

Albuquerque Chapter Newsletter

Native Plant Society of New Mexico

Volume 2, Number 2

April-June 2010

The San Juan Badlands Initiative:

An opportunity to preserve a place of dramatic natural beauty

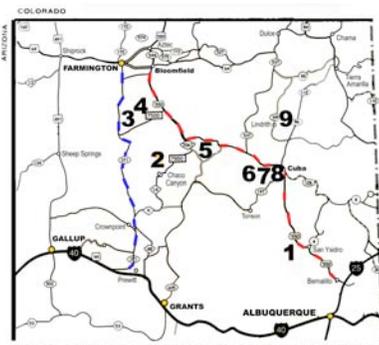
by Mike Richie

The San Juan Basin Badlands (see map) with their endless hoodoo sculpture galleries, fossil treasure troves, picturesque cliff-clinging conifers, fantastic skylscapes, and genuine solitude are high desert icons. They offer unique scientific, educational, and recreational value.

The San Juan Basin's 18 chronological sedimentary layers record 200 million years of exciting paleoecology. Huge petrified logs and diverse fossils hint at the action packed story. Initial paleontological finds here in the early 1980s helped spur the establishment of the New Mexico Museum of Natural History.

Some San Juan Basin Badlands areas present stark, alien environments, while others hold greater plant and animal species diversity and density than the surrounding grasslands. Isolated mesa-top botanical gardens showcase the elegant strength of New Mexico's high desert flora. Resilient bonsai junipers, pinyons, and ponderosa trees growing from bare rim rock are particularly compelling.

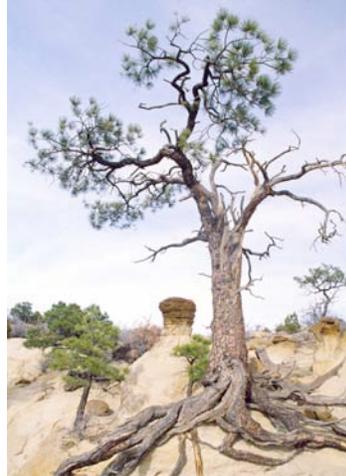
All these badlands lie on public lands administered by the Bureau of Land Management (BLM). The **San Juan Basin Bad-lands Initiative** (SJBBI) is dedicated to inventorying and protecting these one-of-a-kind New Mexico scenic and ecological gems. The timing has never been better to set aside additional public lands for conservation and recreational purposes. Considering that our state ranks *last* in the West regarding the percent of protected public lands, we have a lot of work to do.



THE 9 SAN JUAN BASIN BADLANDS

- 1 Ojito Wilderness
- 2 Ah Shi Sle Pah WSA
- 3 Bisti Wilderness
- 4 De Na Zin Wilderness
- 5 Lybrook
- 6 Ceja Pelon Mesa
- 7 Penistaja Mesa
- 8 Mesa De Cuba
- 9 San Jose

Map showing 9 of the possible 12-15 Badland areas under consideration for increased federal protection.



Left: Bonsai ponderosa clinging to life and bare rock in the Lybrook Badlands. Right: Unusual high desert juniper in De Na Zin Wilderness. (Both photos by the author.)

The recent federal Omnibus Public Land Management Act of 2009 created a new entity, the National Landscape Conservation System (NLCS) whose potential is just beginning to be realized. If we seize the opportunity, this new law represents a paradigm change in Public Lands usage. It recognizes values including scenic beauty, recreation, and scientific research as important to the role of the BLM that traditionally has focused on mining, drilling, wood cutting, grazing, and other exploitive, unsustainable practices on public lands.

The SJBBI is presently considering increasing the protection levels for up to 15 individual badlands areas in the basin. Five of the 15 are already in the NLCS because of their official wilderness or other special designated status.

NPSNM members can make a real difference in helping us protect the remaining badlands sites by letting colleagues know about the regular e-updates. Have them submit their email addresses to get on the list. When the time is right, letters will need to be written to appropriate BLM personnel and to our senators and representatives.

Beyond your role as informed, concerned citizens, we encourage you to share your botanical knowledge by volunteering to document the badlands' floristic and ecological values. This scientific data is urgently needed in order to get them all included in the NLCS or possibly as part of a new National Monument. For more information or to volunteer, contact Mike Richie at mrichie@comcast.net, or 255-1016.

Mike Richie is a retired science/math teacher and active outdoor writer/photographer who has become the leading advocate for the San Juan Basin Badlands.

From Your President: Championing native plants and new ideas

by Frances Robertson

The Brain Advantage (Prometheus Books, 2009, www.thebrainadvantage.com) by Brad Kolar et al. reveals some surprising things about the way the brain functions. Research indicates that the brain often kicks in before we get a chance to decide for ourselves what we really think. It appears that “the more expert we become, the less we think” and that “Our brains can con us into being sure we are right, even when we’re wrong.” Our brains even decide for us whom to trust. I’m sure we’ve all had the experience of rejecting someone on first meeting who later becomes a dear friend or an important influence.

Because the brain spurs us to act fast—sometimes too fast, it sometimes stifles our ability to make thoughtful decisions based on objective evidence. We think we are thinking, but we are really functioning on automatic pilot, so say the authors. The brain is so clever it makes us believe we are objective when we are actually quite biased.

This may make hearing new ideas painful or cause us to reject information counter to our unconscious bias. The authors, however, believe that understanding how the brain functions can alert us to the possibilities that we are not really thinking clearly. Armed with that possibility, we can slow down and arrive at more reasonable decisions.

The Native Plant Society invites speakers with unique points of view to share their experiences and expertise with us. Sometimes those speakers share information that is daringly new, vanguard fresh, which challenges our biases. A knee-jerk reaction is probably not the appropriate response, but the brain may want to take us there.

I suggest that we not only champion native plants—which make the world beautiful and joyful—but that we also consider ideas foreign to us with deliberation, even eagerness. We need to be able to “hear” the “whole story,” even if the topic is politically charged in order to make the best decisions for ourselves and our environment.

Spring brings new life, freshness to our world, and renewed energy to us. Some of that freshness might revitalize our brains as well. As someone once said, “The landscape of the mind creates the landscape of the physical world.” Let’s let some light in..



Musings of a Habitat Gardener: Encouraging native bees in habitat gardens

by Virginia Burris

The topic of today’s “Musings” is the native bee as a major pollinator in natural habitat gardens. Did you know that every third bite of food we eat relies on a pollinator, or that two-thirds of our native plants rely on animals for pollination? The remaining one-third of native plants are pollinated by wind or water.

Last year a class of third graders visited my yard. To my surprise, what they were interested in was not birds, which can be difficult to identify, or butterflies, which may or may not be around. They were all excited by the bees. I realized from the fascination of the kids that bees are the perfect wildlife for children to watch, especially the bumblebee. The bumblebee is only interested in the flower it is visiting—and not the children. The bee is not easily frightened, and takes its time traveling from flower to flower collecting nectar and pollen. In contrast, birds and butterflies are difficult to get close enough to observe because they are very aware of possible predators. The birds keep a safe distance, and the butterflies are constantly moving which makes observation frustrating.

The children watched as the bees worked the tall spikes of Palmer’s penstemon (*Penstemon palmeri*). The bumblebees were having a great time landing on the big lower lip of the flower. It takes a big, heavy bee to weigh down the lip, opening the flower entrance for pollination.



The flower saves its precious pollen this way by keeping out all bees except those that specifically pollinate that particular flower species. (Most bees are generalists and



pollinate many flower species, while a few are specialists and only pollinate one.)

Occasionally a large black shiny bee would buzz the Palmer's penstemon. The kids jumped back and asked me, "What is that?" I explained that it was a carpenter bee (sometimes called a robber bee), which makes a hole at the base of the flower, stealing the nectar without pollinating the flower by using the "front entrance." A perfectly round hole one-eighth inch in diameter is the telltale sign of its visit.

The students also noticed European honey bees in the yard, as well as native bumblebees. Honey bees were brought here from Europe, whereas native bees developed in association with native plants over millions of years. European honey bees are social bees that live together in hives containing a queen bee and drones (workers). They also make the honey we eat. In contrast, most native bees are solitary and the queens construct their nests without help. Many native bees are ground dwellers. Some tunnel in the ground for their nests, while others use abandoned beetle tunnels beneath tree bark.

Another way to connect children with native bees is by getting them involved in a project where they can make a difference. An exciting one is the Great Sunflower Project (www.greatsunflower.com). This project enlists citizens' help in collecting bee population information and is also a wonderful intergenerational project. It often results in opening participants' minds to another facet of habitat gardening—the importance of bees in our gardens.

Habitat gardens can be planned to attract native bees. It is important to use native plants because their flowers attract four times the number of native bees as those of non-natives. Plant flowers in areas at least 4 x 4 feet or larger with each flower species massed together. Bees thrive with a diversity of native plants, flower shapes, and colors. Bees are particularly attracted to the colors violet, blue, purple, yellow, and white.

To simplify choosing plants, make a chart that shows their blooming periods so you will end up with blooms (providing bee food) from early spring until frost. For more suggestions on starting your habitat garden, refer to the following website: www.nwf.org/gardenforwildlife.

The diminishing numbers of bees is a very alarming problem, and is most likely caused by humans—specifically the ever-increasing use of pesticides and genetically modified plants, as well as loss of habitat. It is only recently that we have begun to recognize the significance of this. The first step for all of us is becoming better acquainted with bees. The second step is planning our habitat gardens to attract bees so they will find shelter, food, and a place to raise their young. Hopefully these steps will help us reverse the trend of their diminishing numbers.



Two native summer-blooming wildflowers that grow in the Albuquerque area have "bee" in their names. The annual, bee plant (*Cleome serrulata*, above) needs low water, full sun, grows in all areas of Albuquerque, and attracts butterflies as well as bees. The perennial, beebalm (*Monarda fistulosa*, sometimes sold as *M. menthaefolia*, page 2), needs moderate water, part shade to full sun, prefers the East Mountain area, and attracts butterflies and hummingbirds, as well as bees. All photos by Carolyn Dodson.



References

Fact Sheet on Plants for Native Bees in North American. Matthew Shepherd, Xerces Society [no date].
Central New Mexico Gardens: A Native Plant Selection Guide. Native Plant Society of New Mexico, 2005.

Virginia Burris will be giving a six-hour course in Habitat Landscaping this April at Gardener's Guild, 4012 Central SE in Nob Hill. Register through info@gardenersguild.org. © Virginia Burris 2010.

Robert DeWitt Ivey, Naturalist and Artist

by Gene Jercinovic

Trailside wildflowers are enthralling. Many people wish they could put names to them, but this can be a daunting task. In this regard, New Mexico is fortunate in having what many consider an essential reference for identifying common plants. It is called *Flowering Plants of New Mexico* and is produced by longtime NPSNM Albuquerque Chapter member Robert DeWitt Ivey. The 573-page book actually contains relatively few words, instead presenting almost 1600 line drawings created over the last 30 years by the author.

Robert DeWitt Ivey was born in 1923 in Tampa, Florida. Prophetically, he spent his first year in nearby Plant City, but was actually raised in Jacksonville. A naturalist even as a child, he kept and bred flying squirrels in his bedroom. He used an empty pigeon pen (fortunately outdoors) to house his pet alligator. In 1941, he entered the University of Florida in Gainesville.

Rejected by the military at the beginning of World War II because of his height and foot size, he continued his studies, majoring in English with an art minor. One day during his senior year, he answered a knock at his dorm door. “Are you the Robert DeWitt Ivey who does nature drawings?” a student asked.

This knock led to a meeting with the noted zoologist, Dr. Harley Sherman. Dr. Sherman wanted him to draw the Hoatzin, a curious bird of South America whose young have wing claws for climbing. The two became friends when Ivey shared his secrets for finding golden mouse nests in Spanish moss and beach mouse burrows along the seashore. Sherman persuaded Ivey to become his graduate assistant. Under Sherman’s mentorship, Ivey pursued graduate study at Florida, earning a Master’s in mammalogy in 1947.

That same year, he began what would eventually become a permanent association with the state of New Mexico, joining the faculty at the University of New Mexico (UNM). Then, beginning in 1949, he spent two summers and one academic year in graduate study at the University of Michigan. During 1950-51 he taught at the College of Charleston in Charleston, South Carolina. In 1951, he returned to New Mexico and became a biology teacher at the old Albuquerque High School. During his time there, he developed the curriculum for Albuquerque’s first Biology II course, which included a six-week unit in plant awareness. This started his long association with drawing plants.



Photo: Governor Bill Richardson (left) presents an award to DeWitt Ivey (2003) in recognition of his lifetime contribution to New Mexico botany. Also pictured is Vivian Ivey, his wife and field companion.

Transferring to Sandia High in 1959, he continued his lifelong effort to bring biology and ecology to thousands of students. He continued to explore the state and draw its plants, at first for his students but ultimately for everyone interested in plants, publishing the first edition of *Flowering Plants of New Mexico* in 1983. The second edition appeared in 1986, the third in 1995, the fourth in 2003, and the fifth in 2008.

Tales of Ivey are endless. He built his own dugout canoe to travel to the Barrier Islands of Florida in order to do research for his master’s degree. He taught ballroom dancing and still dances. Always a student of language, he considered it important to read Cervantes’ *Don Quixote* in the original Spanish. Having studied Portuguese since high school, he read several books in that language in preparation for a trip to Brazil in 2009.

Beyond the science and the scholarship, is his human side. Twenty years after retirement he still hears from former students. He has given countless presentations to groups all over the state. He donated his extensive mammal collection to UNM. He has done more for the plants of our state—and those who study them—than anyone in recent memory.

At age 86, he remains quite active, hiking the mountains and deserts of the state with his wife Vivian, and still gathering, identifying, and drawing plants.

Gene Jercinovic is a field botanist and botanical historian based in Deming, NM.

Landscaping With Natives:

Perennial wildflowers provide three-season color

by George Oxford Miller

My neighbor has the perfect no-maintenance xeriscape: two prickly pears, a cholla, and a barrel cactus all surrounded by gray gravel aggregate. Except for a few short-lived cacti flowers, their yard is devoid of color 90% of the time. I prefer three-seasons of color, even though wildflowers require more care and maintenance. Here are three long-blooming, mound-forming perennial wildflowers that will add a Technicolor dimension to your gravel xeriscape or mulched landscape beds.

Blackfoot Daisy (*Melampodium leucanthum*)



When one or a few blooms per plant just won't do, try the dependable blackfoot daisy. One-inch white flowers with yellow centers cover the foot-high bushy mound. The plant grows all summer and keeps blooming until the first freeze. These rugged survivors love the full sun and sandy, rocky soil of the Petroglyph National Monument, and any sunny yard in Albuquerque. A weekly drink encourages continual blooming, but overwatering stimulates rampant growth. Native plant nurseries usually carry this favorite.



Pink Ladies (*Oenothera speciosa*)

You won't have to look far, in nurseries or your yard, to see the colorful pink blossoms of this sun-loving bloomer. Once established, it sends out root sprouts that pop up like scattered confetti—good or bad depending on your perspective. A succession of delicate pastel flowers covers the thick mass of bright green leaves from early spring till fall freeze-back. Check lush spring growth and buds for tiny black, worm-like larvae of the



flea beetle. They multiply like crazy and strip the plant if not killed. Not to worry, just drench the plant with soapy water every few days until they're gone. Water once or twice weekly, enjoy daily.



Rocky Mountain Zinnia (*Zinnia grandiflora*)



If you live in New Mexico below 6,500 feet, this hardy perennial will add a dash of color to your yard—but only if you can give it full, all-day sun and fast draining soil, like the gravelly ridges in the Petroglyph National Monument where it thrives. Bright yellow, half-inch-long ray florets accented with brilliant orange centers blanket the 6-9-inch mounds. Plants form colonies, but transplanting from the wild often fractures the soil and destroys the roots. Though truly drought tolerant, occasional water prolongs blooming through fall. Usually available at native plant nurseries.



George Oxford Miller is the author of several books, including *Landscaping with Native Plants of the Southwest*, available from NPSNM, bookstores, and native plant nurseries. (All photos by the author.)

Teaching High School Biology in an Outdoor Classroom of Native Plants and Animals

by Jason Roback

I used to not care about plants very much. I considered them to be, at best, the backdrop to the real action in biology—animals. I spent many seasons as a field biologist radio-tracking animals from gila monsters to coatis, and getting torn apart by catclaw acacias. After spending hours trudging up and down steep canyons, I would be lucky just to catch a glimpse of these elusive animals. It irked me to think of field botanists being able to walk right up to any plant they chose (no radio collars required!), take a sample, and be able to return next year to find the same plant in the same spot!



Students working on a plant dichotomous key project. We wait until the end of the school year for this one, so students can experience the plants with foliage and blooms. All photos by Jason Roback.

All this changed about eight years ago. I was hired as a biology teacher at Sandia High School in Albuquerque. One of the things that drew me to this school was Bittner Pond—an “outdoor classroom” of approximately one-quarter acre adjacent to the science building, complete with a circulating pond. It was created in 1997 with an \$87,000 state grant.

The science department’s philosophy at the time was, “Let nature take its course!” Very little was done to manage or maintain the area. If it could survive on its own, it deserved to be there. While admirable in some respects, this attitude had allowed many invasive species to get established; Russian olive, Siberian elm, and water lily began to dominate. The pond had also become an un-

official orphanage for any unwanted aquatic animals, and nonnative bullfrogs and crayfish reigned supreme.

I needed a strategy to restore the pond and environs. So I started by first trying to eliminate the bullfrogs, so I could establish a population of native leopard frogs. This is easier said than done (I am still fighting this battle eight years later!). I would net out the enormous tadpoles and gig the adults. One student researched what the bullfrogs’ diet consisted of, and discovered it included everything from pill bugs and dragonflies to fat-headed minnows and hatchling turtles.

One day, while making the frog rounds, I noticed a different looking leaf poking out through a particularly thick patch of alfalfa and clover. After asking some of the teachers who had been at the school for a while about the plant, I found out that it was a serviceberry, purchased a few years back and basically forgotten about. Mostly out of idle curiosity, I decided to dump a cup of water on it once or twice a week, just to see what would happen. After about a week, I noticed some new leaves starting to grow. From that moment on, I was hooked.

I have spent the last six years on a mission to make our outdoor classroom a showcase of *native* New Mexico plants and animals. The plant species list for our pond area currently stands at over 120! It is a difficult balancing act to create an area that is able to withstand the trampling of 30+ teenagers and still try to have a functioning ecosystem with a high level of diversity. I have found that creating simple barriers—wooden “railings” made from Siberian elm branches that are high enough to require a little effort to get over—seems to deter most teenagers!

Our science department tries to get our students out into the pond area as much as possible. We all develop and share a curriculum that involves getting the students outside. For more and more of them, this is the closest they’ve come to an authentic outdoor experience. Some of our student projects include taking capture-recapture population surveys of the mosquitofish and crayfish, creating accurate food web posters, using outdoor surveying-measurement techniques, recording animal behavior, making scientific drawings of microscopic organisms, and taking water chemical samples (for dissolved oxygen levels, as an example). Even our art department uses the area for photography and charcoal drawings!

My favorite outdoor project requires students to use and design dichotomous keys of the pond flora. Students must first use a key to identify 12 marked but unnamed species. They mark the locations of these plants on a map of the pond area. Then, with 12 other named species, they must design their own keys. The keys focus

on leaf structure and arrangement characteristics, so students are taught the differences between monocots and dicots, simple and compound leaves, pinnate versus palmate, etc. These keys are then swapped between different student groups to determine how accurate and “user friendly” they really are. Lastly, each student must pick one plant species to research and draw a detailed sketch of. This is usually one of the last projects of the year, in early May when all of the plants have leafed out.

Most students seem to really enjoy their time out at the pond. It is always heartwarming to watch a student lean over to smell a flower, or excitedly point at a painted turtle basking on a log, or listen to the Red-winged Blackbird that occasionally visits. I feel truly fortunate to teach at a school where we can spend time reconnecting students with the natural world around them. By the way, that serviceberry is now six feet tall and has been bearing fruit for several years.

Jason Roback has been teaching biology, geology, and astronomy at Sandia High School since 2002. Prior to that, he had participated in many field research projects throughout the Southwest, most recently his own coati distribution survey in southwest New Mexico, funded by the Share with Wildlife program of the New Mexico Department of Game and Fish.



An example of one student’s native plant scientific drawing. Notice the scientific name and the detailed drawing of the single leaflet.



Ladybug on a blue grama grass seedhead in the native plant garden at Sandia High School.



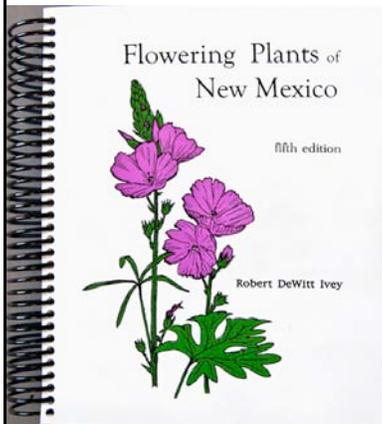
Caterpillars of the noctuid moth (*Cucullia* sp.) feeding on a gumweed (*Grindelia* sp.) in the school garden. There are about 40 species of this moth in the western U.S., which are specialists on flowers in the family Asteraceae, such as daisies, asters, and sunflowers. Introducing students to Arthropod diversity is another topic explored through use of our “outdoor classroom.”



One corner of Bittner Pond. Visible native plants include soapberry (*Sapindus drummondii*), leadplant (*Amorpha canescens*), hairy mountain mahogany (*Cercocarpus breviflorus*), and broad-leaved cattail (*Typha latifolia*).

The Book Corner

Flowering Plants of New Mexico, by Robert DeWitt Ivey, 5th ed., 2008 (spiral paperback).



In this portfolio of plant illustrations, meticulously detailed drawings replace the standard plant descriptions found in typical wildflower guides. So accurate are Ivey's depictions that it is easier to identify a plant with his black and white drawings than by reading

through a list of characteristics.

Working from live plants that he and his wife, Vivian, discovered on their trips to all parts of the state, Ivey creates true-to-nature drawings accompanied by a geographic distribution map, along with data on when and where they found the plant. Each drawing is three-quarter life-sized, and most are accompanied by insets of small details of leaves or flowers, and of short notations, as, for example, "desert plains and hills" or "leaves dark green above."

The arrangement of images is alphabetical by family, with similar flowers grouped together. The illustrated key to families and the index of common and scientific names are helpful aids to identification, and the scientific nomenclature and distribution maps have been updated each time the guide has been revised.

The introduction presents a concise overview of botanical science and ecology, along with a physical map of New Mexico. Also included are a flowering calendar, illustrated glossary and key, and information on edible and useful plants.

Flowering Plants of New Mexico is an attractive book, with a stunning color drawing of New Mexico checkermallow on the cover. This 8½" x 8" x 1⅜" bulky, spiral-bound tome is not one you can slip into your pocket to take in the field, although it will fit readily into a backpack. But when you realize how indispensable it is on botanical forays, you'll soon manage to have it with you everywhere. We in New Mexico are indeed grateful for this unique resource authored by the talented botanist and artist, Robert DeWitt Ivey.

**Carolyn Dodson
Book Sales Coordinator**

The Native Plant Garden at The Albuquerque Garden Center

Most gardeners like to think that they can overcome the challenges presented by Albuquerque's alkaline soil and arid, high elevation climate. The task becomes almost easy when one chooses plants that thrive under these conditions, that is, plants native to Albuquerque. In 2001, David Cristiani, landscape architect and NPS member, drew up plans based on that concept for the Chapter's native plant garden at the Albuquerque Garden Center, 10120 Lomas NE (just west of Eubank).

In 2002, chapter volunteers set to work removing nonnative grasses, some pyracantha, and forsythia. The decision was made to omit weed barrier cloth, and a drip irrigation system was installed. By 2003, a variety of penstemons and other natives were planted. A water programming error shortened the penstemons' life span. Taking advantage of the overwatering, apache plume (*Fallugia paradoxa*) and desert willow (*Chilopsis linearis*), both native to Albuquerque, seeded themselves in the plot. The overwatering has since been corrected.

Last fall, the stands of chocolate flower (*Berlandiera lyrata*) and prickly pear (*Opuntia sp.*) that had taken over were trimmed extensively. New specimens of penstemon from Desert Springs Nursery were planted.

Upcoming projects for this spring include: 1) redoing a sign for the plot that explains the garden's purpose; 2) installing identification tags for plants lacking them; and 3) possibly adding more specimens native to Albuquerque to bring attention to the beauty and tenacity of these plants.

You can participate in these challenging but rewarding tasks, and we would welcome your help. Contact Irene for more information at 505-980-0203. And stay tuned for more current photos of the garden in future issues of this newsletter. It looks quite different now!

**Irene Gomez de Scotillo and
Robin Montgomery Kennedy
Native Plant Garden Center Chairs**



Native plant garden plot at the Albuquerque Garden Center in 2004 after some natives had been installed. Photo: Beth Herschman.