



Lingua Botanica

A Journal for FS Botanists & Plant Ecologists



Persephony, where have you been? It's been a long dark winter. Perhaps you've felt the same way. Cold, huddled, caged; whether your winter is literal or figurative, life can be hard at this time of year. When you can't get your feet warm, when everything from the horizon inward seems frozen, or when your home-life isn't what you'd hoped, it's hard, really hard, to find things to be cheerful about. In fact, you may want to take a swing at the next person that dares to admonish you to "smile." What do they know about your winter? Smiles aren't what we need anyway, and besides, smiles are too easy to come by. Humans have been conjuring artificial smiles since the dawn of time. Don't get me wrong, smiles are nice as far as they go, but during the dreags of winter (especially the figurative kind) it's something else we crave. That something is perfection. Not the corrupt perfection of the Borg or your regional planning guru. The perfection that will save you from the soul of winter and the winter in your soul is transitory; it's a momentary vision of transcendent sensory beauty. A month or so ago, during an early warm spell here in Atlanta, many traditional spring bloomers, both wild and domestic were rushing into flower. On the last of those days, a bed of daffodils, pansies, and crocus in my yard achieved that state transcendent perfection. The colors, which matched better than I had anticipated, were richer than I could have imagined. It took my breath away. A frost that night burned the flowers, but for that one day, for the few moments that I stood there looking at it, I was in bliss. You've experienced that too. Sometimes perfection is close to home. It's your grandmother's buttermilk waffles, 4th of July cherries, or the first reading of your favorite poem. Perfection happens at work too; a moist rock face graffitied with aspleniums; a bundle of phacelia flowers the exact color of the sky; or a tricked-out spreadsheet. The visions of perfection that will save you can't be bought or predicted, but they can be facilitated. The lead piece of this issue of *LB* is about a group of FS and BLM botanists that recently won national awards for excellence in service. I know most of the winners personally and they all share a unique quality. They are relentless in the pursuit of their ideas and ideals. They aren't perfect people. They're just hard-working men and women, full of flaws and foibles, and in need of joy and perfection. Just like you and me.

the editor.

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Useful URLs

Evolution of the Conservation Movement (1850-1920): A very interesting chronology that I found while doing research for the Southern Forest Resource Assessment. Enjoy!
<http://memory.loc.gov/ammem/amrvhtml/conshome.html>

Botanical Index to the Journals of Henry David Thoreau: Ray Angelo has created an exciting web-index that is as interesting as the naturalists' guides to the journals of Lewis and Clark or William Bartram. This is a great site...
<http://www.herbaria.harvard.edu/~rangelo/BotIndex/WebIntro.html>

USDA Forest Service Drawings at the Hunt Institute for Botanical Documentation: An amazingly beautiful and huge collection of pen and ink drawings of American plants. An excellent source of graphics for your documents, although the collection is pretty difficult to navigate.
<http://huntbot.andrew.cmu.edu/HIBD/Hi-USDA.html>
<http://huntbot.andrew.cmu.edu/USDA/USDA-Drawings-01.html>

A Botanist in the City: An interesting essay on urban botany.
<http://botany.about.com/science/botany/library/weekly/aa051000a.htm>

Ione Charral: For those of you lucky enough to have visited Ione, and more especially for those that haven't, this site will be incredibly interesting. Ione is the site of a unique and rare soil type, and an unusual vegetation that includes several rare plants
<http://ionechaparral.org/>

All Things Trillium: Woo Hoo! Its springtime and it would be difficult to name a genus that is more representative of the season.
<http://www.goldsword.com/sfarmer/Trillium/>

A History of Gardening: This site has a timeline of gardening history from ancient times to the present and great links to quotes for gardeners
<http://www.gardendigest.com/timegl.htm>

Ch-Ch-Ch-Chia: Although my motivation for uncovering the source of those gooey seeds used on millions of kitschy ceramic heads shall remain a mystery, I will say that "I pity the fool" that doesn't click on the chia links below...
<http://www.desertusa.com/mag98/sep/papr/chia.html>
http://209.35.234.162/chiapet/tab_chia/chiapet.html

Washington Office Appeal Decisions: Okay, I've listed a lot of fun URLs so here is a useful one. Everything is appealed these days, but some of the most significant appeals are those handled by the Washington Office. Go to this site to read the final words...
<http://www.fs.fed.us/forum/nepa/lrmpdecisions.html>

Award-Winning Botanists

At the 66th Annual North American Wildlife and Natural Resources Conference, the leadership of the Forest Service and Bureau of Land Management honored an elite group of botanists for their leadership in species conservation, community restoration, partnership development, and plant materials development. The “North American” was also the venue for the presentation of the Karl Urban Memorial Celebrating Wildflowers Award and a Special Joint Forest Service/BLM award for Leadership in Plant Conservation.

The Forest Service winners of the species conservation, community restoration, partnership development, and plant materials development were Greg Lind of the Boise National Forest, Gary Kauffman of the National Forests in North Carolina, Jan Schultz of the Hiawatha National Forest, and the Umatilla National Forest (respectively). The BLM winners were Ann DeBolt of the Lower Snake River Field Office, Anna Halford of the Bishop Field Office, the Barstow Field Office and the California Conservation Corps, and the J. Herbert Stone Nursery (also respectively). The nominating letters for the Forest Service winners are published below (I didn't have access to the BLM letters). ***Lingua Botanica* congratulates all of the winners and would encourage all of our botanists to strive to achieve similar heights of excellence.**

The Karl Urban Award was presented to Carol Dawson, Director of Research at the Denver Botanic Gardens for her many years of service to the science and public enjoyment of wildflowers. Carol was nominated by both the Forest Service and BLM and is richly deserving of the honor.

The award for **Leadership in Plant Conservation** was given to the Center for Plant Conservation (CPC), and was accepted by their Executive Director Kathryn Kennedy. The CPC coordinates a network of over thirty botanical gardens, arboreta, seed banks, and other institutions involved with plant conservation. Members of the CPC conduct research into the ecology and management of rare plants, from seed storage to pollination biology and population genetics. Many CPC members conduct their research on Forest Service and BLM lands throughout the nation. The CPC is also a leading advocate of our native flora through their extensive interpretive and media programs. Visit the CPC on the web at <http://www.mobot.org/CPC/welcome.html>. Our congratulations and thanks go out the Kathryn and all of the cooperators at the CPC.

Karl Urban Celebrating Wildflowers Award to Carol Dawson Director of Research, Denver Botanic Gardens

Nominated by Andy Kratz and Carol Spurrier

Scope and significance of nominee contributions to native flora of North America are significant. Carol Dawson and the Denver Botanic Garden (DBG) are using state-of-the-art high-resolution equipment to create an internet-accessible virtual herbarium of the native Colorado flora, including both plants and fungi. Carol's Research Department has done important work documenting rare plant reintroduction efforts, especially with *Astragalus osterhoutii*, an Endangered plant near Kremmling, Colorado. DBG has one of the best rare plant monitoring programs in Colorado, and was the first in the state to establish long-term demographic studies to document rare plant population viability. Rare plant monitoring studies are located throughout the state and include species such as Ownbey thistle (threatened by biocontrol agents released on exotic thistles), Skiff milkvetch, Harrington's penstemon, and Round leaf

four o'clock. Carol works with the Center for Plant Conservation on twenty-eight rare species in various Rocky Mountain ecoregions. DBG was a major contributor to the Colorado Rare Plant Field Guide and the Colorado Native Plant Revegetation Guide. DBG continues to work on prairie restoration at the Chatfield site, where they have one of the first demonstration sites on the Rocky Mountain Front Range showing how to recreate native tall grass prairie and demonstrate which native species are appropriate for restoration. Furthermore, they work with neighbors and other partners in a weed management area near Chatfield to help control the spread of diffuse.

Nominee demonstrates creativity, perseverance, and commitment. Through Carol's efforts in each of the past six years, DBG has hosted a kickoff celebration for Celebrating Wildflowers during the third week in May. The purpose of the festival is to promote appreciation of Colorado's native flora and promote native plant viewing opportunities on the public lands in Colorado. The festival grows each year despite very little monetary support from many of the partners. Each year the festival gets bigger, more people attend, and the activities expand to reach more people. DBG is working with the National Fish and Wildlife Foundation's *Native Plant Conservation Initiative* grant program to make this year's festival the biggest one yet.

Nominee has involved community and partners in a Celebrating Wildflowers effort. There are numerous partners involved in the kickoff week celebration at DBG including the US Forest Service and Bureau of Land Management, Colorado Native Plant Society, Colorado Department of Agriculture, Colorado Natural Heritage Program, and The Nature Conservancy. Public and private schools are invited to the annual event, and thousands of young students attend with their teachers. Each year DBG also hosts a wildflower walk with City of Lakewood in Green Mountain Park.

Nominee has integrated educational elements through a Celebrating Wildflowers program. Education is a key component of the DBG Celebrating Wildflowers kickoff; they work with local media during the week and were able to get a proclamation from the Governor's office for "Colorado Native Plant Week" during the week of the festival. Each year the festival includes development of a Colorado wildflower coloring book with a new theme featuring native plant communities of Colorado, native pollinator stories, or historical Colorado botany expeditions. Coloring books are provided to each of the 2,000-3,5000 students who visit DBG for the event. Since 1999, the celebration has included a statewide children's coloring contest in which prizes are awarded and the winners' drawings are posted on the internet. Other educational materials developed by DBG and partners are available for teachers during the week (including Ag in the Classroom "Native Plant Readers" and "Know Your Native Wildflowers" posters). Carol has overseen the development of new native plant demonstration gardens at DBG, as well as maintaining a rare plant garden for public education. DBG has been working to create awareness of non-native invasive plant species by working internally to educate other staff members about the potential problems of releasing and promoting invasive plants in horticulture.

Partnership Award:

Jan Schultz, Forest Ecologist, Hiawatha NF

Jan has worked hard over several years to develop partnerships with Universities, outside organizations, including Wild Turkey Federation, Michigan Sharp tailed Grouse Association, industry folks, and other state and federal agencies.

Jan organized and found instructors for 1-2 workshops plant workshops per year that have been offered on the Hiawatha NF (HNF) since 1990. Located at the Clear Lake Educational facility, they are offered to a cross section of governmental organizations, universities, NGO's, Timber Industries, etc. so as to provide a mix of training and ideas. Jan persuaded top professors to spend their time at Clear Lake and negotiated much-reduced reimbursement for their services. The workshops are funded through student tuition rather than USFS funding. As a result of Jan's networking skills and persuasive abilities, in 2000 she received a \$1500 Michigan Non Game Grant to offset costs and was able to offer the camp tuition at less than the usual cost per student. In 1998, she procured funding for a Weed Workshop at Clear Lake through the Wildland Weed Management, Best On-the-Ground Management Proposal (an award presented through the Forest Service Chief) and was once again able to offer the summer workshops at a low cost to students.

Jan has developed three MOU's with partners to mutually develop and support the use of locally native plant material at their respective facilities. The partners are Seney National Wildlife Refuge, Pictured Rocks National Lakeshore, and Northern Michigan University. The HNF Botany/Ecology

program will partner this summer with Seney National Wildlife Refuge to help the Refuge develop their native local seed program and to work with them to develop their habitat Education Garden using local material (\$1000.).

The HNF Botany/Ecology program is currently, thanks to Jan, in the middle of a three-year funding partnership with the Wild Turkey Federation to provide local provenance seed and native plant expertise to local native plant growers in the Upper Peninsula (\$15,000.). Jan has been working with these growers to help to make locally native seed more available to the USFS, to other agencies, and to the general public.

Jan spearheaded a partnership between the HNF Botany/Ecology program and the National Fish and Wildlife Foundation to establish a locally native plant garden at the Clear Lake Educational Facility (\$8,000) in the summer of 2001.

Jan worked the HNF Botany/Ecology program into a partnership with the Pictured Rocks National Lakeshore to map and remove weeds within the Munising District of the HNF this summer. The National Park Service will fund the workers and share them with the HNF.

This year, Jan found funding to partner the HNF Botany/Ecology program with the Native Plants Website (USFS) to produce native plant cultivation protocols to be shared on this website. They are in the midst of developing these protocols for approximately 75 species that Jan has grown at the HNF greenhouse (\$6000.).

Spring 2001, the HNF Botany/Ecology program will be partnering with the Hanes Trust of Michigan to write Conservation Assessments for selected HNF rare plants (\$25,000.).

Because of Jan's work, HNF Botany/Ecology program has received funding for work on the Great Lakes Assessments rare species web page (\$15,000.).

In 2000, Jan engineered a partnership between the HNF Botany/Ecology program and the Michigan Sharptailed Grouse Association to provide locally native plant materials for openland restoration. The materials were outplanted in August and September of 2000 (\$1000.).

Also in 2000, Jan developed and began a planned, many-years-long partnership with the Great Lakes Gas Transmission Company to monitor populations of Hart's tongue fern (Federally threatened) and Flattened spike rush (R9 Sensitive, MI threatened) (\$128,750.). She also partnered with these folks to restore areas within the Hiawatha using locally native plant materials (\$93,750).

Jan worked with The Nature Conservancy and received funding in 1999 for the EA and Establishment Record for the Pointe Aux Chenes candidate Research Natural Area (\$11,000).

In 1998, Jan found money for a partnership with WI Electric Power Company to restore a greenhouse on the Hiawatha (\$40,000.). With their help, the Forest has been able to begin using locally native plants in its restoration efforts. Jan has also been doing the research into native seed germination requirements and developing (much needed) native seed pre-treatment and germination techniques.

In 1996, Jan's HNF Botany/Ecology program partnered with several organizations to develop a poster entitled "GO WILD – Landscape With Native Plants of Upper Michigan" (\$30,000). Partners included: U.S. EPA Great Lakes National Program Office, Delta Co. Soil and Water Conservation District, Mi DNR, Natural Resources Conservation Service, and the Upper Peninsula Resource Conservation and Development Council. On the back of the poster, the partners developed a "how to" section on propagation techniques.

In 1996, the HNF Botany/Ecology program partnered with the National Fish and Wildlife Foundation to initiate the landscaping of our new St. Ignace office site using locally native plant material. They were able to sign and interpret the native gardens there (\$5,000).

Jan also has served on several thesis committees for students at Northern Michigan University in Marquette. She has managed and mentored six student interns from the Biology and Geography Departments at NMU and countless student volunteers that (she is quick to point out) have helped her accomplish her work.

Jan is currently on the *Botrychium mormo* Conservation Strategy committee along with three other USFS employees. In 2000, she was as a botanical expert on the MN/ WI Population Viability Assessment panel and on the USFS National Nursery Review panel. She is a subregional botanist in TERRA implementation for Region 9 and serving on Region 9's Conservation Assessment strategy team.

Species Conservation

Greg Lind, District Botanist, Idaho City District, Boise National Forest

I take great pleasure in the nomination of Gregory Lind, District Botanist on the Idaho City Ranger District, Boise National Forest, for the Species Conservation.

Greg Lind has been one of the Intermountain Region's stellar Botanists for many years. His accomplishments in the past year, however, have gone above and beyond the expectations of his assigned duties. It gives me great pleasure to enumerate the following achievements that have established him as a great champion of the Botany program beyond the scope of his District Responsibilities:

1. Leadership in the Development of the *Boise National Forest Rare Plant Guide*. This 160+ page field guide provides an in-depth assessment of the TES plant species and Watch species on the Boise NF, including: status, distribution, threats, look-alikes, habitat and plant photos, distribution maps, Element Occurrence records, and extensive literature citations. Greg supervised 2 volunteers in development of the Guide, which now serves the entire Boise National Forest. This Guide will save the Forest thousands of dollars in research time in pre-field reviews and project support. Greg has also made the Field Guide available on-line for the benefit of the entire Forest.
2. Developed a *Vascular Plant Species List for the Boise and Payette National Forests*. The guide contains approximately 1200 species sorted either by Genus or Family, and includes common names, synonymy, and NRCS Plant codes for ease in field use. This is an incredibly handy field tool and assessment of the floristic biodiversity of the Payette and Boise Forests.
3. For the past 7 years Greg has collected over 500+ species of Lichens and Mosses on the Boise NF from all forest habitats. These collections will help determine non-vascular species and community rarity as important indicators of ecosystem function and environmental change.
4. Greg has taken a keen interest in the NEPA process and has become one of our resident NEPA experts. He has run ID teams, reviewed and analyzed documents, and made sure analyses agreed with conclusions. In addition, his Biological Evaluations and Assessments are some of the best I've seen from any of our Biological staffs.
5. Greg also currently mentors Kay Beall, Nursery Culturalist, for the Lucky Peak Forest Service Nursery in Boise, Idaho. Kay is a Botany tech for the Boise NF and together with Greg they have become strong supporters in the use of native plant materials for Restoration efforts.
6. The Forest Botanist position has been vacated recently and Greg has stepped in and taken on those Forest-wide program duties. He is serving in that capacity as the Sec.7 level 1 Botany coordinator; is providing Botanical resources input for the Boise Forest Plan Revision, coordinating with the state and federal partners, and responding to the Regional Office requests in all aspects of program needs and management.

I believe Greg exemplifies all that is best in our Botany professionals – an unwavering dedication to our most fragile natural resources and a commitment to finding solutions to difficult tasks within the Agency.

Community Restoration

Gary Kauffman, Nantahala District Botanist, National Forests in North Carolina

Gary Kauffman, currently serving as Nontimber Forest Products Botanists for the National Forests in North Carolina, was instrumental in the successful revegetation of the Blue Ridge Parkway. The Blue Ridge Parkway runs for 469 miles from Great Smoky Mountains National Park, through North Carolina into Virginia. Around 30 million people drive some portion of the Blue Ridge Parkway annually and over half of the Parkway is within North Carolina (with a substantial portion on National Forest System lands).

Gary developed his interest and expertise in implementation of restoration projects as the Botanist for the Nantahala District of the National Forests in North Carolina. While there, he either initiated or played critical roles in the restoration of communities for several rare plant species, including *Hudsonia montana*, a high elevation species that is heavily impacted by recreationalists using the Appalachian trail.

Gary was instrumental in the development of a native seed mixture for use along the Parkway. Through his activities, mostly during after-duty hours, he participated in and supervised the collection of native seeds, participated in the development and cultivation of multiplying beds, oversaw and participated

in the replanting of many miles of the Parkway, and has played an active role in the management of the new community (especially the control of invasive plant species). And although Gary's efforts were supported by his colleagues and supervisors, the extraordinary he did is a testament to his dedication and skill.

Gary was responsible for defining and refining the seed mix used in the restoration of the Blue Ridge Parkway. He developed the criteria for inclusion of species and helped design (and conduct) the experiments that determined which species would finally be included.

Gary personally collected and supervised the collection of endless pounds of native grass seeds from narrow areas surrounding the Parkway. His motivation was to insure the closest match to the genetic material that was extirpated during the construction of the Parkway so that the restored plant community would have the greatest possible chance of becoming a self sustaining ecosystem.

Although the seeding project was completed a couple years ago, Gary's Blue Ridge Parkway legacy continues. Plants grown from his original collections still produce seeds for ongoing plantings. Gary's monitoring of community conditions and composition forms an essential feedback loop for the refinement of restoration practices along the Parkway. Gary is also active in the ongoing efforts to keep the Blue Ridge Parkway as free of exotic plant species as possible. Due in large part to the efforts of Gary Kauffman, the community restoration program along the Blue Ridge Parkway is one of the best examples of successful integration of native plants into a mutual program of conservation and recreation access.

Native Plant Material Development Employees of the Umatilla National Forest

For over ten years, the employees of the Umatilla NF have been pioneers in the collection, propagation, and use of native plant materials in restoration projects in the Blue Mountains of eastern Oregon. The Forest's efforts have resulted in one of the largest and most successful native plants programs in the Forest Service (FS), and provide a showcase example of how native species can be successfully integrated into a broad array of habitat enhancement and vegetation management activities.

The program has been made possible by the foresight and tireless efforts of a diverse group of key players, including Forest and District botanists, silviculturists, geneticists, hydrologists, soils scientists, range conservationists, fisheries biologists, wildlife biologists, noxious weed coordinators, recreation specialists, and engineers. Numerous external partners have also played a critical role, including the Bureau of Land Management (BLM), Natural Resources Conservation Service, Confederated Tribes of the Umatilla Indian Reservation, USFS Northwest Research Station, Federal Highway Department, Northwest Youth Corp., Native Plant Society, Rocky Mountain Elk Society, Trout Unlimited, and many other organizations and volunteer groups.

The overall goals of the Umatilla's program are to improve the abundance and condition of native plant communities and to protect/enhance genetic resources, especially those of declining or "at-risk" species such as aspen and black cottonwood. Another major component of the program is the development of affordable, high quality local native plant materials for a wide variety of vegetation projects and environmental conditions.

Some highlights of the many accomplishments and contributions of the Umatilla's native plants program to aquatic and terrestrial restoration in the Blue Mountains and other geographic areas include:

1. Established a genebank and hardwood propagation facility in cooperation with the BLM and other eastern Oregon National Forests.
2. Implemented a program (fencing/caging) to protect declining shrub species from animal herbivory and to provide abundant cuttings for planting projects.
3. Initiated propagation and outplanting projects to preserve and restore aspen stands on federal, tribal, and private lands in the Blue Mountains. In cooperation with NFGEL (National Forest System Electrophoresis Genetics Lab), molecular genetic studies were conducted to better understand genetic diversity in remnant stands and prioritize clones for protection. Personnel from the Forest presented results of this project at a national symposium on aspen ecology and management, and authored a paper that was published in the proceedings.

4. Developed a seed bank for a number of key workhorse species that are used in a diverse array of restoration and habitat enhancement projects. A major focus has been on seed increase programs for native grass species. The Forest currently has over 10,000 pounds of **native, local grass seed** from 10-15 different species on inventory, most of it produced under service contracts with local private grass growers.
5. Developed protocols and conducted studies of genetic variation to define collection and deployment guidelines for native plant materials. This work has been accomplished through cooperative projects with NRCS and PNW Research Station. These studies will result in major costs savings due to expansion of seed zone boundaries.
6. Completed extensive work on methods for collection and propagation of native plant materials, and documented findings in a series of notebooks and an Internet website (<http://www.fs.fed.us/r6/uma/native>).
7. Provided technical guidance and support to other agencies and cooperators, including state, federal, and private entities from a broad array of geographic areas.
8. Conducted workshops and training in native plant collection and propagation methods, and their best and appropriate use in re-vegetation activities.
9. Developed seeding/planting prescriptions and produced native plant materials for a wide array of projects and ecological settings. Projects include post-fire rehabilitation, aquatic and wildlife habitat enhancement, mining reclamation, watershed protection, road/trail improvement, erosion control, and noxious weed management. The consideration and use of native plants is now a commonly accepted practice on the Forest.

The latter accomplishment deserves special attention, since it demonstrates the success of this program with respect to meeting the broad goals of incorporating native plants into a diverse array of vegetation management programs and projects.

Also of note is the Forest employees' internal teamwork and their ability to partner with a broad assortment of cooperators to produce plant materials for multiple and varied needs.

Overall, the innovative efforts of the staff on this Forest deserve recognition for their previous and on-going projects to promote and expand the use of native plant materials in restoration and re-vegetation activities on federal lands. They are a role model for all of us.

Christine Frisbee

A Short Bio by the New Regional Botanist for the Eastern Region by Chris Frisbee

I started college in the early 70's at Purdue University and spent 3 years studying to be an electrical engineer. My family were/are all engineers, but my heart was in vegetation. As a kid, I lived in Australia and the botany bug had bitten me while we were there. I moved to Texas to fly powered ultralights. There was no money in that career, so I attended Texas A&M as an undergrad. I then moved to Bozeman, MT in the fall of 1982 to do graduate work at Montana State University. I worked for the Montana State Seed Testing Lab for several years while we were in Bozeman, doing purity analysis and germination, and disease testing. I have a degree in Secondary Education from Montana State. I taught elementary school and junior high for three years, two in Montana and one in Florida. We were in Florida when I started applying for jobs in the FS. Truthfully, Bob grabbed me by the shirt collar shook me and cried, "Get me out of Florida before I

die!!!" In 1990, I got a temp GS-5 bio-tech position on the Fremont NF in eastern Oregon for one season. The National Forest Genetic Electrophoresis Lab hired me as Lab Manager in October 1990. Spring of '92, the Daniel Boone National Forest called out of the blue and offered me a position as a Botany trainee. We moved to Kentucky. Spring of '93, the trainee program was downsized and I got a job as District Botanist on the Ochoco in Oregon (Andy Kratz's old job). Spring of '94, I was placed on the surplus list and got a position on the Ouachita NF as Forest botanist. In early Spring of '97 I moved to the Boise National Forest and eventually worked for both the Boise and the Sawtooth National Forests. And now I've moved to the Milwaukee.

We (my husband Bob and I) have two adopted daughters and just took out a loan to adopt a third from China. We have three older kids, one in Japan teaching English, one in Denver and our son is a perennial student in Boise. Bob is a remarkable father and works at home remodeling the houses we live in.

UC researchers announce results that could complicate measures to halt spread of Sudden Oak Death

By Catherine Zandonella, University of California Media Relations, 10 January 2001

Berkeley - A common nursery plant may lead to increased complications and possible new management practices in the fight to halt Sudden Oak Death, a highly contagious fungal disease that is killing California oak trees, University of California researchers announced today (Wednesday, Jan.10).

In a breakthrough in the study of the disease, UC researchers discovered that the rhododendron, a popular ornamental plant, can be infected by the same fungus that is causing the oak disease. The fungus has infected European rhododendrons and, as of yesterday, the researchers confirmed that it also is affecting California rhododendrons, suggesting a transcontinental link. Finding this relatively new fungus in two different parts of the world - and in two species - is unusual, the researchers said.

The rhododendron discovery gives insight to the potential origin and transmission of this pathogen and may suggest new ways of spread. Previously, the pathogen only was known in three other California oaks - tanoaks, coast live oaks and black oaks.

"We now know we have a host that could have carried the fungus a long way," said Matteo Garbelotto, a plant pathologist and adjunct professor in the Department of Environmental Science, Policy & Management in UC Berkeley's College of Natural Resources. "People don't really export oak trees across state lines or around the world," he said, "but they export rhododendrons."

The finding may have a major impact on how scientists manage the disease. Co-investigator David Rizzo, assistant professor of plant pathology at UC Davis, said it may result in new restrictions on the rhododendron nursery industry. "The big concern is that someone will transport a sick rhododendron to a place where there are susceptible oak species," he said.

The breakthrough came when a Clive Brasier, a British researcher who had visited UC Berkeley last summer, later noticed in Europe a fungus that looked like one he'd seen in Garbelotto's lab. The European fungus had been found on rhododendrons in Germany and the Netherlands. Brasier contacted the UC scientists, and researchers from

all four countries determined together that the European rhododendron fungus was identical to the California oak-killing agent. This finding established that the fungus is not exclusively found in California and has important implications for international trade.

But Rizzo and Garbelotto needed more proof to confirm the link between the two plant species, and yesterday they got it. Rizzo and Steve Tjosvold, a Santa Cruz County farm advisor, found the fungus in a rhododendron taken from a Santa Cruz County nursery, and Garbelotto confirmed with DNA analysis that it was the same fungus killing the oaks.

The scientists don't know whether the disease was transmitted from California to Europe, or vice versa, or whether it traveled to both places from a third, as yet unknown, location. The fungus, first noted in European rhododendrons in 1993, has not been found in European oaks. However, European scientists are concerned that the disease will spread to European oak forests, particularly those in areas with a climate similar to that of California.

Since the discovery of the mysterious oak-killing illness in California in 1995, researchers have been scrambling to understand the disease and design strategies to stop its spread. It is not known if the fungus recently was introduced into California, or if it is a native fungus that recently became a tree-killer because of environmental changes. Tens of thousands of oak trees have succumbed to the disease, and the researchers have reported up to 80 percent mortality in some infected groves.

Through molecular sleuthing, Rizzo and Garbelotto determined that the disease was caused by a never-before-seen strain of fungi from the genus *Phytophthora*. A relative belonging to this 60-member group caused the Irish potato famine, and another relative is linked to the dieback of cedar trees in Northern California and southern Oregon, eucalyptus trees in Australia and oaks in Mexico, Spain and Portugal.

In California, Sudden Oak Death has been reported from Sonoma Valley in the north to Big Sur in the south, a 190-mile range, as well as east to the Napa County border, about 25 miles inland. The hardest hit counties are Marin and Santa Cruz. The disease affects tanoak (*Lithocarpus densiflorus*), coast live oak (*Quercus agrifolia*), and California black oak (*Quercus kelloggii*) found along the coastal belt in California. To date, the disease has not been found in other oaks such as blue oak or interior live oak.

The dieback is alarming, researchers say, for its potential to disrupt the coastal forest ecosystems. Oaks provide habitat for wildlife and a food supply for small mammals and are frequently planted as ornamentals in gardens and parks. Additionally, downed dead trees create a fire hazard from the resulting buildup of dry fuel.

There are similarities between the disease in oaks in California and rhododendron in Europe. In both cases, the fungus attacks above ground parts of the plants. In oaks, the fungus enters through the trunk and causes the formation of bleeding cankers on the trunk. On rhododendron plants, the fungus causes similar cankers and spreads from twig tips to the stem base, according to the European researchers.

The researchers have notified agricultural and ecosystem managers in the affected areas of the rhododendron discovery. Research is underway to determine if native rhododendrons - those that have not been imported - are being infected. Research also is being conducted to determine how many other susceptible species may be affected by the fungus.

Catching Bandits in the Smokies

T. Edward Nikens, National Wildlife, February/March 2001

Thunder grumbles over Cataloochee Divide, a 5,000-foot-tall ridge that snakes over the northeast corner of the Great Smoky Mountains National Park in North Carolina. Squatting at the base of a towering silverbell tree, Jim Corbin shakes his head sheepishly. As a plant protection specialist with the North Carolina Department of Agriculture, Corbin spends countless days in the deep woods of the southern Appalachians; he knows better than to leave his rain gear in the car. The first fat raindrops splat on a dense canopy of tulip poplar, red maple and black cherry trees, then drip onto a diverse understory of shrubs and flowers: black cohosh, New York fern, Solomon's seal, Jack-in-the-pulpit, bloodroot, speckled wood lily and Dutchman's pipe. And the coveted plant that Corbin holds between two dirt-stained fingers: American ginseng.

Corbin expertly scrapes dirt from the plant's stem, exposing a gnarly, carrot-like root. He sprays it with two quick blasts from a can of aerosol drying agent, then pulls out a small pill bottle. Two taps of his left index finger is all it takes: A fine orange powder, bright as a hunter's safety hat, spills out of the bottle and onto the ginseng root. Corbin replaces the loamy soil and lightly tamps it down with his palm. "That's it," he says. "That plant is marked for a lifetime."

Marked and safe, Corbin hopes. Selling for \$270 to \$600 per dried pound of root, wild ginseng is one of the most sought-after species in an exploding international market for native plants. And it's the poster child for an interagency push to stymie the illegal poaching of those plants from public lands. Across the country, botanists are teaming up with law enforcement officers to attach sophisticated marking devices, both hidden and visible, to highly prized wild plants.

An hour after Corbin applies the customized (and environmentally safe) mixture of orange dye, gypsum and organic filler, the dye seeps deep into the ginseng root, permanently marking the tissue with blazes of orange. In addition, the powder contains color-coded silicon granules, each no larger than a coarse flour grain. When viewed under a microscope, those granules will tell law enforcement officials when the root was marked and where it was collected. Such a marking program works on two levels, Corbin explains. "Legitimate ginseng dealers won't accept dyed roots, because they know they were illegally harvested from the national park," he says. "And the silicon granules enable us to identify the plants in court."

Anyone can legally harvest ginseng from their private property and, with a permit, from most national forest lands. National parks, however, are off-limits to plant collectors, and park managers are worried that as ginseng populations are being increasingly whittled down on private lands, collectors are turning to public lands.

Ginseng poachers in particular prize the protected and secluded hollows of national parks, and have targeted the Little River Canyon National Preserve in Alabama, Mammoth Cave National Park in Kentucky, Shenandoah National Park and the Blue Ridge Parkway in Virginia, in addition to the Great Smokies.

Increasingly, the plants they seek are being protected by countermeasures worthy of Cold War espionage. Along the Blue Ridge Parkway in North Carolina and Virginia, hidden electronics monitor stands of pitcher plants. In western deserts, tiny metal tags are

implanted in prized cacti to identify recovered plants. Microtaggant, a powdered marker developed for the explosives industry, is being used on the Blue Ridge Parkway for marking galax. In Arizona, Corbin's dye marker is used to combat the theft of petrified wood. And across the country, seismic detectors placed on trailheads alert rangers to the footsteps of potential poachers.

For law enforcement officials who have long relied on traditional—and time-consuming—surveillance techniques, the new technologies are a revelation. "The dye and silicon markers are as good as having a bar code on the plant," says John Garrison, a law enforcement specialist for the Blue Ridge Parkway. "Now we can say, 'These plants are the property of the U.S. Government, no ifs, ands or buts.'"

The effect on poaching in the Great Smoky Mountains National Park, Garrison says, has been "dramatic." And the new technologies could not have come at a better time. In the Great Smokies, monitored ginseng plant populations are healthy, but only if they are protected from all harvesting. That's hardly the case. Park officials estimate that \$5.3 million worth of ginseng roots were pilfered from the park in the last nine years alone.

Already, wild populations of the closely related Asian ginseng have been extirpated across China, and wild-growing plants can now only be found in eastern Russia. In the United States, ginseng grows wild in a swath that reaches from New York to Alabama, and as far west as Missouri. It's an inconspicuous herb, growing some 6 to 16 inches tall, with compound leaves formed of five serrated leaflets. Fond of shade and moist, rich woods, ginseng produces small, bright red berries gleaned by deer and wild turkey.

But it's the ginseng root that spawns human lust and greed. Wrinkled as an old man's face, a mature wild ginseng root grows long and tapered, often with arm- and leg-like forks that give it the nickname "manroot." Ginseng has been used for centuries in Asia as an aphrodisiac and a general tonic, properties reflected in its genus name, *Panax*, which means "cure all," as in "panacea." Native Americans used ginseng to treat coughs and fevers. Early settlers figured it for a dose of good spirits. "It cheers the Heart even of a Man that has a bad wife," wrote Virginia's colonial governor, William Byrd. More recently, ginseng has been alleged to improve memory and lower cholesterol levels, no minor concerns for an aging American population.

Each year, more than 2 million pounds of cultivated ginseng root are exported from the United States, but wild ginseng is held in far higher esteem by buyers. Cultivated roots are considered far less potent than plants dug from the wild, and have a price tag of as little as \$15 per pound. Even though the manufacturers of products containing ginseng and other herbs are moving away from wild sources and toward cultivated plants, "the temptation to plunder valuable wild medicinal plants from protected areas in the United States still exists," says Christopher S. Robbins of Traffic North America, a conservation group that monitors the trade in endangered plants and animals.

No one knows how much wild ginseng is taken illegally from parks and refuges across the country. But in 1999, more than 30 tons of wild ginseng roots were harvested legally from the 19 states with federally approved programs for exporting the plant. In the southern Appalachians, collecting ginseng in the wild, known as "'sanging," is part of mountain culture—with or without permits. "It's long been a traditional, walk-in-the-

woods, make a little extra Christmas money kind of thing," says Garrison. "For years, we could never get anyone to look at ginseng busts as anything but glorified flower-picking cases."

Then, within a 10-day period in 1993, surveillance teams in the Great Smokies arrested two different groups of ginseng poachers, each of which were leaving the park with 13 pounds of ginseng root—the equivalent of about 8,000 plants. "That sent a shock wave through us," recalls Garrison. In response, Corbin began devising ginseng markers in the basement of his home, in a joint state-federal effort to transfer animal-marking technologies to plants. From tiny metallic strips written in Navajo (Corbin once was a missionary to western Navajo communities), the markers have evolved into the permanent dyes now used on thousands of wild ginseng plants in all corners of the Great Smokies.

The new marking efforts have allowed enforcement officials to rein in demand for park-pilfered ginseng. As legitimate dealers learn of the program and refuse to accept marked roots, poachers are being forced out of the park. And it's also allowed for the return of confiscated roots to their native lands. According to Janet Rock, a Great Smokies botanist, more than 7,000 marked plants have been seized and replanted.

Still, there's plenty of need for old-fashioned "man surveillance," as Great Smokies special agent John Mattox puts it. Rangers watch for the telltale signs of poachers in the woods. Local "'sang" hunters most often dress in subdued-colored clothing and wind up with soiled pants' knees—"no bright Yuppie jackets for them," Mattox says. They also tend to slip out of the woods one-by-one, decoying rangers away from the poacher tapped to carry the group's roots out en masse. Other plant poachers have posed as wildflower photographers. Once Garrison saw a car driven by a woman with a small child, leaving the park just a few minutes after sunrise. "I said to myself, 'That can't be right'," he recalls. He returned at the end of the day and arrested the woman's husband and father as she picked them up after a day of illegal ginseng harvesting.

Nearly 80 ginseng poachers have been convicted since the marking program began. Punishments have ranged from 60 days in jail and \$2,500 in fines to "a slap on the wrist," says Garrison. Few doubt that poachers will continue to slip into the remote hollows, with a sharp stick and eyes searching for the five-leaved manroot. Corbin and his colleagues know they haven't devised a silver bullet out of orange dye and silicon. "These poachers are not dumb," says Corbin. "We have to stay in front of them, which means we'll have to reinvent the wheel in a few years." And he grins like a man with a few tricks still up his sleeve.

Appalachia's Most Wanted Plants

With a pound of wild ginseng fetching the equivalent of a week's wages or more, the temptations of "'sanging" on protected lands are readily apparent. But the cure-all root is not the only plant that draws collectors into the woods in the Southeast. Several other species, though not as pricey, are in strong demand for both medicinal and ornamental uses. Here are some of the most popular: **Black cohosh (*Cimicifuga racemosa*):** Used to treat menopausal symptoms; collection has skyrocketed as baby boomers age. In 1998, one Blue Ridge Parkway ranger seized 1,517 pounds of cohosh roots from a single pickup truck, picked by migrant workers subcontracted by another collector. Approximate value: \$15 per dried pound.

Bloodroot (*Sanguinaria canadensis*): Native Americans and early settlers used bloodroot to treat snakebite, coughs and as a medicine for sick mules. Currently used in toothpaste and cattle feed. Approximate value: \$15 per dried pound; \$3 per gallon pot as an ornamental.

Galax (*Galax aphylla*): Picked year-round for the floral industry; more than 100,000 stems of illegally collected galax were seized along the Blue Ridge Parkway in the first six months of 2000 alone. Approximate value: One penny per stem.

Goldenseal (*Hydrastis canadensis*): As an insect repellent, laxative, antiseptic and masking agent for heroin users facing urine tests, goldenseal has seen myriad uses through the centuries. Approximate value: \$30 per dried pound.

Log moss (*Hypnum spp*): Used for landscaping and in the floral business; collectors roll moss off of ancient fallen logs like carpet. Officials recently confiscated a tractor-trailer truckload shipped from Tennessee to California. Approximate value: \$16 per dried pound.

Special Forest Products Outstrip Timber Sales at Gifford Pinchot

The Columbian, Clark County, Washington 15 December 2000

Look around the vast timber tracts of the Gifford Pinchot National Forest, and the most tangible commercial product might be harder to spot than you'd think. Tufts of beargrass, decorative boughs from young fir trees and mushrooms on the forest floor all have a commercial value that now far exceeds revenue the forest generates from timber.

"I get requests for slime molds," said John Parsons, who manages special forest products for the Gifford Pinchot.

They are used by pharmaceutical companies for medicinal properties known by American Indians for centuries. Look closely throughout the forest, and there are dozens upon dozens of products that are far less obvious than trees.

A sampling provided by the U.S. Forest Service:

Cones: Used by nurseries and for decorative uses such as wreaths and potpourris.

Moss: Used by commercial nurseries and homeowners to retain moisture around bedding plants and in floral arrangements.

Prince's Pine: A small plant with leaves, stems and rhizomes used by soft drink companies for cola and root beer flavoring.

The Gifford Pinchot raises more money from special forest products than any other national forest, and it also tops the nation in the number of permits issued and variety of products gathered. About 90 percent of the revenues are collected from permit holders who harvest and sell the products.

The rest is taken by American Indian tribes, by people taking a small amount only for their personal use and by others who take firewood, for example, to be used while recreating in the forest.

Harvesting big-ticket items such as boughs and beargrass generate the most money and the greatest number of harvesters, even though it's a tough way to make a living. Earning as little as 20 cents per pound, a good beargrass picker might gather as much as 300 pounds a day just \$60 for back-bending work.

A map identifying areas where such products can be gathered legally includes multilingual translations, reflecting the fact that more than 80 percent of gatherers don't speak English.

"It's hard work, and it can be year-round," Parsons said.

Over the past two years, with timber sales stymied by new requirements for wildlife surveys, the amount of money raised by wood products in the Gifford Pinchot amounts to zero. The total permit fee revenue for mushrooms, berries and beargrass last year amounted to roughly \$600,000 after expenses.

The forest now writes more than 9,000 permits each year for myriad kinds of special forest products, Parsons said.

The Gifford Pinchot once sold as much timber as just about any forest in the nation, averaging more than 400 million board feet a year during the 1980s with a high of 640 million board feet in 1981. Even though special forest products amount to the forest's big seller this year, timber sale planner Fred Dorn noted that those sales pale in comparison to the heyday of federal timber cutting in the 1980s.

Conservatively, the Gifford Pinchot would have generated \$30 million from timber sales during that period "significantly larger than special forest products now is or ever would be in my mind," Dorn said.

Rangers crack down on galax poaching

By Jon Ostendorff, Asheville Citizen-Times, North Carolina

ASHVILLE – Blue Ridge Parkway rangers are tagging a wild plant popular with the floral industry to stop illegal harvesting on protected public lands.

Park rangers this month confiscated more than 60,000 galax plants and arrested several poachers. Galax is an evergreen ground-cover plant that is often used in floral arrangements. The leaves range from bright green to a deep, burnt red.

Rangers caught one man in the parkway's Pisgah District with 17,800 galax plants - with an estimated retail value of \$4,000. The man pleaded guilty to poaching and was sentenced to 45 days in jail and two years' probation.

"Our goal is protection," said Gordon Wissinger, the parkway's chief ranger. "This is something that has been ongoing, and we certainly recognize it as an issue. We are using a marking system so that if plants are found outside the park we can tell where they came from."

The N.C. Department of Agriculture, which developed a tagging system to curb ginseng poaching, is helping the park mark galax plants.

Although taking any plant from a national park is illegal, galax can be harvested from U.S. Forest Service land. The Forest Service issues 30-day harvesting permits that cost \$25 per 100 pounds of galax. Forest Service rangers say galax harvesting has traditionally been a popular business in Western North Carolina.

"I'm told that a person can pull two boxes a day," said Lee Thompson, an assistant ranger. "The last price I heard was \$110 a box and there are 5,000 galax stems to a box."

Floral industry experts say North Carolina galax is becoming popular in flower shops worldwide and its price is continually increasing. But, florists say, they buy galax only from established wholesalers to avoid illegally harvested plants.

"We maintain professional standards and being above board," said Robert Huff, president of the North Carolina Florists Association. "That includes being sure that you know our sources and know that you are dealing with reputable people."

Galax Harvest Halted for Spring

Quinten Ellison, Asheville Citizen-Times, North Carolina 14 March 2001

ASHEVILLE – The U.S. Forest Service will restrict the harvest of galax - a wild plant widely used in floral arrangements - during its spring growth period because of concerns it is being collected too early.

The harvesting of galax will not be allowed in the Pisgah and Nantahala national forests from May 1 through June 15. All collecting permits sold after April 1 will expire April 30, and additional permits won't be sold until the end of the spring restriction period, on June 15.

The harvesting changes come at the request of some of the region's galax wholesalers, who are worried that galax beds are being destroyed by unscrupulous collection, according to Paul Bradley, district ranger on the Appalachian Ranger District.

Galax plants sprout leaves and new growth beginning in late April through June. The leaves are tender and sensitive and are of lower value because of their smaller size, and also are easily damaged during shipping. Early collection also means harvesters are trampling on the plants when they are most sensitive to disturbance.

"We recognize the importance of galax and other forest products to the communities of our area," said Forest Supervisor John Ramey. "This restriction will not reduce the overall availability of galax to the industry – the galax not harvested during the spring restriction period will be there for harvest in late June and for the rest of the summer."

Bradley, whose district includes the South Toe River Valley, a prime area for galax harvesting, said local harvesters have long avoided collecting the plant during the restriction period because it simply isn't as good a product.

"(But now) there are buyers who will buy throughout that period," he said, "and local workers who will harvest as long as they can sell."

BANNER YEAR FOR RARE OHIO PLANTS: the Ohio Dept. of Natural Resources reports that a "record number of new and rare wild plants species were spotted in Ohio" during the year 2000 says ENS 12/29. The ODNR verified the existence of three new species, "all previously unknown in the state," (Missouri rock cress, cuspidate dodder, Robbin's spikerush) and rediscovery of another five species believed to have been extirpated over 20 years ago (creeping aster, villous panic-grass, bearberry, long-bearded hawkweed and Gattinger's foxglove).

In Inner Mongolia, Nature Lets Loose a Blizzard of Calamity

Phillip P. Pan, Washington Post Foreign Service, 21 January 2001

ABAG QI, China – It began last winter with a blizzard that buried the region under an unusually thick blanket of snow. Then a summer drought parched the land, turning green prairies a dusty yellow brown. The plague of locusts came next, consuming much of what grass stubble remained. An in autumn, cyclone-like winds tore up homes and tossed small goats into the air.

Now nature has inflicted another catastrophe on the unlucky herdsmen of Inner Mongolia's vast Xilin Gol grassland. A deadly snowstorm struck as the year began, leaving behind a frigid moonscape dotted with herds of sheep frozen into ice statues, homes buried in a pale yellow mix of sand and snow and nearly a half million people short of food in temperatures more than 60 degrees below freezing.

None of the elders here can recall a storm so devastating, much less such an awful string of misfortune. And as residents begin to tally their losses, many are asking whether they somehow brought this series of natural disasters upon themselves.

"It's as if nature is taking revenge on us," said Biligung, 39, a herdsman who lost a quarter of his flock of 400 sheep to the storm and a large patch of his face to frostbite saving the rest of his flock. "We're not scientists, but we've never seen anything like this... I think it has to do with what we've done to the environment."

Located along China's northern border with Mongolia and Siberia, this region is no stranger to snow. But the storm that began on New Year's Eve and continued for three days whipped sand as well as snow into the air, a blinding combination that herdsmen said they had never witnessed before.

They blamed the sand on one of China's most serious environmental challenges, the steady transformation of grasslands into deserts from overgrazing, clear cutting of forests and other man-against-nature development policies. Each year an area the size of Rhode Island turns to dust in China, threatening to leave millions of families with nowhere to go in a crowded country where arable land is already scarce.

The government has made stopping the desert a national priority, especially after Beijing was choked last spring by dust storms carrying sand down from the north. Prime Minister Zhu Rongji even warned that the country might one day be forced to move the capital if the desert continued their march toward the city.

The government has tried to slow the expansion of the desert by marking land as off limits to herders and replanting trees and grass in arid areas, but local officials and scientists said that the series of disasters in Inner Mongolia will surely set back these efforts.

"It's a vicious cycle," said Song Yuqin, an environmental scientist at Beijing University. "These disasters make people poorer, and then they try to clear more land or raise more livestock. That only contributes to desertification, which destroys their land and makes them poorer still."

Song said there is little evidence that overgrazing caused the disasters in Inner Mongolia, but he said such activity is making naturally occurring drought and snowstorms worse. And many local residents agree.

"The snow we've seen has always been white, but this was yellow snow. It froze quickly on the animals – and on me," said herdsman Chaoketu, 39, waiting in a hospital for his blackened feet to be amputated.

He said he left his home during the storm to check on his sheep and cattle, and on his 73-year-old father, who lives about 200 yards away. But after taking only a few steps into the cold air, he realized he had made a terrible mistake.

Surrounded by swirling sand and snow, he could barely see his hands in front of his face and quickly became disoriented. When he couldn't find his way back home, he decided to continue walking in a straight line. A day and a half later, he walked into the wall of another herdsman's home.

"I didn't even see it before I hit it," he said.

Others were not so lucky. Two children froze to death while walking home from school. A mother and her young daughter perished while trying to retrieve heating fuel located just yards from their house. A teacher died in a van stranded in the snow. And several herders succumbed while trying to save their livestock or sleeping in their traditional tents.

At least 39 people died in the blizzard, the Chinese Red Cross said, though the figure is expected to rise as reports come in from isolated areas.

Major roads in the affected regions have been cleared and relief convoys are getting through, but smaller roads leading to the vast majority of the 2.2 million people in distress remain difficult to traverse without the help of tractors, which local officials say are in short supply.

The blizzard left behind hauntingly beautiful vistas of desolate, snow-covered hills, but also eerie flocks of sheep, cattle, and horses that froze to death while standing. Others died huddled together in the corners of their pens. Some remain buried in the tall drifts of snow, with only a head or a leg sticking out.

Local officials said perhaps 10 percent of the livestock in the hardest hit regions – hundreds of thousands of animals – were killed in the storm, and many more would die before winter's end.

The snow is three feet deep in parts, but although its only several inches thick over much of the land, that is still enough to bury the grass. Livestock depend on that grass, because herders do not have enough feed in storage to last until spring thaw, officials said.

"The grass used to be so tall that the wind would blow and you'd see sheep and cows hidden below," said Han Yunshan, 55, who spent 24 hours in the cold trying to keep his 800 sheep from collapsing. "But now, the grass is just a few inches high, and even a little snow is a threat."

One relief worker estimated that as many as a quarter of all the animals in some areas could die, a devastating blow to families already struggling because of previous disasters. More than 100,000 children have already dropped out of school because their parents can no longer afford to send them, according to the state-run media.

Chinese Red Cross officials estimated that more than 400,000 people are short of food. Unless help is provided in Abaq Qi, one of the counties most severely affected, almost half the population of 20,000 will run out of food in three to six months, officials said.

The government has begun sending relief shipments and promised to help herders purchase new livestock, and it has also appealed for domestic and overseas aid. But many residents are worried that nature will continue to be cruel to them.

“If these disasters keep coming, I don’t know how we can survive,” said herdsman Wang Yu, 29, who lost two-thirds of his flock of sheep in the storm. “There’s too much livestock and not enough grass and water. Last year, we planted grass, but it didn’t grow... What else can we do?”

A Sturdy Grass Brings Sweep of Winter Beauty

Lee May, Atlanta Journal Constitution, 1 February 2001

The grasses are going, a sure sign of winter’s waning. Since fall, ornamental grasses, miscanthus, Japanese blood grass, and others, have graced the winter garden, remaining pretty much as there were when they went straw-colored in chilly autumn-shortened days.

Some are fruited, some are not. All have touched the garden with charm, demonstrating more than most plants the beauty of decay, the loveless that persists after youth’s passage.

Now, these perennials’ airy presence, their days of blowing in the winter winds, approach the end. Soon, they will be cut to the ground, their tough brown blades giving way to tougher blades of steel and the inevitable push of new growth. Another transition comes to the garden.

Transitions abound. Just as I have begun to plant more and more grasses over the years, partly because so many need so little water, I also welcome increasing numbers of wild grasses.

Among the wild ones is broom sedge, whose first name says just what it was for my relatives in Cuba, Alabama. Big Momma, like every other grandmother I knew, cut a bunch of stems and tied them together in a clump just right for sweeping. It wasn’t called broom sedge, which is misleading anyway, it’s a grass. To use it was “broom straw.” The straw broom was a house broom. Bib Momma swept the ground, too (didn’t call it a garden, didn’t even call it a yard. I was simply out there, outdoors). The outdoor broom, however, was of tougher material, tree branches.

Then, as now, broom straw shows up in poor places: soil containing a lot of clay or rocks, unused farmland, abandoned sites. This land may be poor, but it bears a rich crop; it’s difficult to find a more beautiful grass this time of year.

Like so many beauties, this one is quite unremarkable in its youth. It resembles myriad other perennial grasses in spring and summer, green, maybe waist-high. A little rough around the edges. But in autumn, it shines and sparkles, catching sunrays and converting them into a million coppery slivers.

Part of its appeal lies in what it evokes: images of clean air, bright sun, days unclouded by smog and haze. I look at broom straw, and I see simplicity, elegance without pretense. And, yes, I see my youthful days, when watching these brooms was pure, uncomplicated pleasure taken at the exercise of artistic, useful talent. Not surprising, brooms of straw show up now in gift shops offering artifacts from country life.

Broom straw blends, naturally, into woodland settings. Too, it lends a sad little touch of beauty to the city’s myriad abandoned lots, its wealth of discarded yards surrounding house shells that officials cannot find the power or will or way to clean up or

tear down. Possessing more gumption, more attentiveness than a million politicians, a few clumps of coppery grass try, at least *they* try, to undo the offending, crime-breeding ugliness.

Soon, the unassailed ugliness will have fuller sway, as the winter-lovely broom straw will be gone, replaced, again, by fresh young grasses.

Meanwhile, the garden's cultivated grasses, the miscanthus, blood grass and such await the knife; the experts urge cutting back just before new growth begins. Maybe I won't cut them back this year (after all, nobody cuts back brooms straw).

Maybe this year I'll let the new grass simply mingle with the old. It could be time for this young stuff to rub blades with true beauty.

Wildflower Festivals

April 1: Tohono Chul Park Wildflower Festival, Tucson, Arizona.

<http://www.tohonochulpark.org>

May 28- June 2: Warbler and Wildflower Festival, Bar Harbor, Maine

<http://www.BarHarborMaine.com>

April 6-8: Spring Wildflower Festival and Native Plant Sale, Chattanooga, Tennessee

<http://www.reflectionriding.org>

May 11-13: Spring Wildflower Symposium, Wintergreen, Virginia

<http://www.twnf.org>

Banner Plant: *Xylosma schwaneckeanum*

Each month, a different plant graces the banner of *Lingua Botanica*.

This edition's Banner Plant image was submitted by Ernie Garcia, R8 Wildlife Program Manager

The image on the banner page of this issue of LB was taken by Carlos LaBoy

Xylosma schwaneckeanum (Krug and Urban) Urban, also known as Palo de Candela, is a rare evergreen vinelike shrub or small tree endemic to the mountains of the Caribbean National Forest and the Cordillera in eastern Puerto Rico. Growing to a height of 15–25 feet, with a girth of about 3 inches in diameter, it produces small flowers that are male, female, or bisexual on the same plant. The fruits captivate the eye with their rich color, texture, and symmetry.

Designated by the Forest Service as Sensitive, it is known on the Caribbean National Forest from only 5 isolated locations, ranging in elevation from 1,500 to 3,000 feet. This species honors its discoverer, Carl Schwanecke (1821–1916), German horticulturist, who collected in the Puerto Rico Bank and the Virgin Islands between 1847 and 1850.

Afterword:
Danger Will Robinson...
Apparently Asteraceae, but the tribal affiliation is obscure...



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There came a time when the risk to remain tight in the bud
was more painful than the risk it took to blossom. *Anais Nin*

To subscribe to the *Lingua Botanica*, just send an email to Wayne Owen at <wowen@fs.fed.us>.

