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Did You Know?

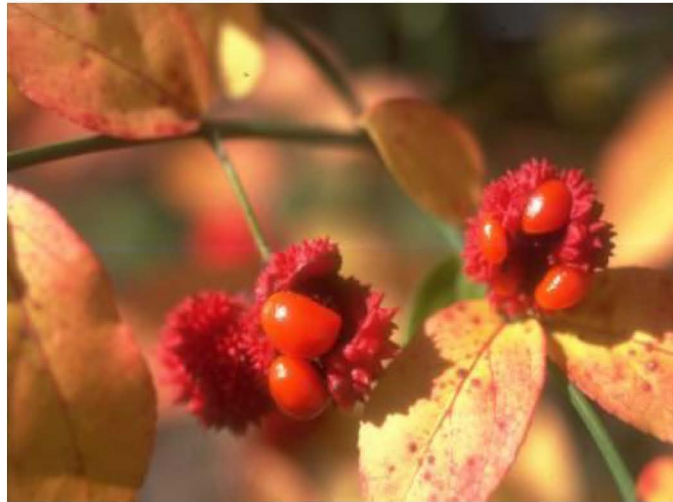
The long-term goal of the PNPC is to embrace fully the 50 rarest native plants in the Pineywoods of East Texas, thus acting as a conservation repository. The bottom line to achieving this goal simply is cooperation and public support. In their conservation work, the *Lady Bird Johnson Wildflower Center*, US Fish and Wildlife Service, Texas Parks and Wildlife, Center for Plant Conservation (CPC), US and Texas Forest Service, the Nature Conservancy, and other government and private agencies affecting East Texas all have similar goals: saving the plant world that makes our home, for us and for our children. By working with these agencies, the PNPC is part of achieving that end.



New Sign for the Lady Bird Johnson Demonstration Garden

A new permanent sign is in final production to recognize properly the PNPC's official status as one of three "affiliate gardens" of the *Lady Bird Johnson Wildflower Center*. We have secured permission from Mrs. Johnson to use one of the pictures taken of her at the dedication of the garden April 8, 2000. Following are the four other glorious images on the sign that highlight the East Texas natives planted in this demonstration garden.

***Euonymus americanus*—Strawberry Bush** is one of the more unusual natives growing along the small creek-side in front of the Tucker House at PNPC. This East Texas native shrub is a favorite of wildlife. Because the fruit splits in the fall to reveal these bright red capsules, it sometimes is called Hearts-a-Burstin'. This deciduous to semi-evergreen shrub grows to 6-7 feet tall. Spring foliage is glossy green; fall color is orange to red. It thrives in mud along streams, in river bottomlands, and on forested stream banks.



***Salvia azurea*—Giant Blue or Sky Blue Sage** is native to grassy meadows and roadsides from Central Texas eastward. The 3- to 6-foot plants begin blooming in late



May, continuing into the summer, depending on available moisture.



Rudbeckia maxima—**Swamp Coneflower** or **Giant Coneflower** is largest of the **Black-Eyed Susans**, growing from three to nine feet. The new Bog Garden will be an ideal habitat for this east Texas native, which forms colonies in low, sandy or silty soils.



Bignonia capreolata—**Cross-vine** is an easily recognized vine that climbs to the tops of pines in East Texas. Trumpet-shaped flowers bloom from March to May. The evergreen vine is in the *Catalpa* family.



Note: the *Lady Bird Johnson Wildflower Center* will be featured in the April 2002 issue of *Texas Highways*. To learn more, consult the Wildflower Center website at www.wildflower.org.

PNPC Welcomes the New Year with New People

Lance Craig is our new Research Associate for the PNPC project. He replaces Matt Welch who is pursuing his Master's Degree in Biology at SFA. We wish Matt well as he continues his in-depth study of native plants of Texas.



A December 2001 graduate of the SFA horticulture program, Lance has worked with the joint SFA-Israel cut-flower project involving perennials and bulbs for the past six months. He also has designed and installed new landscapes in the East Texas area. With all these practical skills, he will be the key staff person leading the development of the PNPC project.

Seth Rodewald-Bates, another December 2001 graduate of SFA will continue post-baccalaureate studies at the PNPC working on the University Research Council-funded project, "Native Herbaceous Perennials for Cut Flowers" under the direction of Dr. Creech. Seth's long-term plan is to study Landscape Architecture at LSU. In the meantime he will be doing detailed horticultural

research within a 50-foot x 100-foot plot of these natives that appear to have potential as cut flowers:

Aquilegia chrysantha
and *A. canadensis*:

Columbine

Asclepias tuberosa and

Coreopsis lanceolata:

Coreopsis, or Tickseed

Baptisia spp.:

Wild Indigo

Echinacea sanguinea:

Purple Coneflower

Liatris elegans and *L.*

spicata: Gay Feather,

or Blazing Star

Monarda spp.:

Bee Balm

Lobelia cardinalis:

Cardinal Flower

Hymenocallis

liriosome: Spider Lily

Physostegia virginiana:

Obedient Plant

Salvia spp.: Salvias

Spiranthes cernua:

Ladies' Tresses

Three replications of each species will be grown and harvested, using a randomized block design. Research will evaluate quantity of stems per plant, quality, vase-life, and shelf life.

Dr. Leland Thompson of the SFA Agricultural Economist is assisting with the market potential analysis.

Elyce Rodewald is the new full-time Coordinator for Education Programs at the SFA Mast Arboretum. Part of



her mission is to develop, market, and present educational programs for both the Arboretum and the PNPC. She has an extensive zoology background and has honed her plant skills by working with the Arboretum Corps of Volunteers for the past two years. She currently is working on setting up some programs at the PNPC for the

Girl Scouts that will help them earn badges.

Her first official PNPC-related program is “Go Wild,” a 2-hour program of experiential activities for classes of 20 students. Students and teachers will discover rare and endangered plants, investigate their adaptations, and explore four native East Texas habitats occurring at the PNPC. The learning activities are correlated to the TEKS (Texas Essential Knowledge and Skills) requirements and teachers will receive a resource packet prior to the visit, including both pre- and post-visit activities. To schedule a program for your school group, contact Elyce at **936-468-1832** or by email at erodewald@sfasu.edu. She can send you a copy of her complete listing of programs called, “Learning Excursions.” Reservations are required at least two weeks in advance. **Schedule now, especially if you would like to attend a program in the busy spring months of April and May.**

Barbara Stump is a half-time Research Associate for Development at the SFA Mast Arboretum. An August



2001 M.S. graduate in Agriculture, her previous work was the site analysis and design of the Ruby M. Mize Azalea Garden. Now she turns her talents to making the PNPC better known by researchers and community members. Besides editing the *PNPC News*, she will lead the

effort to add more interpretive signage at PNPC. First to come are the permanent and attractive sign for the Lady

Bird Johnson Demonstration Garden and signs delineating the four major habitats represented at the PNPC: dry upland meadow, mesic slope, bog seep, and bottomland. Next, she will continue the program Matt Welch began of posting more individual signs for the specimen natives as they are added to the collections. Elyce and Barbara will team up to write and produce an informative self-guided tour brochure about the PNPC for visitors as soon as possible this spring.

Progress report from Lance Craig

Finishing the greenhouse and cleaning up the front eight acres at the PNPC to create a park like atmosphere is the number one goal this spring. Using the Darrel Morrison design as a guide and 120 tons of crushed limestone for the base, the new main entrance now leads into the property with a ten-foot-wide road. Irrigation has been finished, but fine-tuning the system always will be on the to-do list. In

the next few months start to look for a series of large plantings of pines, oaks, dogwoods, redbuds, bald cypress, and oak-leaf hydrangea in the front eight acres along Raguet Street.



Reintroduction Project with National Park Service Well Underway

An important part of the PNPC mission is to carry out the SFA Mast Arboretum's "3 R's Conservation Program" of rescue, research, and reintroduction of rare and endangered plants. Over the past several years, Agriculture graduate students Stacy Scott and Dawn Parish have developed a successful propagation procedure for the **Texas Trailing Phlox** (*Phlox nivalis* var. *texensis*, federally endangered) and **White Firewheel** (*Gaillardia aestivalis*, a federal species of concern). This past year Matt Welch has put this knowledge to work by growing a crop of each species for a reintroduction project funded by the National Park Service's Threatened and Endangered species program and by the US Fish and Wildlife Service.

The NPS site chosen for the reintroduction is the Big Thicket National Biological Preserve, a 95,000-acre preserve near Beaumont, Texas, partly because the Texas Trailing Phlox once was native there. Fire suppression and habitat loss contributed to population decline. December 2, 2001, Roy Zipp, the Natural Resource Manager and Amber Hughes from Big Thicket came to the PNPC to pick up the first 250 Texas Trailing Phlox. Staff at the Big Thicket will be replanting these at different locations within the preserve. Because of the massive size of the preserve and remoteness of some reintroduction sites, they decided to wait until this first planting was completed before collecting 250 White Firewheel for reintroduction this spring. The same process will be repeated in fall of 2002. This project

exemplifies the crucial role the PNPC can play in encouraging reintroduction and making practical use of SFA research. Once the new greenhouse is fully functional, the PNPC can offer space to research propagation requirements of other endangered species. For further information on setting up a contract propagation effort, please contact Dr. David Creech at 936-468-4343 or dcreech@sfasu.edu.

“Running Wild With the Natives”

Matt Welch

December 20, 2001



Matt capped off the SFA Mast Arboretum Lecture Series offerings of 2001 with this overview of the plants and habitats of the PNPC. His theme was to encourage a new approach to use of native plants. More than simply “landscaping with natives,” he coined the term, “Bioscaping.” This means to include an understanding of the biology of the plant and its habitat needs when

using them in garden landscapes. This is only environmentally prudent, in the face of continuing suburban sprawl that includes over 700,000 acres of parking lots in the US and preservation of less than 1 percent of the original black land prairies.

The first step in bringing back native plants is bringing back plant habitats. To do this, we first must become stewards of the land and develop a deep understanding of those habitats.

East Texas is a very florally diverse region of Texas. It is a biological crossroad of the US Floral distribution ranges of western flora, eastern flora, and native Nacogdoches County flora all intersect in East Texas. It is our responsibility to keep this diversity alive. The PNPC is fortunate in that the 40-acre site encompasses three distinctive plant communities (habitats), each with their distinctive flora. Matt discussed the growing conditions of the three habitats, how they dictate the floral populations that thrive or survive there, and showed example slides illustrating these communities.

Woodlands or mesic mid-slopes cover nearly 75 percent of the PNPC site. The shade to filtered sunlight under the canopy of tall pines with mixed hardwoods provides a habitat where many small plants thrive. Among them are four Trillium species native to Texas, one of which— *Trillium gracile*, the Wake-Robin—is very rare. Many species of Texas orchids occur on these slopes, such as the white *Spiranthes cernua*, the yellow *Cypripedium kentuckiense* that occurs in only seven locations, and the Yellow-fringed Orchid, *Habernaria ciliaris*. For vibrant color, there is the red of *Malvaviscus drummondii*, Texas Turks Caps, which is native to the Big Thicket, and the red and yellow of the *Lilium michauxii*, which resembles a Tiger Lily. There are 10 to 15 species of *Carex* (sedge) at the site. Two have landscape applications: *Carex socialis*, which looks like turf grass in dry, shady conditions, and *Carex flaccosperma*, which has a blue cast to the foliage and has both drought- and water-tolerance. At the edge of the woodland, blue narrow-leaved gay feather, *Liatris mucronata*, pale purple/blue Physostegia, the Obedient Plant, and Meadow Pinks (*Sabatia campestris*), thrive.

Resurrection Fern (*Polypodium polypodioides*) colonizes the Post Oaks and is capable of overcoming severe desiccation within 2-3 hours of rewetting.

Landscape lessons can be learned from this shady growing environment, as was shown in a dual perennial border designed by Edith Edelman for the Sarah B. Duke Gardens in North Carolina. These borders were planted with 90 percent natives between stands of native trees, bordering an open, mowed meadow.

Wetlands, where standing or slowly moving water makes growing conditions acid are also very active botanically. They occur most frequently in bottomlands such as along the LaNana Creek. However, an area just southeast of the new greenhouse at PNPC exemplifies a bog area on an upland site. Such bogs occur when water seeps over a buried rock layer. Matt showed several Pitcher Plants, *Sarracenia alata*, rescued from the I-69 corridor near Warren,

Texas. These transplant remarkably well and are even drought-tolerant. Other wetland species are *Lobelia cardinalis*, Red Lobelia, and the sedges.

Sandy uplands, such as those around the Tucker House itself, were formed over Weches clay outcrops. A narrow band of these uplands, very visible along Highway 21, is an alkaline “corridor” for western species to colonize eastern Nacogdoches County. The sunny exposure and rapidly draining sandy soil of the uplands require plants to be very drought-tolerant or to take advantage of small pockets of moist soil. Some of these plants now grow in the section of the Lady Bird Johnson Demonstration Garden planted in front of the Tucker House at PNPC. Examples are: *Rivina humilis*, a hardy groundcover that has red berries in the fall and winter; blue *Salvia azurea*, one of the few salvias native to East Texas; *Manfreda maculosa* and *M. virginica*, both rare upland succulents with very tall flower spikes; red *Penstemon murrayanus*; and purple perennial vining *Clematis pitcheri*, called the Leather Flower or Pitcher Flower. As this area develops, cultivars of natives will add more color to the garden. But the focus will remain selecting native plants so that they grow best and that means paying attention to their habitat requirements.

Report from China

The bald cypress has long been a favorite native tree of Dr. David Creech. In December 2001 he went to China as a consultant to the Nanjing Botanical Garden and the Chinese Academy of Science. The focus of the project, led by Dr. Yin Yun Long, was to improve the bald cypress species and develop a protocol for mass production. And they do mean mass production. They need to reforest the watershed of their new Three Gorges Lake Dam to control the flood-prone Yangtze River as it enters the ocean near Shanghai. In the 100 years the Chinese have had Taxodium, they have developed it as a street tree of choice.



Dr. Chen Yong Hui, left, his three assistants, and Dr. Creech (center) at the Nanjing Botanical Garden in a *Taxodium* forest.

Three bald cypresses grow well in our region: *Taxodium distichum* (Bald Cypress), *T. ascendens* (Pond Cypress), and *T. mucronatum* (Montezuma Cypress). The Montezuma cypress has been a big surprise in the South, since it is faster growing than the other two. All three have additional benefits of tolerating both standing water and drought.

Dr. Creech was able to bring back some rooted cuttings of a wholly different “hybrid” a retired Chinese professor, Dr. Chen Yong Hui, developed by crossing *T. distichum*

and *T. mucronatum* in the 1980s and making subsequent selections in the 1990s. When compared with the bald cypress, the resulting hybrid grows 159 percent faster, has good form, longer foliage retention in the fall, has nearly double the alkalinity tolerance (very important in dry sites), roots at about 80 percent, and has far fewer knees. As these gems develop and are fully evaluated, we may see them in the trade.

Wonderful Support

A big thanks goes to the members of the Four Seasons Garden Club who voted to donate \$1,000 to the development of the PNPC. This makes them Founding Members at the Dogwood membership level. As soon as we have decided what style of bench best suits the PNPC site and mission, this gift will be recognized with an engraved plaque on the bench.



Shown here are (left to right) Barbara Gandy, President Linda Nichols, Barbara Stump and Dr. David Creech, Treasurer Laura Norman, and Lupe Mast.

Ways to Get to Know Us Better:

Visit Us

The PNPC is open dawn to dusk, every day. No fees are assessed unless there is a special program. If you want to schedule a group for a special guided tour, call Elyce Rodewald at 936-468-1832.

Wear our PNPC T-shirt

These durable 100% cotton green-and-white hound’s-tooth checked golf shirts are available for purchase. They have the PNPC logo over the left breast. Cost \$32.50, tax and shipping included.

Put a PNPC Native Plants Poster Up on Your Wall

These beautiful full-color posters, printed by the Forest Resources Institute, illustrate 24 especially photogenic native species in the PNPC collection. Cost is \$32.50, including tax and shipping and handling. Size is 36" w 40" high. To view a copy, visit our website. Species depicted include:

Aletris aurea, Colic Root—*Asclepius tuberosa*, Butterfly Weed—*Callirhoe involucrata*, Indian Paintbrush—*Clematis terniflora*, Sweet Autumn Clematis—*Coreopsis lanceolata*, Tickseed—*Eryngium yuccifolium*, Button Snake-root—*Eupatorium incarnatum*, Pink Boneset—*Gaillardia aestivalis* var. *Winklerii*, White Firewheel—*Gaillardia pulchella*, Indian Blanket—*Liatris aspera*, Rough Gayfeather—*Lilium michauxii*, Carolina-lily—*Lobelia cardinalis*, Cardinal Flower—*Malvaviscus drummondii*, Turk's Cap—*Monarda* spp. 'Thompson's White'—*Onoclea sensibilis*, Sensitive Fern—*Physostegia virginiana*, Obedient Plant—*Pinus taeda*, Loblolly Pine—*Ratibida columnifera*, Mexican Hat—*Rivina humilis*, Pigeon-Berry—*Rudbeckia maxima*, Giant Coneflower—*Sabatia campestris*, Meadow Pink—*Serracenia alata*, Pitcher Plant—*Tradescantia hirsutiflora*, Hairy-flower Spiderwort.

Remember, all proceeds directly benefit the PNPC, especially the plant collections and program offerings. You can use your MasterCard, Visa, or Discover card to make these purchases. Call Elyce at 936-468-1832 to place your orders.

Between newsletters, watch the website for updates: click on the Native Plant Center button on the Arboretum website: www.sfasu.edu/ag/arboretum . You can also send messages or questions for future newsletter issues to Barbara at bstump@sfasu.edu or call her at 936-468-4129.