



Lingua Botanica

A Journal for FS Botanists & Plant Ecologists



One of the cool things about being in the Regional Office is that I get to go around and visit people on their units. Usually everyone is really nice and I get to see a lot of cool plants. Another thing that entertains me while I'm travelling is seeing how people decorate their workspace. Not everyone has an office, or even a cubicle of their own, but almost everyone decorates. It's the dog and fireplug thing. Pinecones are very popular items, and not just among the botanists. The most popular (or the most sought-after) seems to be the behemoth *Pinus coulteri*. But pinecones are like bottle-openers or socks; they can be nice to look at but they have an inescapably utilitarian veil. What I like to see on botanists' desks are the dry flower stems and the fragments of nonvascular plants. We take pride in little sticks and twigs bearing unidentifiable flowers, the remnants of long-shattered seed-heads, a thorny *Crataegus* stem with raisiny old pomes, or a twisty *Xyris* culm. And don't we love our lichens and mosses. My computer is littered with schists, quartzites, and basalts, each festooned with contrasting orange, yellow, green, and black lichens. We bring this debris indoors to remind us of who we are while working on special use permits, EA's, and Gordzilla, to remind us through the winter that field season will almost certainly return, and mostly to invoke memories of glories past. My pitch-black chip of Idaho batholith schist represents a rare *Draba* on an isolated rock pinnacle overlooking the Boise River. The *Diploschistes* covered hunk of basalt is where we scattered my father's ashes. The fossil *Equisetum* stem is from an overburden tip by an abandoned coal mine in western Arkansas, discovered during a merciless survey for the listed *Ptilimnium nodosum*. As a group, botanists tend to be partisans, prone to the regular consumption of deliciously refreshing, frothy cold beer, and unkempt (though we wash up real nice). We are also a pretty gentle and sentimental bunch. Compare your knick-knacks to the dead critter-parts that decorate other peoples' walls... **Send me an email note and tell me about something especially cool or meaningful on your desktop. I'll publish a collection of your notes in an upcoming issue of LB.**

the editor.

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Useful URLs

National Organic Program

The NOP defines “wild grown” and will affect special forest products marketing.

<http://www.ams.usda.gov/nop/>

Lichen Education

Subscribers to lichens-1 have seen this compendium of workshops, classes, seminars, and forays.

<http://www.unomaha.edu/~abls/>

Botanical Society of America Online Image Library

<http://www.images.botany.org/bsa/>

Animated Flower/Plants Graphics

Decorate your personal or work-related pages with these free, animated graphics.

<http://www.fg-a.com/flowers.htm>

<http://www.geocities.com/~bydezign/flora.htm>

<http://www.animatedgif.net/plants/plants.html>

U.S. Found to Have More Species Than Previously Thought.

William K. Stevens, New York Times, 16 March 2000

The United States is home to at least twice as many native species of plants, animals and other wild things -- more than 200,000 in all -- than had previously been thought, according to what may be the most comprehensive survey of biological diversity ever undertaken in America. The nation was also found to harbor a more varied array of ecological systems than any other large country.

Conservation experts characterized the findings as an unexpected piece of good news. But as many as a third of the country's species are considered imperiled to some degree, according to the study, whose details are to be disclosed today in Washington by the Nature Conservancy, whose membership of more than a million makes it the nation's largest private conservation group.

In disclosing the results of the survey, the conservancy will also announce that it has undertaken a five-year, \$1 billion effort to preserve large tracts of what remains of wild America.

It is said to be the largest amount of money ever devoted to a conservation campaign by a private organization.

The inventory of species was conducted over the last 25 years by the conservancy's Natural Heritage Network, made up of survey centers in all 50 states, most of them parts of state governments and universities. The network's database on species and ecosystems is widely viewed as the most complete and detailed in the nation, and is the country's leading source of biological information for conservation planners, government agencies and land managers.

But until now, the information gleaned from the network's extensive field surveys and other sources like museum collections and scientific literature had never been pulled together to produce a portrait of the status of wild America.

The five-year analysis found that the 50 states contain about 10 percent of the known species on earth and that the United States ranks at or near the top among nations of the world in its variety of mammals (mostly small ones), freshwater fishes and needle-leafed evergreens like pine trees, salamanders, mussels, snails and crayfishes.

Among insects, by far the most numerous group of species, there were many interesting surprises. The United States, for instance, turns out to be extremely rich in bees, with nearly 4,000 native species, most of them solitary rather than swarming creatures.

And the United States harbors more species of caddis flies, mayflies and stoneflies, which are aquatic insects that support many freshwater ecosystems and are beloved by trout fishermen, than any other country.

At the same time, according to the survey, the United States has a wider array of ecological regions -- big, distinctly different swatches of nature like deserts, various kinds of forests, grasslands and tundra -- than any other of the six largest countries.

By a calculation cited in the study, the United States has 21 of the world's 28 different types of ecological regions, 5 more than its nearest rival, the former Soviet Union.

So lush and variegated is the new portrait of biological variety in America that the conservancy will also announce today its commitment of \$1 billion in new money to its long-established effort to protect the wild landscape by buying up large parcels of land or securing conservation easements on them.

"I think we've described biodiversity in a way that it's never been described before," John C. Sawhill, the conservancy's president, said of the study. Its findings, Mr. Sawhill said, make the nation's conservation task more urgent. "There's a more compelling reason now to invest \$1 billion to try to protect biodiversity," he said.

Mr. Sawhill said \$428 million had already been raised from private sources for the five-year campaign, which has three more years to run. Most of the money is to be devoted to conservation projects in the United States, conservancy officials said, but some will be spent abroad.

The combination of the biological inventory and the financial commitment "is one of the most important conservation initiatives I can remember," said Jamie Rappaport Clark, the director of the United States Fish and Wildlife Service, which administers the Endangered Species Act.

"The two-punch effort of the knowledge and the resources is absolutely unparalleled."

The effort comes at a time when many conservationists say their enterprise is on the financial rise, as private gift-giving has increased and governments have poured more money into acquiring and protecting large tracts.

Congress has appropriated about \$1 billion for that purpose over the last three fiscal years, and in 1999 an additional \$1.8 billion was provided at the state and local level, according to figures supplied by the conservancy.

"We're now entering the era of big conservation, and this is not a moment too soon," said Dr. Edward O. Wilson, the Harvard University biologist and biodiversity expert, a member of the conservancy's board.

Most of the world's species are found in the tropics, and this has led conservationists and scientists to focus much of their attention there. The surprisingly high-diversity ranking of the United States, Dr. Wilson said, results partly from the fact that most scientists who study such matters live and work in the Northern Hemisphere.

The ranking of the United States will fall when the tropics are better studied, he said. Indeed, experts say, countless species are still to be discovered around the world.

The new study says the United States itself may actually contain double the number of species documented so far.

New ones are being discovered all the time; the study says 30 previously unknown species of flowering plants turn up in North America every year.

Despite the uncertainty, the study's authors say, it is clear that the United States "ranks quite high in terms of its biotic diversity."

Dr. Bruce A. Stein, a conservancy scientist who is one of the study's editors, put it this way: "We have an amazing amount of stuff. The bad news is that a lot of it is not in very good shape. But there is time to protect it."

The study found that 500 species were extinct or missing. Of the more than 200,000 species, 7 percent were found to be critically imperiled, 8 percent imperiled, 16 percent vulnerable and about two-thirds were secure or apparently secure.

Five special "hot spots" of imperilment emerged from the analysis; that is, places where high numbers of species found nowhere else are at risk: the San Francisco Bay area, Southern California, the Death Valley region, the southern Appalachians and the Florida Panhandle.

Forest report card from Europe

Environmental News Network staff, 26 January 2000

From Austria to Latvia, Turkey to the UK, European countries received failing marks in forestry protection in report cards issued by the World Wide Fund for Nature.

Switzerland ranked highest of 20 countries graded by the World Wide Fund but scored only 62 points out of a possible 100. Denmark was the worst of the lot, scoring only 36 points.

Researchers from the nature fund evaluated the forestry performance of 20 European countries in five broad areas: forestry production, environmental care and quality, social and cultural aspects of forest care, protected areas and pollution. The report cards include detailed evaluations of each country's policies and management as well as the quality of its forests.

The average score of 20 report cards was a humbling 51 points.

"Even the highest scoring country, Switzerland, only achieves 62 out of 100," said Per Rosenberg, Head of the fund's European forest program. "This is far too low. All countries have serious improvements to make in many areas of forest care."

The homework list runs the gamut of troubles, from management of resources to air pollution to soil erosion to the wholesale destruction of forest habitats. Only two percent of Europe's forests remain in their natural state.

"There is too much focus on wood products and very little interest in the use of non-wood products," researchers note in an introduction to the fund's 100-page report. "The emphasis seems to be on quantity of wood produced rather than quality."

The report cited the refusal of foresters to allow dead wood to rot in the forest as a prime suspect in the destruction of vital habitat for plants and animals.

According to the report, eastern Europe is generally no worse, and in some cases considerably better, than its western counterparts in protecting and caring for its forests. Poland and Slovakia, for example, performed much better than France and Germany. Similarly, Mediterranean countries scored as well as, and sometimes even better than, more affluent northern European countries.

The World Wide Fund intends to publish another forestry report card in 2001 in the hope of provoking European governments and the forest sector to action.

See the scorecard at the world wildlife federation site:

http://www.panda.org/resources/inthefield/europe/forests/scorecards/summary_new.htm

Sewing the Seed: Initiating a Native Plant Restoration Program (Michigan)

Janet L. Schultz, Hiawatha National Forest 1999. *Ecological Restoration*, v17(4):239

For several years, we have aspired to use native seed and plants of local origin in various restoration projects at the Hiawatha National Forest., which is located near the city of Marquette in the eastern portion of Michigan's Upper Peninsula (UP). We are concerned about maintaining the biodiversity and integrity of the local gene pool, controlling invasive plants, and insuring the success of our short- and long-term restoration projects. The recent Executive Order on Invasive Species, E.O. 13112, (issued February 3, 1999) directs federal agencies to "provide for restoration of native species and habitat conditions in ecosystems that have been invaded." However, finding commercially available sources of native material from local sources has been a challenge for us.

Several partners, most notably the Wisconsin Electric Power Company, have recently helped us start our own native plant propagation program by funding two projects – a greenhouse renovation and a native plant restoration site – at Hiawatha's Marquette Interagency Conservation Center. The greenhouse and restored landscape produce a small quantity of the plants needed for our restoration work and also serve as places where we can hone our cultivation, propagation, and restoration techniques. Volunteers from Northern Michigan University and the Marquette community have assisted us in our efforts.

We renovated the greenhouse using an inflated doublehoop design and equipped it with natural gas and a mister system. Staff and local volunteers collect seed for the greenhouse cultivation from sites in the eastern UP, primarily within the Hiawatha National Forest, that we know to be indigenous. We harvest no more than 50 percent of

the seed at a site and carefully record the harvest location and date. We chose first to grow those species that required little seed preparation, mostly cold stratification, and that had a wide ecological amplitude. Taking this approach, we could outplant these species successfully in landscapes ranging from dry to mesic to wet-mesic.

The native plant restoration site measures about one quarter-acre, and serves as an educational tool and a seed source for various projects. We organized the native plantings by the amount of overstory shading available at the site and the amount required by the individual species. We salvaged shade-loving, deciduous forest herbs and ferns from several projects at Hiawatha where they would have otherwise been destroyed. We removed the sod using a sod cutter, rototilled about two inches deep, and planted and seeded the desired natives (we did not use any herbicides). We are now beginning the third summer “post sod,” and the forest plantings are well established and thriving. We planted the sunny areas of the site with native savannah-meadow species. These areas still require some weeding, but this has become less of a chore with each growing season.

Our native seed and plants have been, and will be, used in several restoration projects at Hiawatha, including an area within a wild and scenic river corridor, a gravel pit, a power- and gas-pipeline site, and on landscape damaged by all terrain vehicles. They are also being used for road-side seeding, site enhancement for monarch butterflies, educational gardens, as a seed source, and for landscaping a new district office.

The most important factor in site preparation for native-plant outplanting has been the removal of weeds, without the use of herbicides. We have successfully controlled weeds using multiple shallow tillings (two inches) at three week intervals through the growing season. We are also currently trying a nurse crop of annual oats (*Avena sativa*). Mulching our deciduous forest garden with deciduous leaves in the autumn has decreased the amount of spring and summer weeding necessary and creates a natural appearance. For larger scale restoration projects, we use a weed-free straw. We typically place the small plants that we grow from seed on eight- to 12-inche centers.

The longer we work with our various native plant restoration projects, the more techniques we learn. Our advice after several years of tinkering? Be patient. Remember that failure is a learning experience. And finally, share your enthusiasm for native flora with link-minded people who may be willing to contribute their time, expertise, and/or financial assistance.

Native Plants Help to Save Time, Money, Chesapeake Watershed

Kathryn Reshetiloff, US Fish and Wildlife Service, Chesapeake Bay Field Office
for the March 2000 issue of the Alliance for the Chesapeake Bay’s “Bay Journal”

I used to consider myself horticulturally challenged. You might even know they type. We buy plants outside discount stores (not knowing much about what we’re buying). We take them home with good intentions. We plant them, water them once or twice and then forget them. Some plants thrive, others do not.

I always marveled at other perpetually green, exotically landscaped yards. Then I found out how much time, effort and money was spent on these lovely yards. Forget that.

“Survival of the fittest, that’s my method,” I’d say, proudly standing amongst sparsely vegetated patches. “If it survives, great! If not, well it was never meant to be.”

My friend Laurie refers to this as my Marquis de Sade method of landscaping. Well luckily for me (and for my yard), there is another choice. If you want a wide variety of flowers, shrubs and trees without a lot of pampering and maintenance, try using native plants.

Native plants are those that have naturally occurred in a region for hundreds of years. Plants native to an area are accustomed to the geography, soil, climate and other local conditions.

A growing number of nurseries are beginning to offer native flowers, shrubs, and trees. When selecting natives, you need to choose species that will thrive in your particular soil, sun and moisture conditions. Besides requiring less overall maintenance, which saves time, water and money, native species also provides many added benefits.

Native plants create wildlife habitat. Habitat consists of food, water, shelter, and breeding areas that our wildlife need to survive. These areas are being lost as land in the Chesapeake watershed is continually being developed for roads, homes, businesses and agricultural operations.

Incorporating native plants into landscape designs at home or work provides wildlife with food such as berries, seeds and nectar; cover; and nesting areas. This creates a more self-sustaining system with all the checks and balances that nature provides. Habitat that will attract beneficial insects, small mammals, birds, frogs, turtles and other wildlife can be planted right outside one's window!

Native plants require less or no chemicals. Unlike many exotic plants, which require insecticides and fungicides to thrive, natives are less susceptible to pests. Often they don't even need pesticides to control insects because they have either developed their own natural chemical defenses, or the insects that attack them are controlled by other insect, birds or other animals.

Because they have adapted to local soil conditions – even “poor” soil – native plants require less chemicals because they don't rely on fertilizers for their nutrients. Rather than fight with the soil, by routinely fertilizing or liming, choose plants that will thrive in existing conditions. For a small fee, the state Cooperative Extension Service will perform a simple test to identify your soil conditions. Contact your local extension office to learn about this program.

Plants that have evolved to live in specific conditions, once established, won't require constant intervention.

Native plants also help to prevent the spread of invasive plants. Some exotic plants – species from other countries or parts of the United States – have become invasive weeds, spreading out of control. Invasive plants already infest more than 100 million acres in the United States and continue to increase by 8-20 percent annually. According to the Weed Science Society of America, control efforts and losses resulting from invasive plants cost more than \$20 billion per year in the United States.

When invasive plants take over wetlands, forest or meadows, we lose the native plants and habitats needed by local wildlife.

Many times, homeowners aren't aware that a plant contained in a bed can become a menace in the wild. To avoid the possibility of releasing invasive plants, use native plants as often as possible. Some examples of invasive plants include: Japanese honeysuckle, kudzu, purple loosestrife, phragmites, autumn olive and Norway maple.

For information on invasive plants and how to control them, visit the Plant Conservation Alliance's website at www.nps.gov/plants/alien.

For many of us, our first connection to the land is a garden or yard. Hanging baskets and window boxes can provide that connection in an apartment. We recognize our homes not only by our hoses, but by the community, geography and landscape.

Native plants enhance this feeling of place. Throughout the watershed, identical housing developments and strip malls are transforming our diverse landscape into a sort of monoculture. By keeping or restoring native vegetation, we create communities that represent our local natural and cultural heritage. We create a sense of place.

As native plants become more popular, more nurseries are starting to carry them. Be sure to use only nursery-grown native plants. Never remove native plants from the wild.

Fungus Could KO Kudzu

Tara Weaver-Missick, USDA ARS News, February 1, 2000

A fungus from the sicklepod plant, which is found in the southeastern United States, effectively controls kudzu, a non-native invasive weed that has crept over more than 7 million acres in this country, according to Agricultural Research Service scientists in Stoneville, Miss. In greenhouse and field studies, the scientists found that the fungus *Myrothecium verrucaria* killed 100 percent of kudzu weeds.

Plant pathologists C. Douglas Boyette and Hamed K. Abbas treated kudzu at different growth stages and under varying physical and environmental conditions. In all cases, the fungus effectively controlled the weed. This research was done in collaboration with ARS' Southern Weed Science Research Unit and Louisiana Tech University.

Kudzu, native to eastern Asia, was introduced into the eastern and southern United States in the 1800s. It was originally promoted for erosion control and as an inexpensive forage for livestock. It is now present from Florida to New York, westward to central Oklahoma and Texas, with heavy infestations in Alabama, Georgia and Mississippi.

Kudzu resembles a giant bean stalk. It spreads about 120,000 acres a year, resulting in losses due to reduced land productivity. Control costs increase by nearly \$6 million each year. Homeowners have a hard time controlling this weed, which will grow up the sides of buildings, along fences and on telephone poles.

Typical--but not highly efficient--control methods include treating with herbicides and mowing. Many consumers are reluctant to spray herbicides, and mowing doesn't kill the weed's underground root system. ARS' fungicide should provide an alternative to herbicides. One spray treatment kills leaves and stems and appears to invade the plant's roots. The researchers are doing extensive toxicological studies on the fungus, and plan to pursue a patent on it. ARS is the U.S. Department of Agriculture's chief research agency.

Scientific contact: C. Douglas Boyette, ARS Southern Weed Science Research Unit, Stoneville, Miss., phone (601) 686-5217, fax (601) 686-5422, dboyette@ag.gov.

Controversial Former Forest Service Official gets National Award

Scott Sonner Associated Press Writer

The Wilderness Society has selected former Forest Service supervisor Gloria Flora as its public land manager of the year for taking "significant risks" to promote environmental conservation. "No one has put themselves on the line for public land more than Ms. Flora," said Bill Meadows, president of the national, non-profit conservation group founded in 1935. "In fact, she has risked her career for what she believes is right," he said in a statement from Washington. Flora, former supervisor of the Humboldt-Toiyabe National Forest, resigned in November to protest what she called an "anti-federal fervor" in Nevada.

As head of the largest national forest in the Lower 48 states, she was locked in an ongoing battle with livestock ranchers over grazing rights as well as a dispute over protection of the threatened bull trout. In her previous Forest Service job in Montana, she clashed with oil and gas industry leaders who wanted to open up the Rocky Mountain front to drilling.

Flora said Forest Service workers in rural Nevada have been shunned in their communities, refused service at restaurants and kicked out of motels just because of who they work for. She said in an open letter of resignation to her co-workers that she refused to "participate in this charade of normalcy."

"It's time to speak up. But speaking up and continuing to work here are not compatible. By speaking out, I cannot provide you, my employees, with a safe working environment," she said.

Jay Watson, California-Nevada regional director for The Wilderness Society based in San Francisco, said nominations for the award are solicited from the group's branches throughout the country.

"This time around, there was almost no need for nominations. It was pretty obvious who should receive it," Watson said Tuesday.

Flora has been gone from her job since the first of the year, spending some time on a speaking tour in Montana sponsored by the Montana Human Rights Network and Montana Public Employees for Environmental Responsibility.

But she continues to draw fire from critics in Elko, where local activists are battling the Forest Service over a road they want reconstructed on the Humboldt-Toiyabe National Forest near the Idaho border.

The agency maintains rebuilding the road that washed out in a flood in 1997 would jeopardize survival of the threatened bull trout.

An estimated 4,000 people turned out in Elko for a parade last weekend aimed against the Forest Service and collecting 10,000 shovels symbolic of the effort to reopen the road. One sign on a pickup truck in the parade said, "Look Gloria. 10,000 shovels."

Elko lawyer Grant Gerber said Flora deserves much of the credit for stirring up interest in the fight over the road in Nevada.

"We have the greatest debt to pay to Gloria Flora," Gerber told the crowd gathered around the Elko County Courthouse on Saturday.

"I'm going to pass around this bucket and ask everybody to put a penny in it. I'll send the money to her along with a shovel to encourage her to continue her speaking tour around the United States," he said.

The Wilderness Society award is to be announced formally at reception Thursday at the Indian Pueblo Cultural Center in Albuquerque, N.M. It's called the Olaus and Margaret (Mardy) Murie Award, in honor of Olaus Murie, who was the society's president from 1945-62, and his wife. President Clinton presented Mardy Murie with the Medal of Freedom in 1998.

Three others also will be recognized in Albuquerque -- Kim Crumbo of the Southwest Forest Alliance and Grand Canyon Wildlands Council, and Phyllenore and Bob Howard of the New Mexico Wilderness Alliance.

A prof takes on the sacred cow

Wyoming's Cowboy Joes jump on a grazing critic

Katharine Collins, 28 February 2000 High Country News <http://www.hcn.org>

Influential ranchers are cutting off contributions to the University of Wyoming and demanding that faculty be screened at hiring to weed out troublemakers.

The president of the Wyoming State Senate, Jim Twiford, R-Douglas, told the Casper Star Tribune that "We've got some some unlicensed, unbridled folks running over there that that ought to be smarter than to be biting the hand that's feeding them." In February, Twiford drafted a bill to close the University of Wyoming College of Law, but later dropped it. "I was trying to draw attention," he said.

Meanwhile, his colleagues in the Legislature argue whether to keep state funding for the university at its 15-year stagnation level.

The source of the firestorm is UW law professor Debra Donahue, author of *Western Range Revisited: Removing Livestock from Public Lands to Conserve Native Biodiversity*. The book, published last December, proposes removing cattle from millions of acres of public lands.

In response, Wyoming Stock Growers President Rob Hendry sent a letter to university trustees in early January, stating that the school needed to "do a better job screening applicants for different positions to adequately ensure that the majority of professors and instructors represent the ideals and views of Wyoming's people." Hendry also called for a restoration in the College of Agriculture of "Wyoming grassroots fields," such as animal science, range management and agricultural economics, and an end to flirtations with more glamorous biological fields, such as ecology and biodiversity. In the Cowboy State, ranchers swing great weight in the state Legislature, which provides 39 percent of UW's budget (*HCN, 7/7/97*).

Not so long ago, the university administration would have quickly caved in to an outraged agricultural community and turned on the offending faculty member. In 1947, for example, the trustees ordered the administration to review all textbooks in use on campus, and the administration cheerfully complied. Just a few years ago, when the state's minerals industry went after another law professor, Mark Squillace, who did pro bono work for an environmental group, the administration gave him little public support.

But under university President Philip Dubois, the school is standing behind Donahue. Dubois said he hasn't replied in writing to Hendry's letter, but that in a meeting with Stock Growers staff, he and two trustees told them that "the loyalty oath went out in the 1950s, and that we seek the best scholars we can get."

The university is not about to yield on principles of academic freedom, he said.

Taking a stand

Since his arrival nearly three years ago, President Dubois has made academic excellence his goal. He has also been meshing business and economic expertise within the university with state efforts to improve Wyoming's dismal economy (*HCN, 7/6/98*).

Still, the university, the state's only four-year educational institution, is gradually losing enrollment, in keeping with the state's gradual population loss. Combined undergraduate enrollment peaked in 1991 at 12,656 and now stands at 10,940. It is nowhere near the economic engine found on campuses in neighboring states, let alone in other parts of the nation.

Though Dubois has made unpopular decisions - scrapping some programs and shoring up others - the university under his leadership has set new records in attracting both private contributions and federal research monies. So while the Cowboy Joe Club, which supports athletics at UW, may donate \$100,000 or so less this year as a result of Donahue's book, the university probably stands to gain much more by concentrating on academic excellence, says faculty member Steve Gloss.

Sociology professor Garth Massey, whose career at the university spans 25 years, said he was gratified that Dubois "didn't back up at all" on Donahue's book. "We have an administration that makes reminders that the institution has a good deal of autonomy. Still," Massey said, "I rather like the idea that people care about what is being said by professors and don't blow us off. When they stop responding, we're going to be in big trouble."

Author Donahue was less enthusiastic about a letter Dubois sent to an agricultural publication, pledging support for agriculture. It "would have been nice" if the university president had shown equal passion for academic freedom, she said.

"But a university president has to wear a lot of hats, and he needs to be passionate in seeking funding," Donahue added. "He deserves a lot of credit for the efforts he's made."

Squillace, the natural resources law professor who was the target of the mining industry, said Dubois has "missed the opportunity to educate the public" on what academic freedom is all about.

"Instead, he made comments that are fueling this issue in a way that is not particularly productive - an us-against-them thing," Squillace said.

Dubois in the hot seat

Frank Philp, a sheep rancher, UW range management graduate, and a fourth-term Republican representative from Shoshone, says he shares Dubois' vision. But he also says that the feedback he gets from his constituents - who are dependent on minerals and grazing - is that they are fed up and want the university put in its place.

"They (wonder) why we should support an institution where people are doing things that are detrimental to the state."

Philp tackled Dubois earlier this year, when the university president appeared before the Joint Appropriations Committee.

Dubois says he owes apologies to neither side. "I am unfailing in my defense of the right of professors to speak the truth as they know it," he said. "But we do have an obligation to provide support to agriculture as an industry under our charter as a land-grant institution. That doesn't mean taking a political position on grazing vs. not grazing."

University trustees have defended academic freedom. Trustee president Hank True, one of the largest Bureau of Land Management lessees in the state, was adamant that the university is a place where lots of ideas are espoused under the aegis of academic freedom "and in no way are we going to infringe on that."

A former president of the UW trustees, Big Piney rancher Gordon Mickelson, had a different view. "Academic freedom is fine, but when you're jeopardizing livelihoods, something's wrong," said Mickelson, whose large ranch operations near Pinedale rely on federal, state and private grazing lands.

Andre Michaux 1745-1802

W.F. Gabel, 1979, Two Hundred Years of Botanical Nomenclature

This celebrated French botanist and traveler was born near Versailles in 1746. He studied under the famous botanist Bernard de Jussieu, and in 1779-1780 traveled to England, then through lower France, gathered and studied botanical specimens. From this experience he introduced several new plants to the scientific world.

In 1782 he was sent to Persia on a scientific mission, and then to North America about 1785 on similar assignments by the French government. He was forced to return home after the French Revolution, surviving a shipwreck in which most of his specimens were lost. In 1800 he sailed again, this time to Madagascar where he died two years later.

Michaux classified and cataloged many plant genera including *Magnolia*, *Lobelia*, and *Grossularia*. To his honor, an ash tree, *Fraxinus michauxii*, and a grass (sic) in the genus *Carex* bear his name.

His son, Francois Andre (1770-1855) was also a botanist of note, accompanying his father to America. He published from 1810 to 1813 three volumes on the geographical distribution and classification of the principal American timber trees found north of Mexico and east of the Rockies. His botanical designation following the Latin name of a plant is listed by Gray as "Mich. f." to distinguish him from his father.

Women's Clubs and Conservation

from Centennial Mini-Histories of the Forest Service
Terry West 1992. USDA Publication FS-518

The lack of franchise for women in the United States before 1920 did not exclude them from political activism – the influence of women in shaping the national agenda during the "progressive conservation ear" (1890-1920) is testimony. In this era of "club house politics," public policy was often shaped by an influential few. With many members of the male elites of the period enthusiastic about commodity production, it was often left to the female counterparts to concern themselves with the social and environmental consequences, from the plight of urban sweatshops to rural stream pollution. It was in the efforts of State and national federations of women's clubs with conservation crusade at the turn of the century is illustrated in the following accounts.

Mary Eno Pinchot – mother of Gifford Pinchot – headed the 100 member conservation committee of the 77,000-member Daughters of the American Revolution (DAAR). Some of the committee's causes included the protecting Niagara Falls and watersheds in the Appalachian Mountains. It was told by former members that a frequent reply to women's letters asking State governors what they might do for conservation was to "mind the children." This they did by promoting conservation education to school children. **Mabel Rosalie Edge** (1877-1962) of New York City was, like many of the women leaders in conservation also active in the suffrage movement. An active member of the National Audubon Society in the 1920's and 1930's, she sponsored several reforms in game laws and started the Hawk Mountain Sanctuary of Pennsylvania. **Mrs. Lovell White** helped found the Save the Redwoods League (1918) and was active in the California Federation of Women's Clubs. The latter group led a successful effort to have a forestry school established at the University of California, Berkeley.

Gifford Pinchot of the Forest Service paid homage to the support of the Federation of Women's Clubs for forest conservation, writing that without it the creation of the Minnesota Forest Reserve "would have been impossible." He claimed that this effort of 1902 led to the first reserve by direct congressional action rather than presidential proclamation (Pinchot 1947:205)

At the American Forest Congress held in Washington, DC, in 1905, **Lydia Phillips** – chair of the forestry committee of the General federation of Women's Clubs with 800,000 members in 1905 and its own magazine, *Century* – in an impromptu address described the club's work in promoting tree planting, forest preservation, and irrigation. The partnership of women in forestry and conservation began to fade shortly after this event. The 1910 dispute over construction of the Hetch Hetchy Dam in California split the earlier allies into two camps: The Sierra Club and preservationists versus the Forest Service and conservationists. Many women tended to feel more akin to the values of preservation of parks and wildlife and joined those movements. By 1915 over half of the members of the Audubon Society were women and in 1929 the National Parks Association had more female members than male. Another faultline where the genders parted was in occupational and leadership roles. This became apparent by 1913 at the Fifth national Conservation Congress. Despite the presence of women participants, only men were featured in the coverage by the magazine, *American Forestry* (now entitled, *American Forests*). Such neglect of women is attributed (Raney 1990:46) to "the arrival of conservation and forestry as technical professions. Women were excluded."

In the USDA Forest Service, the remaining role of women in conservation was in the field of public education. **D. Priscilla Edgerton** – who retired in 1938 – began work at the Washington Office in 1909 as an editor and wrote *The forest, a handbook for teachers*, an agency "bestseller," in 1930. Perhaps the most famous Forest Service educator of all time however, was Margaret March-Mount. She began work in 1923 on the Bighorn National Forest and soon after on the Shoshone National Forest, where apart from her regular job, she did publicity for the Cody Club (a private society to revive the history of Buffalo Bill). The latter experience and her personal desire to restore nature to health led to her work in Milwaukee at the regional office of the Conservational Educational Activities with women's clubs. Her work took her on speaking tours before garden clubs, school children, and other civic groups, all the time to promote tree

planting. The success of her “penny pines” Children’s Conservation Crusade to get student donations to fund the planting of pines on national forests (the Forest Service would plant 1,000 seedlings for every 4 dollars received) led to her transfer to the Washington, DC, headquarters to continue effort nationwide. An article in the 1942 Washington Post credits march-Mount with motivating the national DAR to promote the planting of 5 million seedlings in 36 states and the District of Columbia. It mentions as well the goal of the General Federation of Women’s Clubs of establishing a federation forest in every State. This work may be viewed as part of the war effort but the linkage of the Forest Service with Women’s Clubs in conservation programs in those years was evidence of past mutual activism. In recent years, the link has faded just as the cutting edge of environmental activism has passed to other, often newer, organizations.

Reference

Ranney, S.A.G. 1990. Women and the history of American conservation. *Women in Natural Resources* 11(3):44-50

Pinchot, G. 1947. *Breaking new Ground*. Harcourt, Brace, Jovanovich, NY

Training Opportunities on the Hiawatha National Forest

The Hiawatha NF is offering two field oriented training courses this summer at the rustic Clear Lake Camp near Munising, Michigan. On July 25-27, Dr. Ed Voss will lead herbarium sessions and field trips focusing on identification and collection of native and exotic plant species. On August 7-9, Dr. Clifford Wetmore will lead lichen identification field trips. The workshops cost \$170 each (includes tuition, lodging, meals). Classes are limited to 25 persons each. Registration for either should be made by 1 May. For additional information, contact Jan Schultz (Hiawatha NF Botanist) at 906.228.8491.

Wildflower Festivals Across the Nation

Dia de las Palmas, Mid-April 2000, Brownsville, Texas

Dia de las Palmas is an open house that is free of charge and open to the public. We offer bird, butterfly and plant tours, as well as exhibits, displays, and guest speakers.

Contact: Sabal Palm Audubon Center and Sanctuary, 956.541.8034,

<http://www.audubon.org/local/sanctuary/sabal/>.

Spring 2000 Wildflower Festival, April 14-16 2000, Chattanooga, Tennessee

Guided wildflower walks, mini-stump talks and sales of hundreds of native shrubs, trees, and wildflowers are the focus of this three-day event at Reflection Riding Arboretum and Botanical Garden. Come and enjoy the spring days out in the Riding. Contact:

Reflection Riding Arboretum and Botanical Garden, 423.821.9582,

<http://virtual.cattanooga.net/rriding/>.

Spring Wildflower Symposium, May 12-14 2000, Wintergreen, Virginia

A weekend of guided hikes, lectures and workshops on Virginia’s native flora. Join field scientists and naturalists for presentations on ecology, native gardening, identification,

pollination and much more. Contact: The Wintergreen Nature Foundation, 804.325.8169, <http://www.twnf.org>.

Warbler and Wildflower Festival, May 24-26 2000, Bar Harbor, Maine

This festival celebrates the wonder of nature and the beauty of Mount Desert Island. Learn more about local birds and flowers. Warblers, wildflowers, walks and talks, bird carvings, expositions, gallery shows, and more. Contact: Bar Harbor Chamber of Commerce, 888.540.9996, <http://www.barharbormaine.com>.

Mount Magazine International Butterfly Festival. June 10-11 2000, Paris, Arkansas

Like Butterflies? Then you'll flit around for joy at this terrific butterfly extravaganza. Enjoy butterfly gardens, explanations of butterfly ecology and life stages, wildflowers planting and a guided catch and release session for all ages. Contact: Paris Area Chamber of Commerce, 800.980.8660, www.paris-ar.com.

Crested Butte Wildflower Festival. July 10-16 2000, Crested Butte, Colorado

A week-long botanical celebration in the wildflower capitol of Colorado. Featuring hikes, walks, talks, tours, workshops, slide shows, art exhibits, and presentations all about wildflowers. Contact: Crested Butte Wildflower Festival Inc., 970.349.2571, <http://www.visitcrestedbutte.com>.

Ladyslipper Festival, June 23-25 2000, International Falls, Minnesota

Enjoy seminars and nature hikes that highlight and celebrate wildflowers and the importance of native plants. Programs include a close look at the orchids of Minnesota, especially the showy ladyslipper blooming during the festival. The Kabetogama community has an arts and crafts festival in conjunction with the park's activities. Contact: Voyageurs National Park, 218.283,9821.

Warren "Herb" Wagner (1920-2000)

From: W.R. Anderson & the ASPT web site:
<http://www.csd1.tamu.edu/FLORA/aspt/asptnew1.htm>

Warren H. Wagner, Jr. (known affectionately to all as Herb) died on 8 January 2000; he was in his eightieth year. He was probably the best-known botanist ever to work at the University of Michigan.

After Navy service in the Pacific during World War II, Wagner did his Ph.D. at the University of California at Berkeley, spent one year at Harvard as an instructor, and came to the University of Michigan as Assistant Professor of Botany in 1951. His primary research focus was the systematics, hybridization, evolution, and evolutionary history of ferns and fernlike plants, but his interests went far beyond ferns, to include (among many other things) oaks and other difficult groups of flowering plants, butterflies, and minerals. His energy was boundless and his enthusiasm famously contagious, which made him one of the most successful teachers of both undergraduates and graduate students in the University.

After retirement he continued to participate in the teaching of courses in plant systematics in both Biology and Natural Resources; indeed, he taught more in retirement

than many younger colleagues ever do. He chaired or co-chaired 45 doctoral committees and served as a member of over 240 graduate committees. He served a term as director of the Matthaei Botanical Garden from 1966 to 1971, but administration was never his strong suit. He had more fun stirring things up and getting people excited than smoothing over rough places and finding consensus solutions to little problems that did not really matter in the "big picture," which was one of his favorite phrases.

In the 1950s and 60s, working in collaboration with his wife, Dr. Florence S. Wagner, he published a series of elegant studies showing that ferns hybridize freely and that hybridization is a major source of new species in plants. That idea is now widely accepted, but 45 years ago it contradicted a dogma that had been imported into botany uncritically from zoology, and the Wagners' beautifully documented research helped botanists realize that the constraints of plants' habits and habitats and reproductive styles made a different species concept appropriate for them. Wagner's attempts to infer the ancestors of the Hawaiian fern genus *Diellia*, and his desire to teach undergraduates how to think about evolutionary history, led him to propose a method of deducing phylogeny that was radical at the time, and with characteristic missionary zeal he went around the country and the world exhorting botanists to abandon their traditionally sloppy approach to the inference of phylogeny and start using methods that are explicit and testable.

Wagner's success and influence were widely recognized during his life. His many honors included election to the National Academy of Sciences in 1985 and the Asa Gray Award from the American Society of Plant Taxonomists in 1990. He served as president of seven professional societies, including the ASPT (1966), the Botanical Society of America, the American Fern Society, and the International Association of Pteridologists. He was in wide demand as a speaker to groups of professional botanists and amateurs, and after the talk he was likely to sit down at a piano and entertain the astonished guests with lively honky-tonk playing. He is survived by his wife, Florence, their children Margaret and Warren, both of Ann Arbor, and two grandsons.

Pioneering Evolutionist Ledyard Stebbins Dies at Age 94

University of California, Davis News Service, 20 January 2000

University of California, Davis, professor G. Ledyard Stebbins, so brilliant that his theories on plant evolution established the discipline, yet so chronically absorbed in his thoughts that he once drove 120 miles without noticing a dead rattlesnake on the hood of his car, died Wednesday at his Davis home. He was 94.

"There's no doubt whatsoever that UC Davis' fame in the general field of genetics and evolutionary biology rests squarely on the shoulders of Ledyard Stebbins," said UC Davis Chancellor Larry Vanderhoef. "He has long been recognized internationally as a major leader and pioneer in the biological sciences. His passing will be mourned by his many friends and colleagues here and around the world."

"He was certainly the world's leading expert on plant evolution," said Francisco Ayala, Bren Professor of Ecology at UC Irvine and Stebbins' longtime friend and professional colleague.

Stebbins became a professor of genetics at UC Davis in 1950, just after he published "Variation and Evolution in Plants." It was one of four texts considered to be

the classics that formulate the modern theory of evolution, Ayala said. A national symposium revisiting the contributions of that text will be held at UC Irvine next week and Stebbins had planned to attend, even though he had been ill with cancer since May.

A speech in tribute to Stebbins will be made by eminent botanist Peter Raven, Engelmann Professor of Biology at Washington University in St. Louis.

The seeds of Stebbins' lifelong passion for nature were planted on walks with his mother, who taught her children the names and songs of birds, and with his father, who took the children prowling through Atlantic tide pools. At Harvard University in 1925, Stebbins was introduced to Darwin's theory of evolution. As a junior the following year, he decided to become a botanist.

Darwin's theory was undergoing rigorous testing at the time, and in the 1930s and '40s, scientists from many disciplines developed modifications that satisfied most of them. Dubbed "the modern synthesis," the new theory continued to emphasize natural selection and the gradual pace of evolution. Its architects were some of the best scientific minds of the time, and G. Ledyard Stebbins was one of them.

Evolution is the study of how living things change over time. Stebbins figured out how broad evolutionary principles applied to plants. "I pointed out, and still point out," he said in 1989, "certain differences among higher plants and higher animals that make it necessary to understand species in a different way. Certain things happen in plants that don't happen, or happen to a lesser degree, in animals."

In 1952, Stebbins was elected to the prestigious National Academy of Sciences. Over time, he continued to expand his thinking about evolution and plants in other books and important papers.

"He was extremely centered," said Mel Greene, UC Davis emeritus professor of genetics. "His whole life was evolution and evolutionary botany." Ayala said, "He was very intense and dedicated. Working in the field, he would pay no attention to the proper time of eating or anything else."

In addition to his research achievements, Stebbins was an excellent mentor to graduate students, many of whom have become very accomplished scientists, and a well-liked teacher of undergraduates. "He was a very engaging lecturer, very energetic and enthusiastic, because he knew the subject well and was enamored of it," Ayala said. "And he was enamored of teaching. He loved to be loved by the students." In 1972, he received the campus's Distinguished Teaching Award.

He retired in 1973, at age 67, but stayed active in research and writing books for another 20 years.

In 1979, he was awarded the National Medal of Science, the country's highest award for scientific accomplishment. In 1980, the University of California regents named a UC natural reserve in his honor -- Stebbins Cold Canyon Reserve, a 577-acre parcel about 20 miles from campus. Stebbins said that honor was far more satisfying than having his name on a campus building. His ashes will be scattered there.

It was in a similar wildland setting that the rattlesnake episode began, Ayala said. "We were collecting in Pope Valley, near Napa, and in the process we killed a rattlesnake with a stick. Not knowing what to do with it, we put it on the hood of the car we were sharing."

They continued working. After it grew dark, Ayala drove them back to Davis. ("We didn't let Ledyard drive because he was prone to see some hybrid plant by the

roadside and forget about keeping the car on the road.") The next morning, Stebbins drove the car 60 miles to UC Berkeley, delivered a lecture, and drove it home -- with no notice of the rattlesnake that was still resting on the hood. Upon his return, he told Ayala, "I think something strange is wrong with this car. When I came out of the lecture, about 30 students were standing around looking at it."

Banner Plant: *Trifolium thompsonii*

Each month, a different plant graces the banner of *Lingua Botanica*. This month's submission is from Terry Lillybridge, Plant Ecologist/Botanist Okanogan & Wenatchee National Forests

Thompson's Clover is a rare endemic know from a few small populations near Wenatchee, Washington. It is typically associated with steppe/grassland species like bluebunch wheatgrass (*Pseudoroegneria spicata*), Sandberg's bluegrass (*Poa secunda*), big sagebrush (*Artemisia tridentata*), and Idaho fescue (*Festuca idahoensis*). It is said that J.W. Thompson first saw this plant from his vehicle in the early 1930's and immediately knew that he had found a previously undescribed plant. The leaves are digitate-palmate, the leaflets have serrate margins. When it blooms in May-June it really spruces up the slopes since the heads are about golf ball-sized. Thompson's clover is currently a Federal Candidate and is not listed primarily because of a lack of defined threats.

Afterword

From the fertile perigynium of Phil "Sedgehead" Hyatt

Simplified Key to the Flora of Southeastern United States

- 1.... Plant woody **treelike species** (go to 2 for optional additional detail).
 - 2 Plant really tall. **trees**
 -2 Plants smaller. **shrubs**
- 1 Plant not woody **lesser vegetation** (go to 3 for optional additional detail).
 - 3 Plant small, without normal leaves. **mosses and pond scum**
 - 3 Plant larger, with normal leaves. **plants** (go to 4 for optional additional detail)
 - 4 Plants eaten by cows **grasses and grasslike plants** (go to 5 for optional additional detail)
 - 5 Plants normally dry, will burn. **grasses**
 - 5 Plants wet, won't burn..... **Sedges***
 - 4 Plants not eaten by cows. **flowers** (go to 6 for optional additional detail)
 - 6 Flowers obvious, large, colorful. **true flowers**
 - 6 Flowers can't be found..... **weeds**

* Note: the section on sedges has yet to be completed. It includes an additional 500 or so taxa if this key is to cover all of the southeastern United States. The rest of the key will work fine, though. The total number of taxa a novice needs to learn is still a tolerable 507, well within the experience of a good birder.

The opinions expressed in *Lingua Botanica* are not necessarily those of the USDA Forest Service or the editors. Pass your copy of *Lingua Botanica* around. Contributing submissions are always welcome. *Lingua Botanica* has been shown to reduce symptoms of hysteria (but not pfiesteria) in 7 of 10 readers. To subscribe to the *Lingua Botanica*, send an email to Wayne Owen at <wowen@fs.fed.us>.

