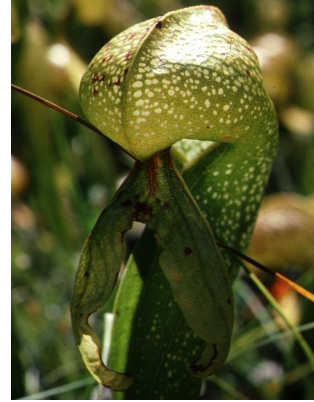




Lingua Botanica

A Journal for FS Botanists & Plant Ecologists



You people are poets. Some of you are weird, really weird, but most of you are poets. Maybe there isn't much difference. In the last issue of *LB*, I challenged readers to share the nature of your computer-top decorations. Kudos to those of you that sent me notes. Among the many responses I received, the botanist who told me about a hummingbird nest she kept especially charmed me. It was obvious that the delicate cradle of fiber and down was a daily inspiration to her. Many of you told me about crystals and stream-polished stones that you picked up in the woods. Color seems to be a universal lure: something unique, something unusual. Pressed leaves, pods and seeds, photographs of friends out botanizing, dry grass flowers. Interestingly, you told me mostly about small things, worlds of detail and filigree. On the playful side, there were a number of toy cars, rubber and plastic animals, and idiosyncratic items like children's art, Dilbert dolls, and pink flamingos. About the only thing that made me scratch my head was the one-armed, severed torso of a G.I Joe doll. It's a good thing that little trinket belongs to one of my best friends, so I didn't feel obligated to call social services. Among the responses that interested me most were those from the non-botanist subscribers to *LB*. There are no more than 100 FS employees in the 430 series, yet nearly 400 people receive each issue of *Lingua Botanica*. It's clear, and not surprising, that lots of people have a penchant for plants and share our way of seeing the world. I've been surprised by the number of times I've heard people tell me that they were trained as a botanist but "somehow" got diverted into wildlife, range, or planning. And that is not necessarily a bad thing either. The more botanists (weirdos and poets) there are in all parts of the organization, especially in leadership, the better off the agency and the forests will be. Next time you are in your forest supervisor's or regional forester's office, see if they've dared to keep something poetic, or weird on their desk. If they have a Hot Wheels car or a *Cladina* clump, they may still remember something from their undergrad Systematic Botany class.

the editor.

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Useful URLs

The Dung File: references dealing with pollen and plant remains in coprolites and latrine fills from archaeological and palaeoenvironmental sites.

<http://www.ualberta.ca/~abeaudoi/stuff/dung.htm>

Lichen Pages of the Farlow Herbarium: Harvard University including bibliographies, keys, and collecting tips.

<http://www.herbaria.harvard.edu/Data/Farlow/lichens/index.html>

Doug Yanega's Personal Page, Curious Scientific Names: What can I say, I laughed so hard I almost fell out of my chair. Serious nerdishness for Latin lovers.

<http://insects.ucr.edu/staff/yanega.html>

Public Lands Council vs. Babbit: Text of recent unanimous Supreme Court ruling that public-land grazing is a privilege, not a right.

<http://supct.law.cornell.edu/supct/html/98-1991.ZS.html>

Karl A. Urban Celebrating Wildflowers Award Winner Pamela Camp, Washington State Botanist for the Bureau of Land Management, Wenatchee Field Office.

The Karl Urban Award is the first national, interagency award specifically meant to recognize excellence in environmental education and service in the area of botany. The award is named for the extraordinary Forest Service botanist, Karl Urban, who served the Umatilla National Forest and wildflower lovers nationwide. The first winner of the Karl Urban Award is Pam Camp. *LB* is proud to reprint the nomination letter that led to her winning this prestigious honor. Congratulations Pam!!! We're all proud of you.

We would like to nominate Pam Camp for the Karl A. Urban Celebrating Wildflowers award because we feel that Pam really exhibits the kind of commitment to native plants that Karl epitomized.

My (Lillybridge) first meeting with Karl was in 1977 when I was preparing to teach a field botany course out of Blue Mountain Community College. Karl was excited, kind, extremely helpful and very supportive of the class. I literally could not have done the class without his help.

In a like way Pam exhibits these characters. As our local BLM botany contact, she has been extremely helpful in our efforts to establish and direct a botany program at the National Forest level. She has participated in our interagency efforts to learn more about *Spiranthes diluvialis*, a newly found threatened taxa in northeastern Washington. She has also been extremely helpful and supportive of all those who seek to learn about native plants.

Pam has served as president of both the Spokane and Wenatchee Valley Chapters of the Washington State Native Plant Society and was instrumental in their establishment. Pam is also the current president of the local chapter and has served on the state board.

Pam's work as the BLM botanist in the state has contributed to the preservation and better understanding of the rare plants of Washington. She has collaborated with the Washington Natural Heritage Program to cooperatively develop "Field Guide to Washington's Rare Plants" in 1999.

Additionally Pam directs an active program of administrative studies and monitoring for such species as *Polemonium pectinatum* and *Rorripa columbicae* (among others). These efforts are of national significance as they contribute invaluable information toward the preservation of rare endemic taxa.

Each year Pam collaborates with the Wenatchee National Forest to put on wildflower walks as part of the "Celebrating Wildflowers" effort. Pam was also instrumental in the development of a local class, put on through the Native Plant Society, to teach taxonomy to interested individuals. This class has been very popular and a major source of funding for the local chapter.

Finally, among Pam's many achievements, her best-known work is probably a wildflower viewing guide entitled "Washington Watchable Wildflowers—A Columbia Basin Guide". This is a wonderfully illustrated, colorful and very popular guide to eleven places to view great examples of Columbia Basin vegetation.

We believe Pam Camp is eminently suited to be the second recipient of the Karl Urban Celebrating Wildflowers Award. Her many productive years in Washington are well known to all those associated with Native Plants and she is well respected in her field. Her contributions to the flora of North America are significant. Her recent work to complete the Wildflower Viewing Guide and to collaborate with the Washington Heritage Program on the state Rare Plant Field Guide indicates her perseverance, creativity and commitment to native plants. Her involvement in wildflower activities and community education events reflect upon Pam's commitment to community involvement in the Celebrating Wildflowers program.

Submitted by:

Terry R. Lillybridge, Forest Ecologist, Wenatchee NF, and
Rod Clausnitzer, Forest Botanist/Ecologist, Okanogan NF

Summer Wildflower Festivals

Hummer Fest. August 5 2000, Golden Pond, Kentucky

Participate in a bird study group as they band and record habits of the Ruby-throated Hummingbird. This area has a large population of these birds with banding efforts used for long-term study. Seminars on feeding strategies, garden planting, etc. Contact: USDA Forest Service, Land Between the Lakes, 270.924.2020, <http://www.lbl.org>.

Feathers and Foliage Festival, September 30 2000, Lyndhurst, Ohio

Enjoy the fall colors on the island and search for migrating birds island hopping over Lake Erie. Our day-long program includes bird banding and guided bird walks all within our 600 acre State Park and State Nature Preserve. Contact: Kelley's Island Audubon Society, 440.461.1084, <http://aves.net/island-nature/>.

Fall Festival of Foliage and Feathers, October 28-31 2000, Walla Walla, Washington
This four-day festival in downtown Walla Walla features wildlife viewing tours, tree and foliage tours, and numerous workshops. Contact: Downtown Walla Walla Foundation, 509.529.8755, <http://www.downtownwallawalla.com>.

Famous Pecan Trees in The Heart of Pecan Heaven

Tree profiles excerpted and modified from *Famous Trees of Texas*, John A. Haislet (ed.), Texas Forest Service, 1970. Enhancements from interviews, web resources, and other material.

The pecan (*Carya illinoensis*) is the only North American nut produced on a global, commercial scale, and the heart of the world's pecan industry is Texas. In 1997, the U.S. produced 334 million pounds of in-shell pecans worth \$259 million. Although Texas is the birthplace of the pecan industry (the Texas state tree is the pecan), USDA statistics show that Texas is American's second largest producer of pecans. Georgia produces the most pecans, New Mexico is the third largest pecan producing state (its not just for chiles anymore). The majority of pecans bought and sold are "improved" cultivars that excel in size, storage life, and thinness of shell. There is however, a significant second market for wild pecans, reputed by aficionados to be far superior in flavor. Texas is the undisputed leader in the production of wild pecans.

According to the American Forests' Spring 2000 registry of Champion Trees, the Big Kahuna of pecans is in the Weatherford, Texas (west of Fort Worth) backyard of Billy and Lynn Finch. Crowned the national champion in 1994, this tree is 118 feet high and has a spread of 159 feet. This tree has the broadest spread of any tree in North America! Check out the American Forests' big tree facts page at <http://www.americanforests.org/whatnew/BTFacts.html>.

Pecans are well represented in the fossil record, especially in Texas and northern Mexico. Some archeologists hypothesized that this is the ancestral range of *Carya illinoensis*, and its current natural range (north to Indiana and Illinois and east into Kentucky and Tennessee) is the result of transport by Native Americans. The name "pecan" is reputed to be of Algonquin origin and describes "all nuts requiring a stone to crack." Cabeza de Vaca, the early Spanish explorer, (<http://www.floridahistory.com/cabeza.html>) wrote in his diaries (1529-1535) about the movements and activities of some southeastern Indians associated with the pecan nut harvest. He recorded that the pecan dominated their food resources for up to four months out of the year. Indians in other parts of the country are said to have cultivated the trees.

Around 1711, the first documented pecan groves were planted by Spanish colonists and Franciscans in northern Mexico, about 60 years before the first recorded planting by U.S. colonists. The first U.S. pecan planting took place in Long Island, NY in 1772. By the late 1700's, pecans were planted in the gardens of easterners such as George Washington (1775) and Thomas Jefferson (1779). Settlers were also planting pecans in community gardens along the Gulf Coast at this time. In the late 1770's, French and Spanish colonists settling along the Gulf of Mexico recognized the economic potential of pecans. By 1802, the French were exporting large quantities of pecans to the West Indies. During the early 1800's the wild pecan harvest in the San Antonio area was more valuable than popular row crops like cotton.

Pecan groves (trees established by nature) and orchards (trees planted by people) produce a diversity of nuts with various sizes, shapes, shell characteristics, flavor, fruiting ages and ripening dates. In the midst of this variability, there was the occasional discovery of a wild tree with unusually large (cf. the Jumbo Hollis tree below), and thin-shelled nuts that were in high demand by customers.

In 1822, Abner Landrum of South Carolina discovered a pecan budding technique, which provided a way to graft plants derived from superior wild stock. However, this invention was lost or overlooked. In 1846, an African-American slave gardener from Louisiana (named Antoine) successfully propagated pecans by grafting a superior wild pecan to seedling pecan stocks. Antoine's clone was named "*Centennial*" because it won the Best Pecan Exhibited award at the Philadelphia Centennial Exposition in 1876. His 1876 planting was the first official planting of improved pecans.

The successful use of grafting techniques led to grafted orchards of superior genotypes and proved to be a milestone for the pecan industry. The adoption of these techniques was slow and had little commercial impact until the 1880's when Louisiana and Texas nurserymen learned of pecan grafting and began propagation on a commercial level, thereby giving birth to today's pecan growing and shelling industry.

From those deeply rooted beginnings have grown a significant industry, replete with its own culture and lore. Around the state of Texas, there are many pecan trees of significance to the pecan industry and the cultural history of the state.

The Original Burkett Pecan

In the fall of 1900, two young sons of J.H. Burkett (Omar and Joe) were squirrel hunting in the bottomlands along Battle Fish Creek, in Callahan County, Texas. Neither realized that a handful of pecans they gathered from a squirrel's nest that day would later be a factor in placing their name in the history of pecan culture.

Their father saw the nuts and, recognizing their excellence, urged the boys to find the parent tree. After some searching along the south bluff of the river, they found the tree. It was on land owned by W.A. Orr of Putman, Texas. It was protected on three sides by live oak and mesquite trees, and between it and the river was a tall water elm, which protected the pecan from the eroding river waters.

Each spring Burkett undertook to graft buds from the tree, but he had no success until 1903. Someone destroyed the parent tree in 1910. But today, thanks to Burkett's work, the variety is firmly established. One of the first papershell pecans, it grows best in the upland sandy soil of the Texas Crosstimbers region and requires less moisture than varieties such as the Stuart, which are found closer to the Gulf coast.

The original budded tree was located in Callahan County, Texas, on the north edge of Interstate 20, two miles east of Putnum, and about half a mile east of Farm Road 880, near the Eastland County line. The original Burkett pecan was hit by lightning in 1989 and died in 1993. Local historians cut the tree down and had it milled into boards. Today the site is commemorated with a historical marker. The Callahan County Historical Society sells handcrafted pen and box sets made from this wood. Each purchase is accompanied by a certificate of authenticity. Contact Alan Wright (915.854.1640) if you are interested. J.H. Burkett is buried in Clyde, Texas. When his son Omar Burkett grew up, he became a Texas state legislator and wrote an important labor law. No word on what Joe did in later life.

The Governor Hogg Pecan

On the evening of Texas Independence day, March 2, 1906, Texas' former Governor James Stephen Hogg and his daughter Ima were visiting in the home of his law partner, Frank Jones, of Houston. During their conversation, the Governor told Jones and his daughter that when he died he wanted no monument of stone, but, "Let my children plant at the head of my grave a pecan tree and at my feet an old-fashioned walnut tree. And when these trees shall bear, let the pecans and the walnuts be given out among the plain people so that they may plant them and make Texas a land of trees."

Late the next morning, Governor Hogg died quietly in his sleep.

Shortly after his burial in Austin's Oakwood Cemetery, the first of Governor Hogg's wishes was carried out by the president of the State Horticultural Society, who planted two pecan trees at his head and a native black walnut at his feet. In later years, when the trees began to bear fruit, the Department of Horticulture at Texas A&M College gathered the nuts and distributed them to individuals, schools, and organizations throughout Texas.

The pecan had long been a popular tree in Texas, and in 1919 it was officially designated the state tree of Texas by an Act of the state Legislature. Its adoption is largely credited to the sentiments Governor Hogg expressed on the eve of his death.

In a special Arbor Day observance at Oakwood Cemetery sponsored by the Texas Forest Service and the Texas Forestry Association, in 1969, Hogg's last wishes were perpetuated. The Russell pecan and the black walnut had died, and the trees were replaced with a Choctaw pecan and a Thomas black walnut. Miss Ima Hogg assisted with the planting. The replacement trees were donated by the Texas Pecan Growers Association, which was founded by the Governor in 1906. Miss Hogg, a well-known philanthropist, passed away in 1975 and is buried near her father and the Hogg pecan. The Hogg Pecan is healthy and well and located in the northwest section of Oakwood Cemetery in the city of Austin.

The Houston Pecan

The house Sam Houston loved best was the one at Huntsville, Texas in which he resided for nearly twenty years. In the south corner of the spacious yard stood a native pecan that had grown into a beautiful tree of immense proportions. According to Houston's granddaughter, Mrs. Jennie Morrow Decker of Houston, her grandfather planted the tree in 1847. While returning from a trip, he had need of a buggy whip to spur his lazy horse. Having none, he stopped beside the road and pulled up a small pecan sapling, which served his purpose well. Arriving at his home, he saw that the roots were still intact, so he planted the sapling in the yard and it grew.

The Sam Houston pecan produced a fruit that was small but quite delicious. For many years, its pecans were distributed to Texas schools and colleges by Sam Houston State University at Huntsville. A number of the nuts also were sent to other state capitols and the Capitol in Washington.

The old homeplace is now a Texas shrine and is located south of the Walker County Courthouse in Huntsville, on the west side of US Highway 75. The Houston Pecan died in 1985. Parts of it were cut up and used to make souvenirs. The Sam Houston estate is home to a number of specimen quality native trees and the city of

Huntsville has several really big pecan trees, like the specimen across from the Louisiana-Pacific plant on the old Minnie Fisher place with the 100 foot crown!

The Memorial Pecan

Women of the Texas Federation of Women's Clubs planted this pecan tree, in Austin, in a simple, yet impressive Memorial Day ceremony, May 30, 1945. The planting was in honor of the heroic Texans of World War II and particularly those who lost their lives in that struggle. Governor Coke Stevenson gave the dedicatory address, and a color guard and bugler from American Legion Post 76 participated.

Soil placed around the tree's roots was obtained in one-pound packages from each of Texas's 254 counties, and from General Eisenhower's birthplace at Denison, Texas and Admiral Nimitz's old home near Fredericksburg, Texas.

This tree was located on the east side of the north entrance to the state capitol in Austin. It was felled in 1993 to make way for a construction project. Its wood was milled and turned into a bench that currently resides in an elevator lobby in the capitol building. A small plaque identifies the bench, but there is no word as to whether Governor Bush has ever sat on it. A new pecan tree, also identified as a WWII memorial tree, was planted in the same location, in the same soil in 1994.

The Castroville Pecan

This uniquely-shaped pecan tree, on the west bank of the Medina River about twenty-five miles from San Antonio, marks the approximate location where Henry Castro and a small group of colonists camped on September 3, 1844. Eight days later Bishop John M. Odin, the first Catholic Bishop of Texas, said Mass in its shade and dedicated a cornerstone for the first Catholic Church in the new colony.

Henry Castro was a Frenchman by birth and a Jew by Faith, but he bore a Spanish name. He visited America as consul for the kingdom of Naples in 1827 and became an American citizen in that same year.

Castro was one of four men who were successful in obtaining a colonization contract from the Republic of Texas in 1841-1842. From 1842 to 1844, Castro was responsible for introducing more than 2,100 immigrants to Texas. In addition to Castroville (the first permanent colony to be established between San Antonio and the Rio Grande), he also founded colonies at Quihi, New Fountain, D'Hanis, and Vandenburg.

Legal entanglements and delayed payments for services rendered as empresario of the colonies he established eventually cost Castro a personal fortune in excess of \$100,000 and much of the land he received under his colonization contract. During the war between the States, he decided to return to France, where he hoped to raise additional funds. His journey took him only as far as Monterrey, Mexico, where he died on November 3, 1865. His dream was to be buried in Castroville, but today his remains lie in Monterrey. His wife, Amelia Mathis, is interred in the Castroville cemetery beside her daughter-in-law, Augustine.

The Castroville Pecan was located immediately behind the Landmark Inn, at the corner of South Florella and Florence Streets, in



Castroville, Texas. It was struck by lightning and killed in approximately 1988. Growing nearby is another champion-sized pecan tree called the Medina Pecan (image at right, courtesy of J. Secrist). Stop into the Landmark Inn and ask June Secrist for directions.

The Jumbo Hollis Pecan

Although this mammoth pecan tree is not the largest in the world, nor in Texas, it has the distinction of once having yielded the largest pecan nuts in the world. Robert L. Ripley cited the Jumbo Hollis in his “Believe It or Not” column as requiring the fewest nuts to weigh a pound. When other native pecans averaged 70-80 nuts per pound, Jumbo’s averaged 33 (cf. <http://www.roadsideamerica.com/attract/MOBRUpedan.html>).

The name Jumbo Hollis is derived from the tree’s unusually large fruit and from Thomas Hollis, the first recorded owner of the tree. Hollis was an early settler and storekeeper in the Bend community, near San Saba. At the 1904 World’s Fair in St. Louis, Jumbo Hollis pecans won a bronze medal for being the largest displayed.

In the early 1900’s much of its wood was sent throughout the South to be “budded” (grafted) to other pecan trees.

The tree’s record year was 1919, when it produced 1015 pounds of nuts. So popular were the fruits of this tree that buyers then paid as much as a dollar a pound for them.

The location of this famous pecan tree is on the west bank of a horseshoe bend in the Colorado River, in San Saba County, Texas. On the bluff about 200 yards west of this tree is the little town of Bend. High above and 200 feet north of the tree, Farm Road 580-581 crosses the Colorado on one of the last remaining state-maintained suspension bridges. San Saba County claims to be the Pecan capital of the world, and is also the home of the San Saba Mother Pecan.

The San Saba Mother Pecan

This tree is the source of more important varieties than any other pecan tree in the world. From it have come such well known varieties as Liberty Bond, Jersey, No. 60, San Saba Improved, Texas Prolific, and the internationally famous Western Schley (pronounced sh-ly’).

The San Saba Mother Pecan was discovered by an Englishman named E.E. Risien, a cabinet maker by trade, who became fascinated with pecans. Risien started the first pecan show in San Saba County, Texas to find the best pecan specimen. After the judging, he asked the winning exhibitor to show him the tree from which his pecans came. Risien was horrified when he saw it, for all the limbs had been sawn off except one. The man said that he had used that limb to stand on while he cut the others off to get the nuts!

Risien eventually bought the tree and the land on which it stood. Slowly the tree grew a new crown and once again began producing crops of prize nuts. Thinking he could reproduce the fruit by seedlings, he planted the first commercial pecan nursery in San Saba County. In that 40-acre nursery, none of the more than 1,000 pecan nuts planted produced trees with like fruit.

Artificial pollination of the “mother tree” continued for years as he tried to develop new varieties. He would ride horseback for miles seeking suitable “father trees,”

gather pollen-laden male blossoms in his saddlebag, and bring them back to pollinate the “mother tree.” It generally took about 10 years to know whether he had a new and better variety.

In addition to his pollination experiments, Risien also experimented with budding and grafting pecans when few people knew it could be done.

Records of the first meeting of the Texas Horticultural Society held in Brenham in 1886, indicate that Risien won the honor of showing the best plate of pecans. For years after, his pecans were always top winners.

The San Saba Mother Pecan is located near the junction of the San Saba and Colorado Rivers, about 9 miles northeast of San Saba. To reach the tree, follow Live Oak Street and Pecan Grove Road out of San Saba to Farm Road 1480; then follow FR 1480 east about 6 miles to the entrance to the Risien homestead. The tree is about 1-½ miles east of the entrance, near the river.

Pecanophiles and Caryacurioses (you know who you are) will enjoy these websites:

<http://aggie-horticulture.tamu.edu/carya/>

<http://aggie-horticulture.tamu.edu/extension/homefruit/pecan/pecan.html>

<http://fruitsandnuts.ucdavis.edu/pecan.html>

<http://www.ghg.net/coyej/pecanpie.htm>

The Texas Forest Service (<http://txforests.tamu.edu/>) was particularly helpful in tracking down the status of some of these pecan-fatties. Dr. Pat Nolan, Director of the Sam Houston Memorial Museum (http://www.shsu.edu/~smm_www/), also provided lots of information about the significant pecan trees of Texas. Douglas Young of the Texas State Preservation Board spent much time resolving the current whereabouts of the Memorial pecan and its successor (<http://www.tspb.state.tx.us>).

Fire and cheatgrass conspire to create a weedy wasteland

by Jon Christensen for High Country News, on-line at www.hcn.org

Daveytown, Nevada - If it weren't for the cows, I might have wondered if we were still on Earth. We stood on a barren, blackened plain that stretched toward an ethereal mountain range. The Slumbering Hills hovered on the hazy horizon. Nothing seemed alive, except for the cows and my guide, Mike Zielinski, the fire-rehabilitation coordinator for the Bureau of Land Management in nearby Winnemucca.

We had come to see the future of the Great Basin.

For more than two weeks last August, a lightning-caused fire scorched more than 62,000 acres here. And this was only one of dozens of wildfires that burned nearly 2 million acres - 3,000 square miles - of the Great Basin last summer.

Someone with a little knowledge of Western ecology might think the fires were positive events. They raced out of control through degraded rangeland choked with dry cheatgrass, a fire-loving annual grass that originally came from the deserts of central Eurasia. Perhaps the fires would allow a healthier mix of plants to grow back with the spring rains.

But Zielinski and other land managers in the Great Basin know the truth: Fire and cheatgrass conspire to build each other up and ultimately destroy the native ecosystem.

With every new fire, cheatgrass takes over more and more acreage, as the fire-loving annual survives while the natives die out. And with each new crop of cheatgrass

comes the certainty that successive fires will burn hotter and more often, converting still more native sagebrush grasslands into uniform carpets of the short blond grass.

Zielinski has experienced the runaway cycle firsthand. Around Winnemucca, wildfires burned from 6,000 to 8,000 acres a year when he started working here in the 1980s, Zielinski said. By the 1990s, the average was up to around 100,000 acres a year. Last year, 630,000 acres burned in the Winnemucca District.

If the trend continues, scientists predict, fires will burn the heart out of the Great Basin in the next decade or so and irreversibly transform the region's characteristic sagebrush steppes into a weedy wasteland that routinely goes up in smoke every few years.

"We're almost to the point of no return," said Robert Abbey, the state director of the Bureau of Land Management in Nevada.

Back from the brink

But federal land managers haven't given up. In the wake of the fires, they have launched one of the most ambitious ecosystem restoration projects in the West. This winter and spring, teams of federal employees, hired contractors, state wildlife agency employees, and volunteers seeded as much of the burned landscape as possible in hopes of holding back the cheatgrass invasion and eventually returning the land to native species.

The BLM is spending more than \$40 million on this emergency rehabilitation effort. Officials said it is the biggest single post-fire rehabilitation plan ever undertaken by the federal government.

But it still isn't enough. The emergency effort has reached only about a third of the land that burned last summer and fall, largely because of a shortage of seeds, money, equipment and workers. Of the seeds that are being sown, less than a third were natives, and only 1 percent was sagebrush, the fragrant perennial that anchors much of the Great Basin ecosystem, but now, strangely, is disappearing.

The BLM recognizes the severity of the problem. "The Great Basin is in trouble," the agency warned in the latest of a series of reports on the aftermath of the fires. "A large part of the Great Basin lies on the brink of ecological collapse."

"Something must be done to stop the downward spiral of ecological conditions in the Great Basin," writes BLM director Tom Fry in a cover letter to the report, titled *The Great Basin: Healing the Land*. "What we've done before - a combination of treatments primarily designed to stabilize soils after a wildland fire - has not reversed this trend."

So the BLM is now scrambling to put together a long-range restoration plan. In the immediate aftermath of the fires, the BLM proposed spending up to \$25 million a year over the next decade on a Great Basin Restoration Initiative to try to slow down the accelerating cycle of fires and restore the native sagebrush grasslands in Nevada, Utah, Oregon and Idaho. Since then, the proposal has been scaled down somewhat. Abbey said that he hopes to pull together about \$15 million to make the transition from rehabilitation to ongoing restoration this year - around \$2.5 million in new money, with the rest coming from existing programs, including emergency fire-rehabilitation money.

Still, the investment would be substantial for an agency that spends on average \$26 million a year on emergency fire-rehabilitation efforts nationwide. It would also represent a significant shift in the BLM's \$48 million annual budget in Nevada. And it

could portend a major shift in the BLM's focus, from managing the land for forage for cattle and sheep to preserving and restoring healthy sagebrush grasslands.

The Healing the Land report could not state more clearly the change that is needed. "A restoration effort, on a scale never seen before in this country, needs to be undertaken to stop the downward ecological trends in the Great Basin," the report concludes. At the same time, it recognized the difficulties in store: "Restoration of the Great Basin ecosystem is a monumental challenge, perhaps the single most demanding land-management task faced by BLM."

Altered terrain

Out on the Daveytown allotment, named for a nearby mining ghost town, the difficulties were starkly apparent earlier this spring. Zielinski scraped up a handful of dirt and found it filled with cheatgrass seeds. The cows seemed to be waiting for the cheatgrass to pop up on the burnt plain.

On the horizon, a lone tractor pulling a drill seeder kicked up a cloud of dust across the base of the Slumbering Hills. Said Zielinski, "It just seems like such an impossible task when you see one drill being pulled way out there." By late spring, the cows would be gone. With any luck, tiny green seedlings would be pushing up through the ashes. And the struggle to reclaim this patch of the Great Basin would begin.

Historically, fires burned smaller and with less intensity in sagebrush grasslands. The frequency in any given patch of healthy sagebrush ranged from once every 11 years, which is just long enough for sagebrush to get established, to as seldom as every 200 years.

But that started to change in the mid-1800s, when cheatgrass seeds came to North America as a contaminant in grain seeds from Europe. Farmers called it cheatgrass because it cheated them out of profit by lowering their yields. With big spiky seeds that easily stick in hide and hair, cheatgrass readily expanded with herds of cattle and sheep to most of the West. Wherever animals overgrazed the perennial bunch grasses, cheatgrass got the edge it needed. Westwide, it is now the dominant grass on more than 100 million acres - an area the size of Utah and Colorado combined.

In winter and early spring, cheatgrass sends its roots deep, where they monopolize water and nutrients. It sets seeds early in the summer, and when it dries, it becomes explosive tinder. Sagebrush simply cannot survive or reproduce when cheatgrass-dominated lands burn every two to five years, as they tend to do. And the tiny seeds of sagebrush fall right around the plant, so its stands expand very slowly.

But it is sagebrush that is the critical element in this ecosystem. "When the sagebrush goes, the structure goes, and when the structure goes, most of the vertebrates go," explained Peter Brussard. A professor of biology at the University of Nevada, Reno, Brussard is co-director of the Nevada Biodiversity Initiative, a federally financed effort to document and monitor the state's ecological health.

Some species benefit temporarily when cheatgrass takes over, including mice that feast on the abundant seeds. But most animals are left homeless. Small birds like the sage thrasher, small mammals like the pygmy rabbit, and a host of reptiles like the sagebrush lizard need sagebrush to survive. The Great Basin Bird Observatory, which is compiling a breeding-bird atlas for the region, has found that cheatgrass-dominated grasslands support less than half the number of bird species that breed in healthy sagebrush steppes.

Most at risk are sagebrush-dependent species, like the sage grouse, which must have sagebrush for food and shelter. Sage grouse have suffered alarming population declines in the West, as sagebrush grasslands have been lost to cheatgrass and fire. A number of sage grouse populations, including those in the Great Basin, appear to be headed for the endangered species list. A listing would add political muscle to efforts to restore the habitat ([HCN, 3/13/00](#)).

James Young, a scientist with the federal Agriculture Research Service in Reno who has studied cheatgrass invasions for 40 years, said that what once seemed like an endless ocean of sagebrush in the Great Basin is itself "an endangered landscape." But even more alarming, when I asked Young if he knew of any successful restoration of native sagebrush grasslands, he simply said, "No."

An ecological Band-Aid

So far, the only successful strategy for fighting the spread of cheatgrass, Young said, has been to plant other exotic species from Eurasia, like crested wheatgrass, a perennial grass, and forage kochia, a shrub. These plants are more resistant to fire and grazing than their native counterparts, so they can compete with cheatgrass. They also provide forage for livestock and big game wildlife.

Using these exotic species is an "ecological Band-Aid," said Young, "but it's the best thing we've got now."

"I wish it was so simple as taking native seeds and throwing them out there," said Mike Zielinski. "But it's a lot more complicated."

Zielinski drove me out to one of the projects he worked on 17 years ago, when crested wheatgrass was all that was used for reseeding after a fire. It was good forage for cattle and it slowed fire down a little. But no native perennials have regained a foothold here.

Farther on we crossed through a section where four-wing saltbush and kochia were planted along with crested wheatgrass. Four-wing saltbush is native to lower elevations in the desert, but it does well with slightly higher rainfall, too. The hope is that these shrubs, by occupying the same niche as sagebrush, will keep cheatgrass from forming a dense carpet. When the saltbush and kochia die, sagebrush may eventually occupy the niche again. But there is no real evidence for that yet, said Zielinski.

Down the road and a bit higher in elevation we came to a more recent seeding, where sagebrush was added to the mix. In among the crested wheatgrass, cheatgrass and mustard weeds, tiny sagebrush plants were coming up after two years. Cattle have been kept off this allotment and will remain off at least another year.

"It's a very slow process on these shrubs," said Zielinski. "Even when you look at a five-year old sagebrush, it's not very robust. It takes a long time."

Higher up the mountainsides, where there is more precipitation, restoration efforts have used native bunchgrasses and sagebrush, in addition to four-wing saltbush and kochia. We hiked through diverse stands of grasses and shrubs. At least up here, there seemed to be hope for restoring some semblance of the native sagebrush grasslands.

Zielinski himself was skeptical about planting sagebrush in the beginning. But these different projects showed how rangeland rehabilitation efforts have gradually evolved toward the philosophy that is now at the center of the Great Basin Restoration Initiative: restoring the sagebrush grasslands, not just stemming the tide with plantings of less invasive exotics. But some people are still skeptical.

The critics

John Falen, a Winnemucca rancher, scoffs at the idea that Nevada needs more sagebrush. "Just look around," he said. "We're not going to run out of sagebrush."

Falen has a grazing permit on the Daveytown allotment. He is also chairman of the public-lands committee of the Nevada Cattlemen's Association and the recent past president of the organization. I met him at a public meeting in Winnemucca, where the BLM was discussing its emergency reseeding efforts. "I think planting sagebrush is ludicrous in Nevada," Falen said.

The issue is one of more than passing interest to Falen. This winter, the BLM seeded sagebrush along with other species on portions of the Daveytown allotment, and Falen will have to keep his cattle off those areas for at least two years.

But while ranchers like Falen fear the restoration efforts will lead to more cutbacks in grazing, environmentalists fear the reseeding efforts will simply use more exotic species to provide more forage for cattle. Indeed, most of the burnt land was seeded with a mix of crested wheatgrass, four-wing saltbush and kochia, to try to compete with the cheatgrass that had already taken over. Environmentalists made their concerns known to the BLM at meetings in Carson City and Reno this spring.

"Under an emergency atmosphere, decisions were made to use a considerable amount of non-native species," said Rose Strickland, a veteran activist with the Sierra Club in Nevada. "If I understand restoration properly - and maybe we don't know what that means - these emergency efforts are in direct conflict with restoration. So how do you reconcile using non-natives with the plan to restore the Great Basin ecosystems?" she asked Bob Abbey, the state director of BLM.

Abbey replied that the BLM had bought all the native seeds it could get hold of this winter. An ongoing restoration effort would provide a market for native-seed purveyors, he said. The supply should increase to meet the increased demand and prices would go down. But, he added, non-native plants would still be used to compete with cheatgrass and for planting firebreaks.

Abbey said the agency was working to identify surviving remnants of native sagebrush grasslands that need to be protected from cheatgrass and fire. Those will be a top priority and restoration efforts will work outward from there.

The BLM faces many daunting challenges in this effort. Perhaps the biggest is distrust. "It sounds like a great new mission for the BLM and recognition that past and current BLM management is not working and that it's actually leading to ecosystem collapse," Strickland said after reviewing the latest report on the restoration effort. "But I'll believe it when I see it."

The BLM not only has the difficult task of convincing people in the Great Basin that it can do the job. It must also persuade lawmakers in Washington, D.C., that restoration of the sagebrush grasslands is necessary. The sagebrush steppes of the Great Basin are not the most charismatic landscape in the West.

What the agency has going for it right now is the alarming result of last year's fires: mile after mile of blackened, charred lands. The starkness of that picture, and the knowledge that things will only get worse if nothing is done, means the agency will probably at least get the chance to start its restoration initiative.

"Until I saw the devastation myself, it wasn't a priority to me," acknowledged Bob Abbey. "The cost is substantial, but the alternative is even worse."

Rare Plant Introduced on Forest Service Lands

Kathy Nemec, US Fish & Wildlife Service, Clear Lake ES

The Neches River rose-mallow *Hibiscus dasycalyx*, a perennial woody herb, grows 3-7 feet tall with one or more stems per clump. It bears large and showy flowers about 3-6 inches wide, each with five 2-4 inch-long petals. The color is usually creamy-white, with a deep-red or purple center at the base. A summer bloomer, the blossoms are generally present June to September. The five sepals and 12 bracteoles of the calyx are densely covered with long hairs, distinguishing it from other rose-mallow species. Another distinction is the 2- to 4-inch long, non-pubescent leaf. This rose-mallow's leaf is deeply 3-lobed and arrowhead-shaped, and each lobe is linear and slenderly tapering. The leaf margins are irregular or saw-toothed. The fruit is a rounded capsule that is generally present July to November. Mature seeds are densely pubescent with brown-to-reddish hairs, and are buoyant in water for several hours.

The species appears to be restricted to wetland areas that are exposed to open sun. It is generally found growing in open, marshy areas (ponds, sloughs, oxbows) within the immediate floodplain of a permanent stream or river. Areas supporting the plant are usually flooded at least once a year, but are not necessarily connected to the mainstream for the entire year. Bases of plants are normally in standing water early in the growing season, with water levels dropping, but never drying completely until very late in the growing season. This species appears to have community dominance within the narrow band between high and low water levels in wetlands exposed to the open sun.

The Neches River rose-mallow has been severely reduced in range and numbers due to the conversion of wetlands to cropland, the drainage and filling of floodplain depressions and oxbows, stream channelization, urban development, road construction, and timber operations. Current threats within its range include herbiciding and brush-clearing on the edges of wetlands. Populations in Houston and Cherokee counties have been seriously impacted in recent years by heavy herbicide use. Another severe threat is potential hybridization with other mallow species, which are invading *H. dasycalyx* sites due to habitat alteration.

Status surveys for the Neches River rose-mallow had revealed only four sites of occurrence within a 10-county search area: one site each in Cherokee and Houston counties and two sites in Trinity County. The historic range may have been fairly large, since existing sites involve the floodplains of the Angelina, Neches, and Trinity rivers. However, all known populations are less than ten acres in size and are on private land or within highway rights-of-way, generally rendering them vulnerable to continued impact and disturbance unless protected through some conservation mechanism.

The Neches River rose-mallow is currently considered a Candidate for Federal listing as threatened or endangered. As a candidate species, the U.S. Fish and Wildlife Service (FWS) is obligated to begin the procedure for formal listing of the rose-mallow as endangered or threatened within the near future. However, the FWS realizes the value of implementing recovery actions early in the listing process to help reduce threats to the species. In some cases, formal listing can be avoided entirely if sufficient populations have been established and their habitats protected.

Recovery efforts to date include the formation of a conservation team representing FWS, U.S. Forest Service, Texas Parks and Wildlife Department (TPWD), Texas Nature Conservancy, Stephen F. Austin State University, and private industry. In January of 1998, Champion International entered into a conservation agreement with FWS and TPWD to protect a population found on their land in west Trinity County. Temple-Inland Corporation currently protects another population in east Trinity County. TPWD has management agreements with Texas Department of Transportation to protect three highway rights-of-way populations (which are all declining) in Houston, Trinity, and Cherokee counties. However, successful recovery of the rose-mallow will require discovering and protecting new sites, and introducing and re-establishing the species into a significant number of additional locations.

As part of a project partially funded by the National Fish and Wildlife Foundation, Stephen F. Austin State University is conducting a genetic analysis of the Neches River rose-mallow and its related species, based on plant tissue collected from known sites in summer 1998. They are also determining the species' habitat needs based on experimental plantings at a site on Mill Creek in Nacogdoches County. Finally, they are propagating rose-mallow plants that will be used for re-introductions into suitable habitat. The university has produced more than 2000 plants suitable for introduction efforts.

Davy Crockett National Forest (DCNF) represents the only public land found well within the range of the rose-mallow, rendering it extremely important to recovery efforts. Last year, District Biologist Steven Best assisted with surveys for possible existing populations in the DCNF, but were unsuccessful at finding any. More recently, the team reviewed aerial photos and identified two wetland sites in the north part of the forest that appeared to include favorable rose-mallow habitat. Both were located in northern compartments of DCNF, one southwest of an area called Bushy Lake and another on a branch of Camp Creek.

The team approached DCNF Ranger Raoul Gagne about the prospect of planting Neches River rose-mallow at these two sites, primarily to test their ability to undergo transplantation with minimal site preparation or management. This would allow FWS and the team to better determine whether the rose-mallow can be easily established within new sites. FWS met with both Mr. Gagne and Forest Supervisor Ronnie Raum to discuss the possibility of attempting this re-introduction.

Despite a 3-year-old drought that is affecting most of Texas, the selected locations on Forest Service land involved relatively large, open wetlands, with significant wetland vegetation and large snags. We believed that introductions here would not interfere with any timber operations in DCNF, as long as large-scale logging immediately near the wetlands were done carefully. The sites are also relatively remote and are not associated with any high-use camping areas. Short-term recreational activities, such as hunting or hiking, would not be harmful to the plants. Off-road vehicles would be detrimental, but ORV activity is prohibited in DCNF wetlands. DCNF also agreed that they could avoid both site disturbance and the introduction of invasive or non-native plant species after the introductions were made. As a result, the team was granted permission to carry out the project.

The planting was accomplished on April 28 by representatives from SFASU (3), FWS (1), Texas Parks and Wildlife Department (1), and Texas Nature Conservancy (1),

and USFS (1). (A prescribed fire kept other USFS staff from participating, although they had originally planned to help.) With the use of hand-shovels and a lot of walking and carrying, about 700 plants were placed in the ground. These introduced individuals will receive no further maintenance, and will be monitored by periodically by members of the team to see how well they do in their new environment.

If the introduced populations become self-sustaining and are eventually considered by USFS and FWS to be recovery populations, FWS would seek their permanent protection through conservation agreements or other mechanisms, with the cooperation of USFS. If a sufficient number of populations are established and protected on Federal, State, and private lands, the FWS may be able to avoid the need to list this species. However, if the species is listed as endangered or threatened, these new populations would be protected by Sections 7 and 9 of the Endangered Species Act. If that becomes the case, the FWS does not anticipate many Section 7 or Section 9 conflicts, and can work closely with DCNF to avoid such conflicts.

This project, the first of its kind for our office, will allow us to examine the response of the plant to a reintroduction effort; determine the most advantageous habitat conditions for successful establishment of species; and collect vitally-needed biological information on the species. If the populations do well, the establishment of these two new sites represents a significant step toward recovering the species, and possibly avoiding the need to list as threatened or endangered.

***Carex aboriginum* No Longer Extinct**

Michael Mancuso, Idaho Conservation Data Center

About 100 years ago, the intrepid geologist/botanist Marcus Jones collected a sedge in the Indian Valley area of western Idaho that was described as a new species – *Carex aboriginum* (Indian Valley sedge). Since then, this species has been known only from the type collection (and its vague location data). Most of the Indian Valley area has long been converted to agricultural use. Also, past efforts to relocate populations failed. About 10 years ago these reasons resulted in *Carex aboriginum* being considered extinct, the only Idaho endemic plant in this sad category. I am now happy to report this dubious distinction has been removed. Curtis Bjork, a student at Washington State University, rediscovered a population in 1999 near Goodrich, Idaho. This changes the global rank from GX to G1. Idaho is a little richer place again!

“Get-rich” Moss Trade Leaves Land Dirt-Poor

Antoaneta Bezlova – Special for USA Today, Friday May 19, 2000, pg 11A

Tongxin, China: People desperate for work have found a way to earn a living that is literally choking much of northwestern China.

Muslim harvesters in western China are plucking huge tracks of land clean in search of “facai,” a special type of moss sold in southern China and Hong Kong as an edible gift.

Now, as spring winds sweep over the deserts and the newly bare stretches of land, they carry sand and dust across northwestern China and even as far as Japan.

Though the sandstorms are an annual event, this year they paralyzed life for several days in March and April in three western provinces: Ningxia, Gansu, and Inner Mongolia. At times, visibility was reduced to just 15 feet in Yinchuan, the capital of Ningxia. Beijing, 550 miles east of Yinchuan, was blanketed by a thick, yellowish mixture of sand and dust blown in from the desert of Inner Mongolia and from the Loess Plateau, famed for its yellow earth.

“This is the worst year on record,” says Kong Zhaozhen, director of the Environmental Protection Bureau of Yinchuan. “For many days, you couldn’t breathe. The dust was so thick, people didn’t dare to go outside.”

The value of the moss is all in its name: “facai,” which sounds exactly like the Chinese word for “get rich.” Because of its auspicious name, the low growing plant has become a favorite gift in Hong Kong and Southeast Asia.

Prices for the “get-rich” moss have increased in the last 30 years from about 2 cents to \$25 per pound. Consumers in southern China and Hong Kong buy gift packages of facai, which are given to guests with meals of cooked in soup.

The popularity of facai, sold as a dried, black, fibrous mass, has enabled hundreds to earn a living in Ningxia, one of China’s poorest provinces.

But the facai gatherers’ zeal is blamed for the destruction of millions of acres of grasslands in many of the country’s western provinces, where the black plant covers the hilltops.

China already encompasses part of Central Asia’s dust storm zone, one of several such areas in the world.

The Central Asian zone has a record of severe sand storms going back to the 16th century. Yet this year’s storms caught many by surprise and raised concerns. The reason: The severity of the storms and the distance they carried the sand clearly signaled that the desert is taking over the grasslands at an alarming pace.

Deserts take up one-third of China’s territory and are growing by 925 square miles every year, scientists say. The quickening desertification affects 110 million people living in and near those arid zones. “The main reason is the destruction of the vegetation cover on the grasslands,” Kong says.

Tens of thousands of Hui people, Islamic Chinese who live in Ningxia province on the Yellow River, range across the land scraping up all the vegetation with rakes in search of the facai moss. A government study in 1997 found that Hui farmers hunting for facai moss in the steppes of neighboring Inner Mongolia had destroyed 3.5 million acres.

Tongxin, a county several hundred kilometers south of the Yellow River, is the largest center of the facai trade. More than 10,000 people come to the county’s market every month to sell the moss. They trade with merchants from Hong Kong and south China’s coastal cities. The moss which sells for about \$25 per pound in Tongxin, retails for \$40 per pound in Hong Kong.

“Facai is one of our treasures; we call it ‘black gold,’” says Yang Wenyuan, a Tongxin government official. “The business here has a history of 100 years. In the late 1990s, there were so many traders coming that we had to set up a facai office to deal with them.”

Each gatherer is able to work a little more than an acre a day. Harvesters rake off all the vegetation, then pick through it to harvest a small cluster of facai, usually 1 to 2 ounces. On average, harvesters say they earn just \$2.50 for a day’s effort.

There are few alternatives for the Muslim people in Ningxia. The amount of land per farmer declined by one-third during the 1980s, when the province recorded the highest population growth in China. In Tongxin, the average annual income in 1999 was \$60.

The land that is available is dry and barren and can barely produce enough to eat. In Hantianling (which means “dry sky and land”), a tiny village 19 miles from Tongxin, Ma Zhongqing shows how little water is left in the family’s well. “If it doesn’t rain, there is no water, not even to drink,” Ma says. “Last year there was no rain so the crops failed.”

To provide for his five children, Ma goes to Inner Mongolia every winter to find facai. “Almost all of our income comes from the facai,” he says. “It is hard work. In winter it is very cold and not many can bear it, but at least we can live.” They harvest in winter, he says, when demand for the moss is the greatest.

The trip to Inner Mongolia is a risky one because Mongol herdsmen have attacked harvesters to combat the damage the facai harvest causes to their grasslands, needed for grazing.

“For the nomads, the pasture is their way of life. They have to protect it,” says Yang, the Tongxin official.

Alarmed by the battles between Muslims and Mongols, authorities tried to clamp down on the facai business. The local government in Ningxia also was under pressure from Beijing to stop the environmental devastation.

New regulations in 1998 banned the Hui people from going into Inner Mongolia to gather facai and forbade local traders from buying facai.

But Tongxin locals say the laws aren’t working. “It is still quite savage,” says Hei Zhiqing, a Muslim trader who has a facai processing factory.

Tongxin local leaders admit they have no choice but to encourage the facai business. “It is the main source of income for some 40% of the country’s 350,000 people,” Yang says.

Gore Expands on Clinton’s Forest Protection Plan

by James Dao, 05/31/2000, The New York Times
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Milwaukee, May 30 -- Wading into one of the nation's most contentious environmental debates, Vice President Al Gore pledged today to prohibit logging and road building on 43 million acres of undeveloped national forests.

Mr. Gore's promise goes beyond a proposal the Clinton administration made just three weeks ago that would bar road building across that same broad swath of roadless land in 155 national forests and grasslands. That land accounts for about a quarter of the entire forest system and includes many of its most pristine areas.

But even as they praised President Clinton's proposal, many environmental groups said it did not go far enough because it would not prevent logging in those undeveloped forest lands. Environmentalists also criticized the plan, which is under review, for explicitly exempting the Tongass National Forest in Alaska, the nation's largest.

Today, Mr. Gore addressed both complaints, saying he would bar logging as well as road building in the roadless areas. And he strongly suggested that he would extend

the same protections to the Tongass, where conservation efforts have been opposed by Alaska's influential Congressional delegation.

"If I am entrusted with the presidency, it will be a national priority to preserve these roadless areas as they are, no ifs, ands or buts about it," Mr. Gore said. "No more destructive development and exploitation. And just so I'm crystal clear about it, no new road building and no timber sales in the roadless areas of our national forests. Period."

On the Tongass, Mr. Gore added, "I will ensure total and permanent protection for the roadless areas in the Tongass, America's great temperate rain forest."

The vice president made his announcement after picking up the endorsement of the League of Conservation Voters, which represents the leadership of more than 40 environmental groups.

"His environmental achievements are the most extensive of any public official in high office," said Deb Callahan, president of the league. "Without Al Gore and this administration, we would already be experiencing a dramatic backward slide on the environment."

Beyond its new environmental promises, Mr. Gore's speech was notable for not mentioning Gov. George W. Bush of Texas, his Republican rival. The vice president has been criticized by some fellow Democrats for spending too much time in recent weeks attacking Mr. Bush rather than explaining where he would lead the country.

Today's speech, Mr. Gore's aides said, was just the first of several in which he plans to focus on his own proposals and vision, rather than reacting to news that his opponent creates. The vice president has also begun devoting more of his speeches to spotlighting parts of his background, a strategy the Democratic National Committee plans to incorporate into a series of biographical television commercials in the coming weeks.

But if Mr. Gore gave his Republican opponent a pass today, Ms. Callahan, who worked on Mr. Gore's 1988 presidential campaign, did not. She asserted that Mr. Bush had done little to reduce air pollution or improve state parks in Texas. And she accused Mr. Bush of pandering to big corporate polluters that have contributed generously to his campaigns.

"George W. Bush's appointees to key cabinet and administrative positions predict an administration of, by and for the special interests," she said.

Dan Bartlett, a spokesman for Mr. Bush, said Mr. Bush's administration had actually added nearly 91,000 acres to the state park system and had significantly reduced the release of toxic pollutants into the air, water and soil.

"When Al Gore chooses surrogates to pollute Governor Bush's record, he should choose ones that have their facts straight," Mr. Bartlett said. "The new Al Gore is the same old Al Gore. The negative campaigning will continue."

To counter the league's endorsement, the Republican National Committee circulated today copies of a memorandum written at least six months ago by a board member of the Sierra Club, one of the nation's largest and most influential environmental groups, that sharply criticized Mr. Gore's environmental record.

"With this legacy, no real environmentalist could ever endorse Al Gore," wrote Michael Dorsey, a doctoral candidate at the University of Michigan school of natural resources and environment.

But Daniel J. Weiss, the Sierra Club's political director, described the memorandum as "one person's opinion," adding that it would have "no impact" on whether the group endorsed Mr. Gore.

Many environmentalists expect the Sierra Club to back Mr. Gore by the fall. Indeed, the group has already spent \$250,000 on television commercials attacking Mr. Bush's environmental record. The spots are being broadcast in Michigan, Missouri and Wisconsin and will begin running in Ohio this week.

A third, smaller environmental group, Friends of the Earth, which endorsed Bill Bradley in the Democratic primaries and has been sharply critical of Mr. Gore's record on global warming and trade issues, remains undecided in the race. A spokesman, Mark Whiteis-Helm, said the group is considering endorsing Ralph Nader, the Green Party candidate, but has not ruled out backing Mr. Gore.

In proposing new protections for the national forests, Mr. Gore stepped into an emerging national debate over development in some of the nation's wildest lands.

Advocates of the expanded protections contend that roadless areas encompass some of the cleanest, safest wildlife habitats in the nation. But off-road vehicle enthusiasts and timber industry officials argue that too much public land has already been placed off limits to development. The ban has also been strongly opposed by some powerful Western lawmakers who say it would reduce logging jobs.

Forest Service officials have said that simply banning road building would significantly reduce future logging in the roadless areas. But Mr. Gore sided today with environmentalists, who contend that unless logging is specifically prohibited, helicopter logging and other activities could damage the land.

Mr. Gore did not consult with Mr. Clinton about today's speech, advisers to the vice president said. But aides to the two men did confer beforehand.

In his speech today, Mr. Gore also pledged to prevent oil drilling in the Arctic National Wildlife Refuge in Alaska. And he asserted that passing campaign finance reform legislation would be a form of environmental protection, because it would reduce the influence of big corporate polluters.

Mr. Gore also defended his 1992 book on the environment, "Earth in the Balance," which was recently reissued, much to the glee of some Republicans who say it exposed Mr. Gore as an extremist on the issue. But today, Mr. Gore said: "I am proud I wrote that book. I stand by every word in that book."

He concluded: "I believe that God created only this one earth and the earth is in the balance. Save it we can, and save it we must."

Recovery of *Echinacea laevigata*

Tom Patrick, Georgia Natural Heritage Program, from GPCA News Issue 2.

The Georgia Plant Conservation Alliance (GPCA) had added a fifth research project to its docket, the recovery of the endangered *Echinacea laevigata* on public lands. The smooth purple coneflower is a federally endangered species found in Stephens county in the vicinity of Toccoa, Georgia. This project was a natural addition for several reasons: 1) several members of GPCA have been working on different aspects of the project individually (propagation, monitoring, fire management, allozyme trails) and it is

time to coordinate and accelerate our efforts; 2) GPCA is now collaborating with long time volunteer Jim Sullivan, who has been working to develop a management plan for natural habitats in the Gainesville Ridge system and investigate a management strategy on public land; and 3) a recently discovered large natural population provides a botanical library for us to study the natural history of *Echinacea laevigata* and apply this information to the management of the more common roadside populations.

The Georgia Natural Heritage program will designate \$8,000 to hire Jim Sullivan to survey for suitable habitat for potential reintroduction (outplanting) sites, and monitor existing populations. Phase I of the project will provide detailed habitat information on soils, vegetation, and floristics by comparing extant populations. Such habitat data will be used to select sites, as well as to assist the US Forest Service in determining precise boundaries in which to implement management plans for recovery of smooth purple coneflower on public lands in Georgia. This information will be applied to Phase II of the project which will entail propagation, outplanting, introductions, population augmentations, management, and monitoring.

Echinacea laevigata is part of a suite of oak-savanna habitat species along with *Clematis ocralucra*, *Solidago ptarmicoides* (a white-flowered golden rod), *Pycnanthemum virginianum* (Virginia mountain mint), and *Cirsium carolinianum* (Carolina thistle).

At What Cost? Deciding Whether to Control Exotic Plants

Sue Rutman, Organ Pipe Cactus National Monument
NPS Natural Resource Year in Review – 1998

By accident or on purpose, many African plant species, particularly buffelgrass, have invaded the desert Southwest, where the climate is similar to that in parts of Africa. Ecologists in southern Arizona have been alarmed about the invasion and have called it the Africanization of the Sonoran Desert.

Buffelgrass is a 1- to 4-foot tall, drought-tolerant perennial bunchgrass with many stems arising from a base. It is fire-tolerant and can colonize disturbed and undisturbed sites. In Organ Pipe Cactus National Monument in Arizona, buffelgrass was first recorded in 1984. Its abundance increased rapidly. By the late 1980s, the grass had colonized more small areas, and by the mid-1990s the native vegetation along the southern boundary of the monument was being replaced by monotypic stands of buffelgrass. The prospect of losing an important piece of the most biologically diverse North American desert seemed imminent. The dismal thought of buffelgrass replacing the organ pipe cactus, with its sweet nectar and fruit; the giant saguaro, with its distinctive shape; and the ironwood tree, with its life-giving shade' spurred action by park resource managers.

Many plant ecologists were against mechanical removal because they feared disturbance of the soil would favor the species, not eradicate it. Despite those concerns, the staff at Organ Pipe Cactus National Monument tried to mechanically remove the buffelgrass from a small test area. The next year, some seedlings were removed from the same area. Since then the area has been free of buffelgrass.

Impetus for further action came from consulting the NPS Natural Resources Report *Handbook for Ranking Exotic Plants for Management and Control*¹. This

publication outlines an analytical approach (modified for our purposes) to prioritizing management actions by considering the significance of impacts from an exotic species and the feasibility of control. In view of the potential for ecosystem-wide effects and the success in the test area, the scope of the project was broadened during 1998. In just several months, about 40 tons of buffelgrass were removed from thousands of acres. By the end of winter 1998-99, about 41,472 hectares, or 10,240 acres (95%), of the formerly infested area was free of buffelgrass.

For monitoring the effectiveness of the removal, plots were established and inspected every three months during the first year. Early results suggested that mechanical removal was effective if seedlings were removed the following year. Few new plants have established themselves in most plots. Reestablishment of plants was primarily a problem only in sites where wildland fires had occurred accidentally

Control of buffelgrass will require continued vigilance and removal; however, this effort seems worthwhile. Time spent removing the grass – accomplished by part-time staff and volunteers – was roughly the same as or less than that spent picking up refuse along the single highway through the monument. With an ecosystem at stake, this time is a small cost.

¹Hiebert, R.D., and J. Stubbendieck. 1993. Handbook for Ranking Exotic Plants for Management and Control. Natural Resources Report NP/NRMWRO/NRR93/08. National Park Service, Denver, Colorado.

Smokey Goes to the Russian Far East

John Barrows, from the Northern Region News, Jan.-Feb. 2000

Excerpted from the Dillon Tribune

There is no such thing as Smokey Bear in Russian – but there is a Siberian Tiger. And one day, the Russian Federal Forest Service hopes, Siberian Tiger will take over the Smokey Bear role to help spread the story of forest fire prevention.

Darrell Schulte, assistant forest fire management officer, Beaverhead-Deerlodge National Forest, recently got a up-close look at the Russian Federal Forest Service. He viewed how they deal with a myriad of problems, ranging from huge forest fires to a vanishing ability to finance its operations. Schulte was one of four USDA Forest Service personnel invited by the Russians to help them devise solutions to their forest management problems.

The economic crisis in Russia is having dramatic affect on forests in the Russian Far East, Schulte said. They are becoming increasingly vulnerable to the world's logging companies. "If they had an infrastructure," Schulte commented, "there is a possibility they would log everything in sight." Russian forests contain 25 percent of the vegetation in the world and 80 percent of the larch supply.

Citizens also depend upon the forests for subsistence – hunting, fishing, and gathering. And with virtually no program of education for the people, 90 percent or more of all forest fires are person-caused.

In the Khabarovsk Region, which Schulte visited, five million acres of wildfires occurred in 1998, almost twice the 3 million acres of wildfires in the entire United States. Carelessness by citizens is one factor. One major cause of fires is the railroad, a government entity and difficult to hold accountable, Schulte stated.

Lack of funds dramatically affects forest managers. The program receives minimal financial support from the government. Pay is low. Workers might go months without receiving a paycheck.

When fire crews go on site, they literally live off the land. They take their own cook and hunter. Smokejumper crews jump in with the barest of necessities. They carry shovel and axe heads with no handles. They stop, cut handles and mount them before starting to work.

Schulte's job was to help explain the American prevention programs, including prescribed burning. The educational program Schulte introduced included three major points: fire ecology, fire prevention, and better and more efficient fire management. Although faced with severe challenges, the Russian Federal Forest Service "have great pride in what they can do," Schulte explained. Which makes the present assistance by specialists like Darrell Schulte all the more critical.

Banner Plant: *Darlingtonia californica*

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

This month's image courtesy of Texas A&M University, Vascular Plant Image Gallery
<http://www.csdl.tamu.edu/FLORA/gallery4.htm>

The California Pitcher Plant graces this month's *LB* banner. Native to California, Oregon, and Washington, this insectivorous plant (which bears no resemblance to a passionflower) actually traps a small percentage of the insects that are attracted by the nectar glands on the hood of its pitchers. The unlucky few expire by drowning in the fluid that partially fills the pitchers. The chore of digestion is largely handled by bacteria. *Darlingtonia* does not secrete any digestive enzymes. Living in this scrumptious soup are twenty or more species of arthropods, many of which are obligate inhabitants. The larvae of several of these arthropods feed on the drowned insects in the pitcher. Spiders have been known to construct webs in the domes of the pitchers. Seems like *Darlingtonia californica* might be better called *Darlingtonia cafeteria*.

Afterword

See <http://www.atlantabotanicalgarden.org/titanarum.html> for pix and updates!

Opportunity to see the "Godzilla" of the Plant World: *Amorphophallus titanum* World's Largest Flower Blooming at the Atlanta Botanical Garden

THE ATLANTA BOTANICAL GARDEN AMONG HANDFUL OF GARDENS
WORLDWIDE TO BRING A SECOND TITAN ARUM INTO BLOOM

ATLANTA-An enormous flower of the *Amorphophallus titanum*, variously known as Titan arum or voodoo lily, was again on display in the lobby of the Dorothy Chapman Fuqua Conservatory of the Atlanta Botanical Garden for the second time in two years. This extraordinary second bloom is due to the horticultural efforts of the Fuqua Conservatory staff that nurtures the plants.

The first-ever bloom in Georgia took place at the Atlanta Botanical Garden in July, 1998 from seed originally collected in 1992 from the tropical rainforest of Sumatra, Indonesia, where the *Amorphophallus titanum* is a native. Although another plant, this second flower came from the same seed batch

The rare species has previously flowered only approximately 10 times in the U.S. during the past century and fewer still Botanical Gardens have ever succeeded in bringing a second plant into flower.

The dark maroon-red, ruffled and pleated spathe unfurled on Flag Day, June 14, 2000 with the spadix or central column towering 46 inches in height. The characteristic foul odor (described as a cross between manure and a dead carcass) was in evidence, as was a cloud of flies surrounding the flower, technically an inflorescence. The flower remained open for only four days, as is typical for this plant, and collapsed June 18.

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.

Just because someone writes it on a flip-chart doesn't mean that it'll get done.

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

