennial Committee to interview tribal elders on the Flathead, Crow, Northern Cheyenne and Fort Belknap Indian Reservations. After completing his field work, Jeff published some of his results in a small book, *Montana Native Plants and Early Peoples* that covers 60 common and conspicuous species and is illustrated by Jacqueline Moore. The book is still available, and all proceeds go to the publisher, the Montana Historical Society. Many specimens collected during the study are housed at the UM Herbarium.

Jeff grew up in a small town on the Sacramento River in northern California. His interest in Native Americans and plants grew out of his tramps through the river bottoms in search of arrowheads. When it came time for college Jeff saw pictures of Missoula and the surrounding mountains, and he was hooked. He started in Forestry at UM, but soon switched to Botany. He worked for Steve Arno during the summer studying alpine larch, and as an interpretive naturalist at Glacier National Park. Jeff graduated in 1971 and went to work on one of the Forest Service crews developing Montana's habitat typing classification. In the winter he lived in his cabin at the foot of the Bitterroot Mountains west of Florence. In 1973 he returned to UM and started work on an unusual interdisciplinary Masters program in Botany. Under the guidance of Sherman Preece, Carling Malouf and Henrietta Whiteman, Jeff explored aboriginal ideas of plant taxonomy through a linguistic study of Salish words used for different plants. His thesis, completed in 1974, naturally led to his well-known ethnobotanical study.

Jeff's Montana project got him pretty excited about ethnobotany, so he went to Harvard in 1977 to continue his studies. He made three trips to South America to collect data for a dissertation that he never finished. Harvard was a hotbed of evolutionary biology at this time, with several distinguished scholars such as Ernst Mayr, Stephen Gould and Edward O. Wilson. Jeff couldn't resist; his focus changed to evolutionary biology, and he did a revision of the systematics of the South American mint genus *Lepechinia* for his Ph.D. dissertation. He moved to Harvard Forest in 1984 and produced a phylogenetic treatment of conifers. He then took another postdoctoral position, this time in Sweden, where he used his skill in systematics and evolutionary biology to study the coevolution of rust fungi and their conifer hosts. Jeff returned to Harvard in 1987 to learn molecular methods for studying plant systematics. A year later he took a job at California's Institute of Forest Genetics, and there he decided to turn away from molecular biology to something less academic and more field oriented.

Jeff put down his pipettes and picked up a chainsaw and climbing gear to become a professional arborist. It wasn't hard for him to use his knowledge of botany and natural history to move from tree pruning and horticulture to restoration. Jeff now has his own restoration business complete with greenhouse and propagation beds. He specializes in riparian and wetland areas and has done research on the effect of flooding on plant growth and the importance of soil type to oak regeneration. He and his wife, Toni, now live on the Sacramento River, not too far from where he grew up. Jeff seems to have come full circle; he lives on the same river that inspired his youth and is doing the same kind of applied biology he did for the Forest Service during his youth in Montana.

Jeff at his greenhouse and restoration facilities

Additional reading:

Hart, J. 1976. Montana native plants and early peoples. Montana Historical Society Press, Helena.

Peter Lesica

MONT NEWS

Briefs

New Acquisitions

Loren Bahls (400 diatoms)
Joe Elliott (123 mosses)
Sarah Flynn (2)
Bonnie Heidel collections from Montana (2)
Peter Lesica Montana collections (120)
Maria Mantas (voucher for significant range extension of *Idahoa*)
New York Botanical Garden sent exchange specimens from western North America (356)
J. B. Phipps and R. J. O'Kennon, who are working on *Crataegus* for the Flora of North America project (34 including 2 isotypes)

Loans for Research

The UM Herbarium sent out five loans in 2001. Courtney Couch, preparing illustrations for a book, borrowed 10 sheets of *Petasites*, *Eriophorum*, *Papaver* and *Ranunculus*. Ihsan Al-Shebaz at Missouri Botanical Garden borrowed 9 specimens of *Draba* for the Flora of North America project. Bruce McCune at Oregon State University is preparing a new lichen flora and borrowed 2 specimens. Galen Smith from the University of Wisconsin borrowed 12 sheets for his treatment of *Scirpus* for the Flora of North America project. Jochen Schenk from the University of Southern California borrowed 37 specimens of *Suaeda*.

Information Transfer

The herbarium received 17 requests for information in 2001, including:
Specimen label data for *Aquilegia jonesii* from a consultant in Minnesota.
Advice to Craighead Institute on equipment and techniques for establishing an herbarium.
Assisted Dull Knife College on the Crow Indian Reservation to locate archived tapes on ethobotany.
Identified plants for the Wilderness Institute and Fort Belknap Indian Reservation.

Publications Based on MONTU Specimens

Flora of Glacier National Park by Peter Lesica, Spring/Summer 2002. Oregon State University Press.

...Friends *(Continued from page 1)*

and sent out research loans and processed exchange material received from three other herbaria. In addition, Virginia continues an ongoing pest inspection program to detect harmful insects before they can do too much damage. Virginia also monitors the temperature and humidity of the facility. She even helped a visiting researcher identify some local plants. This winter Virginia hopes to begin processing and mounting some of the specimens that have been backlogged for years!

Virginia spent over 80 hours working as a volunteer in the UM Herbarium last winter. The Board of Directors of the Friends of the UM Herbarium were so impressed and grateful that they voted to give Virginia an honorarium of $600 to show their appreciation. Virginia is back this winter, and we hope she will keep coming back. We also hope to continue to give her an honorarium in appreciation of her contribution to the care of our museum. To this end the Board of Directors agreed to start an honorarium fund. The fund will be used to reward trained volunteers who donate large amounts of time to the curation of the herbarium. We anticipate needing about $1,000 each year. Some of the money can come from our general fund, but some must be raised beyond what we receive as membership dues. Please consider giving to the Friend's Honorarium Fund; the money will help people who are giving their time to improve our facilities.

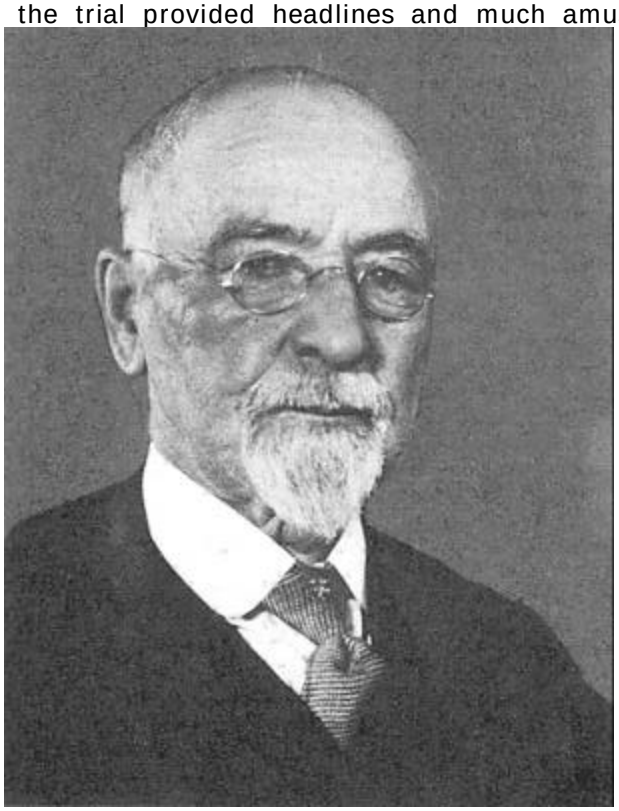
Balsamorhiza sagittata, depicted in an original line drawing by Debbie McNiel. Coming soon to a hillside near you!

MARCUS JONES

It was Montana's first environmental lawsuit and the two chief witnesses were botanists. The year was 1905. A group of Deer Lodge Valley farmers filed suit against the Anaconda Copper Company for damages to their crops and livestock caused by smoke from the Anaconda smelter. The farmers hired Utah botanist Marcus Jones as an expert witness.

In 1905, Jones was 53 and already a respected botanist with experience in smoke damage studies. The Anaconda case was the basis for Jones' first trip to Montana. He was gathering evidence. He spent weeks collecting flue dust and plant samples of all kinds in Anaconda, in alleged smoke affected areas as well as smoke free areas. His work took him to the tops of Mt. Powell, Mt. Haggin, and Bridger Peak, as well as to Hamilton and Bozeman. He analyzed these samples in his own lab in Utah according to a method he devised himself, and returned to testify in a Butte court that all the farmland around Anaconda was tainted by the smoke.

Jones was a colorful character and his testimony at the trial provided headlines and much amusement for reporters and readers of local papers. His daughter recalls, "He gloried in a battle of wits, especially when championing a just cause, so he was in his element on the witness stand." The Butte Standard reported that Jones presented "a perfect haystack of vegetable samples" as evidence of smoke damage to the plants. The writer continued, "No. 31 was a sample of 'smoked oats' to hear the professor tell it. Perkins prize peas were not much good for soup or show, according to Prof. Jones."



Marcus Jones

Jones' testimony was contradicted by the company's expert witness, J.W. Blankinship, a botanist from the agricultural college at Bozeman. He contended the damage was caused by weather, insects and disease, and that there was no significant damage to cropland from smoke. The trial went on for years and a judge finally decided in favor of the powerful company. Eventually, however, the damage was undeniable and companies had to install the pollution control device that Jones and others had suggested.

Little in Jones' formal education prepared him for the scientific course his life would take. He was trained in the classics and abandoned his job as a Latin teacher to collect plants. A man of remarkable energy, he was a self- taught botanist, geologist, chemist and photographer. He held many jobs in his long life, including mining engineer, teacher, preacher and librarian, but all were subordinate to his passion for botanizing.

In addition to going up against the giant copper companies, Jones challenged the eastern botanical establishment over the right of western botanists to name and describe their new species rather than first sending them to Asa Gray at Harvard for his judgment. Because of this disagreement, publication of his findings in established journals like the *Torrey Bulletin* was not possible. Being a self-starter, Jones bought a printing press, learned the elements of typesetting, and began the sporadic publication of his own journal *Contributions to Western Botany*.

Under the heading, "Botanists I have Known", Jones amused and infuriated readers by giving high praise to those he favored and a caustic backhand to those he didn't. While he wrote glowingly of Alice Eastwood's "magnificent work", he charged another botanist with writing "botanical drivel" and another of "perpetual blundering and lack of botanical knowledge". He was a man of strong opinions and didn't mince words expressing them.

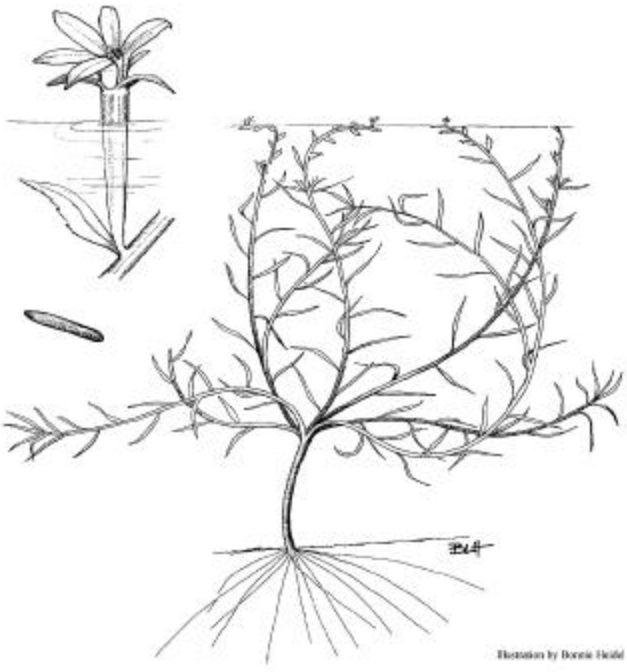
Jones' association with Montana didn't end with the smelter case. During that time he met a botanist he admired, Morton Elrod, a professor of botany at the University of Montana, and founder of the biological station now located at Yellow Bay on Flathead Lake. Elrod invited Jones to teach during the summer session at the biological station in 1908. Jones accepted and there followed for him several happy summers in Montana. The sessions were full of field trips, and friends hiking and camping together. Jones had no falling out with colleagues there. He commemorated Professor Elrod by naming three species for him: *Carex elrodii* (Carex page 7)

A Tribute to Bonnie Heidel from the Friends of the UM Herbarium

The Friends recognize Bonnie Heidel, formerly of the Montana Natural Heritage Program, for her extensive and enduring contributions to plant conservation and floristics in Montana. Bonnie was also a strong supporter of the University of Montana Herbarium through contributions of specimens and serving as a Friends board member. During her work in Montana, Bonnie contributed over 200 specimens to our collections. For many years Bonnie worked on numerous projects involving rare plant conservation and natural areas protection throughout Montana. She was instrumental in developing innovative rare plant monitoring and habitat restoration studies (e.g. *Penstemon lemhiensis*, *Howellia aquatilis*). In addition, she conducted inventories for Forest Service and BLM sensitive plant species, developed plant conservation databases and field guides, and published educational materials, such as the Montana Rare Plant Poster during her tenure at the Heritage Program. The highly successful Montana Plant Conservation Conferences held during the 1990's also depended greatly on Bonnie's energy and extensive network of botanical colleagues in the state.

Surely one of the most important contributions that Bonnie made towards furthering public understanding and appreciation of our state's rare plants, was the development of the on-line Montana Rare Plant Field Guide. This internet resource is invaluable to botanists in land management agencies who routinely need up-to-date information about sensitive plant species that occur on public lands. The site provides photos, habitat descriptions and distribution data for over 300 rare plants in Montana. The Field Guide can be accessed through the MTNHP website at: http://nhp.nris.state.mt.us/plants/index.html. On behalf of the Friends of the UM Herbarium I would like to thank Bonnie for her critical, lasting contributions to systematic botany and floristics in Montana. Her energy, technical expertise, dedication, and high-spirited enthusiasm are an uncommon combination of talents that will be greatly missed here. We wish her the very best in her new endeavors with the Wyoming Natural Diversity Database.

Steve Shelly



An original line drawing by Bonnie Heidel, *Howellia aquatilis*, is found on the MTNHP website.

Visitors to the University of Montana Herbarium in 2001

General public and private consultants:
Drake Barton & Kathy Lloyd, Samantha Chilcote, Beth Horn, Greg Howard, Heather Ingehulbert, Scott Miles, Jean Parker, John Pierce, Sarah Weldon

University of Montana researchers:
Don Bedunah, Mark Behan, Brad Cook, James Habeck, Marilyn Marler, Steve Siebert

UM students:
Tarn Ream

U.S. Forest Service:
Scott Mincemoyer, Peter Stickney

Montana Natural Heritage Program:
Drake Barton, Bonnie Heidel

Matt Lavin from Montana State University came by to straighten out of wheatgrasses and collect data for his state inventory of grasses. Dennis Longknife, the wetlands biologist for the Fort Belknap Indian Reservation, used the herbarium to identify specimens from his field work. Bruce McCune, Roger Rosentretter and Jeanne Ponzetti are working on a regional lichen flora, and they spent a day in our herbarium collecting information.

...Jones *(Continued from page 5)*

ana), *Cymopterus elrodi* (*Cympoterus terebinthinus* var. *foenicula*), and the third, *Sedum elrodi*, turned out to be a blooper, an escaped garden flower Jones should have recognized, *Sedum acre*.

In the alpine area of McDonald Peak in the Mission Mountains, Jones found and named a St. Johnswort for his colleague Gertrude Norton: *Hypericum nortonae* (*Hypericum formosum* var. *nortonae*). His collection is the type for the species. He made another interesting collection just outside Polson, at a place called Polson Swamp, when he found a relative of skunk cabbage, *Acorus calamus*, still the only know population in Montana. At Sperry Glacier, Jones collected the type for *Carex goodnovii* var. *dolia*, and also managed to find the rare *Gentiana glauca* and *Juncus triglumis* var. *albescens*. Jones also wrote a *Flora of Flathead Lake*, 465 pages illustrated with his photographs. The flora was never published.

Marcus Jones spent much of a decade in Montana. Over his 60 years in the West, he collected in Utah, Idaho, California, and Baja, Mexico. He is respected now as an outstanding field botanist who added greatly to the knowledge of botany in the West. His biographer, Lee Lenz, wrote that Jones studied more plants in their native habitat than any other botanist of his day. James Reveal states that our knowledge of the distribution of many species is based solely upon Jones' collections. Many plants have been named in his honor, including *Plagiobothrys jonesii*, *Penstemon jonesii*, and *Penstemon moffattii* var. *marcusii*.

Jones sold his enormous herbarium to Pomona College in 1923 for $25,000, to be paid over time. He also sold them his library and manuscripts. The herbarium contained, according to Jones, "100,000 sheets and a half million species." It was a collection the college was proud to acquire. Jones moved to Pomona too, and never stopped collecting. He died at age 82 on his way home from a field trip! His herbarium is now at the Rancho Santa Ana Botanic Gardens. Hundreds of his duplicate sheets are in the cabinets of the University of Montana herbarium. Many of them resting comfortably in some of the nice new cabinets, I'm sure.

Further reading:

Broadus, M.J. Marcus Jones, A.M. Biographical sketch. *Contributions to Western Botany* 18:152-157.

Jones, M. E. 1910. Montana botany notes. Bulletin of the University of Montana, Biological Series No. 15. Lenz, L. l986. Marcus E. Jones: Western geologist, mining engineer and botanist. Rancho Santa Ana Botanic Garden. Claremont, California.

Annie Garde

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

☐	*Regular Member*	**$15**
☐	*Sustaining Member*	**$25**
☐	*Contributing Member*	**$50**
☐	*Organization*	**$50**
☐	*Special Gift*	**$____**
☐	*Honorarium Fund*	**$____**

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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.

Send checks to:

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