July—August 2022

Volume 35, Issue 2

LOUISIANA NATIVE PLANT SOCIETY

Inside this Issue:

- To preserve and study native plants and their habitats
- To educate people on the value of native plants and the need to preserve and protect rare and endangered species
- To promote the propagation and use of native plants in the landscape
- To educate people on the relationship between our native flora and wildlife

The Sunflower Family (Asteraceae, Compositae)

By Charles Allen, native@camtel.net

The sunflower or aster or daisy family was once called the Compositae but now sails under the name Asteraceae. The Asteraceae (415 species) and the grass family (Poaceae with 405 species) are the two largest (most species) in our area. The Cyperaceae with 287 species and Fabaceae with 211 species are number 3 and 4. The Asteraceae is the largest in the World with more than 32,000 species followed by the Orchidaceae with 28,000 species, Fabaceae (legumes) 20,856, Rubiaceae (coffees and bedstraws) 13,686, and Poaceae (grasses) 11,434. Note: there are 43 species of Orchidaceae in our area and 38 Rubiaceae.

My first goto for id is GANDHI, K. N. AND R. DALE THOMAS. 1989. Asteraceae of Louisiana. Sida Botanical Miscellany. It is out of print and I have a scanned copy on my computer that I can email to you. The Flora of North America series has the Asteraceae in three volumes 19. 20, and 21 http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=10074. And there are keys to identify the genera and species in this family in Weakley Flora of the southeast https://ncbg.unc.edu/2022/04/26/new-edition-released-flora-of-the-

The Sunflower Family (Asteraceae, Compositae) cont.

southeastern-u-s/. This has downloadable keys etc. I also still go back to my original plant learning book, RADFORD, A. E., H. E. AHLES and C. R. BELL. 1968. Manual of the vascular flora of the Carolinas. Univ. North Carolina Press, Chapel Hill, North Carolina. This has line drawings that can get you to the genus and species. But there are some genera and species that are in Louisiana but not the Carolinas so I turn to the Texas flora to id species: CORRELL, D. S. and M. C. JOHNSTON. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner, Texas.

Members of Asteraceae are mostly herbaceous and can be annual, biennial, or perennial herbs. There are a few species that are vines i.e. Mikania and a few that are woody shrubs i.e. Baccharis. The leaves can be basal only, cauline only, or both basal and cauline. The leaves are alternate or opposite with a few whorled. Most are simple but some are much dissected and a few are compound. Some plants have latex or milky juice. Like many plant families in our area, there are native and also non-native species in the Asteraceae.

One of the most distinguishing characteristic of the family is the flowers arranged in heads with bracts subtending each head. The bracts are often called phyllaries and are often very important in iding to genus and especially to species. The heads can be arranged in many different ways on the plant from spikes to panicles or racemes, corymbs etc. The heads can be axillary or terminal or both. Some genera and species have bracts mixed with the flowers in the head and are called chaff. The flowers have five petals and five stamens with the anthers united. The calyx is modified into the pappus which can be bristles, scales, awns, or absent. The kind, size shape, etc. of the pappus is often useful in iding. The flowers are of two kinds: ray flowers and disc flowers. Ray flowers have one large petal and the other petals much smaller and thus are irregular or zygomorphic or have bilateral symmetry. Disc flowers have five equal petals and thus are regular or actinomorphic or have radial symmetry. The ovary is inferior and the fruit is an achene or cysela which is a dry indehiscent fruit with one seed that is attached to the ovary wall in only one place.

With two types of flowers (ray and disc) available, this makes for three different combinations in the heads; both ray and disc, ray only and disc only. There are a few genera with some species with both ray and disc and other species in the genus with disc only; Verbesina, Helianthus, and Bidens. There is also a fourth type of odd flowers that do not fit into these three types.

The Sunflower Family (Asteraceae, Compositae) cont.


Helianthus

By far, the most common arrangement of flowers in the heads of the Asteraceae is to have both **rays and disc flowers**. And, there is a wide range of color of rays and discs with some having rays and discs the same color and others with rays one color and the disc a second color. Yellow rays is a popular choice and there are many genera and species with yellow rays. This has led to the term, DYC (damn yellow composite). This is a partial listing of some of the Asteraceae with both ray and disc flowers: Gaillardia (Indian blanket), Helianthus (sunflower), Silphium (rosin weed, compass plant), Heterotheca (golden aster), Chrysopsis (golden aster), Pityopsis (golden aster), Aster (Symphyotrichum), Bidens (tickseed), Boltonia (doll's aster), Solidago (goldenrod), Oligoneuron (flat toped goldenrod), Euthamia (flat topped goldenrod), Erigeron (flea bane), Conyza (horseweed), Coreopsis (tick seed), Croptilon (scratch daisy), Dracopis (black eyed susan), Rudbeckia (black eye susan, cone flower), Echinacea (cone flower), Erechtites (fireweed), Helenium (sneeze weed, bitterweed), Parthenium (feverfew), Pluchea (camphor weed), Ratibida (Mexican hat), Senecio (Packera) (ragwort), Stokesia (stokes aster), Tetragonotheca (nerveray), Verbesina (frost weed, crownbeard), and Zinnia.


Verbesina


Erigeron


Echinacea pallida

The Sunflower Family (Asteraceae, Compositae) cont.

The **ray only group** often have milky juice and most are Winter to Spring blooming plants and quite a number are non-native European introductions. This list includes Taraxacum (dandelion), Lactuca (lettuce), Hieracium (hawkweed), Krigia (false dandelion), Hypochaeris(cat's ear), Pyrropappus (false dandelion), Sonchus (sow thistle), Cichorium (chicory) and Youngia (hawkweed).


Lactuca


Pyrrhopappus


Cichorium


Sonchus

Ve

The Sunflower Family (Asteraceae, Compositae) cont.

The **discs only group** includes Liatris (blazing star), Eupatorium (thoroughwort), Bigelowia (rayless goldenrod), Cacalia (Arnoglossum) (Indian plantain), Cirsium (thistle), Elephantopus (elephant's foot), Hymenopappus (wooly white, old plainsman), Kuhnia(false boneset), Marshallia (barbara's buttons), Mikania (hemp vine), Verbesina (frost weed, crownbeard), and Vernonia (ironweed).


Eupatorium


Liatris


Marshallia

Ve


Vernonia

The Sunflower Family (Asteraceae, Compositae) cont.

The **fourth group with odd flowers** include: Ambrosia (ragweed), Iva (sumpweed), Baccharis (groundsel), Gnaphalium (Psedognaphalium, Gamochaeta) (rabbit tobacco, cudweed), Soliva (stickers), Antennaria (pussy toes) and Xanthium (cocklebur).


Baccharis (female)


Ambrosia


Gamochaeta


Baccharis (male)

Ve

A Sweet Bouquet of Natives

by Linda Barber Auld, NOLA BugLady

In the last few years a tremendous interest to grow native plants has occurred in the gardening world. A combination of my Geaux Grow Natives project, the founding of our local Native Plant Initiative (NPI-GNO), Susan-Norris-Davis' publishing of her book, "The Big Easy Native Plant Guide", and Louisiana Native Plant Society's Certified Habitat Program have helped to create this surge. Responding to the demand for these plants, local growers are producing a wider variety for the retail market. As an assortment became available, I began planting them to gain experience at how they perform in the garden setting. This little 6 foot x 8 foot patio bed has given me endless enjoyment as I watch each day to see which ones are blooming. Many of these are my first attempt adding these to my existing beds. As you can see, they are really packed in there because in the wild this is how most of them develop. I laughingly say " I do square inch gardening!"

The most interesting and unusual addition is the Hooker's eryngo, which is an annual herb in the Apiaceae (Carrot) family. Xerces Society reports that it is of special value to native bees and beneficial insects. Described as "prickly-leaved, one to two feet high, with gray-green, deeply lobed foliage, which later turns to purple. Flowers are small clusters with spiny bracts. Found in Gulf Coast Prairies." Yes, I can confirm that they definitely have prickly leaves! The three locations where I planted it provided the information that it most definitely needs full sun. It became lanky, droopy, and just plain unhappy in the shady and partly shady spots. What I really love about this plant is how the lower bright purple petals seem to light up the flower blossom, showcasing its beauty.

There are so many different ways to use these plants. You can start from scratch or add some to your established gardens. Native plants can also blend in very well with non-natives. I use this as an opportunity to witness which plants the bees and butterflies choose. Next time you visit your local garden center, ask about their native plant section and discover all the fun for yourself!

Ve

A Sweet Bouquet of Natives cont.

Sweet Coneflower
Rudbeckia subtomentosa

Purple Coneflower
Echinacea

Orange Coneflower
Rudbeckia fulgida

Rosinweed
Silphium

Sneezeweed
Helenium

Black-eyed Susan
Rudbeckia hirta

Hooker's Eryngo
Eryngium hookeri

Prairie Coneflower
Ratibida pinnata

"Indian Summer"
Rudbeckia hirta

Ve

Floristic Quality Assessment – FQA

Using Plants to Rate the Relative Ecological Quality of Sites

By Latimore Smith

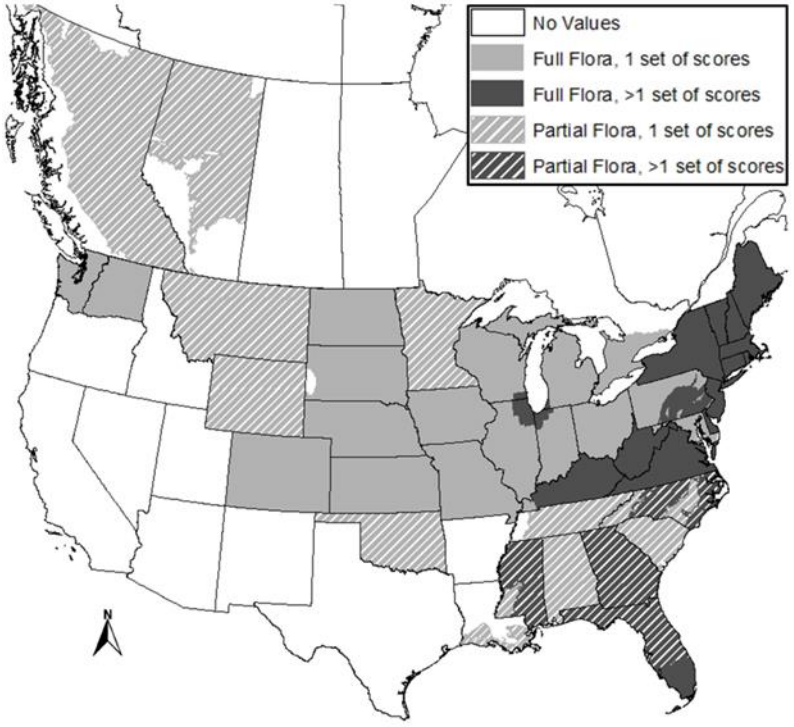
The Floristic Quality Assessment, or FQA, has become a widely used and very popular tool in the U.S. to assess the relative ecological integrity of sites based on plants present. As a field botanist/plant ecologist and habitat restoration practitioner, the method is very appealing to me as a relatively simple way to determine the comparative ecological integrity or habitat quality of different places, and to gauge the change in quality over time, using the presence (or absence) of native and non-native plants. For me, it's almost like, "why didn't I think of this!", since assessing the ecological quality of sites primarily based on what plants I see in a place has been a major part of my professional work since the mid-1980's. As one example, I led the development of a habitat evaluation method for wet longleaf pine savannas in the early 1990's (I called EVA, or Ecological Value Assessment) used for a time by the New Orleans District of the US Army Corps of Engineers.

I would think the idea behind the FQA method is intuitively appealing to all native plant "experts" that know their local flora pretty well. You know "weeds" when you see them, and likewise, you also know "good" plants when you see them. The term "weed" here is used to mean a plant that is an opportunistic colonizer of disturbed or altered areas. Plant composition can tell you a heck of a lot about the quality of a place.

The FQA method was devised in the 1970's by field botanists/ecologists mainly working in the tallgrass prairie region of Illinois (Swink and Wilhelm, 1979, *Plants of the Chicago Region, 3rd Edition*). Since then, the approach has been increasingly used, by now in more than half of the states, and parts of Canada. As shown on this map, several states/regions have multiple versions of *C* values available (dark gray). Stripes indicate regions where only parts of the flora have been assigned values (e.g., wetland plants). There are ongoing efforts to assign values to the floras of the remaining sections of the western USA.

Most *C* value lists can be found at the Universal Floristic Quality Assessment website.

For whatever reason, it has not been widely used in the southeast, but it does appear to be catching on down here.



Ve

So, what are the nuts and bolts of this method. First, all plants in an area of interest (e.g., geographic area, habitat type) are assigned what is called a "coefficient of conservatism". This is done by a team of expert field botanists most knowledgeable about local flora. This coefficient, also called the" C value", is a number between 0 and 10. Zero is assigned to those plant species most tolerant of or that benefit from heavy disturbance and that typically

Floristic Quality Assessment – FQA

Using Plants to Rate the Relative Ecological Quality of Sites

Cont.

occupy highly degraded areas, and is given to totally weedy natives or introduced nonnative species. Ten is assigned to native species that are very intolerant of disturbance and are found almost exclusively in highest quality natural areas that have suffered very little man-made disturbance or alteration. Obviously, such places, particularly in the uplands, are quite rare today. These plants do not recover, or recover very slowly, after artificial disturbance. Such species are said to be fidel to and usually only found in very high-quality sites. Because levels and types of anthropogenic disturbance and habitat alterations vary widely across the landscape, most native plants are found in all sorts of places that vary in how much they have been disturbed or altered. They can be scored by knowledgeable botanists as to their degree of tolerance to artificial disturbance, and correspondingly to their degree of fidelity to high quality natural areas. Obviously the lower the score of a plant, the more weedy and tolerant of disturbance/alteration, and the higher the score the less weedy and more likely to be found in higher quality areas.

Once the C-values of all plants in an area/habitat of interest have been assigned, then the next step is to calculate the average, or mean C value of all species present in the area/habitat of interest.

This is very straight forward. To obtain average the C value or "Mean C", you sum up all of the C values for each species present and then divide by the total number of species present.

A simple example (for SE LA wet longleaf pine savannas):

Species	C Value (assigned by Latimore as example)
Dog Fennel (*Eupatorium capillifolium)*	1
Round-leaf Thoroughwort (*E. rotundifolium)*	5
Pale Grass-pink Orchid (*Calopogon pallidus)*	10

Total of all C Values = 16

Mean C is then 16/3 = **5.3**

After figuring Mean C, the Floristic Quality Index (FQI) of the site can be calculated. The formula:

FQI = Mean C X $\sqrt{S}$

Where you multiply Mean C of all species present times the square root of the total number of species present (S).

In the example above, FQI would be 5.3 X $\sqrt{3}$ = 5.3 X 1.73 = **9.17**

If this were a real-world example, and not so simplistic, with a more realistic number of plants present in a site, such as 200, say, in a wetland pine savanna, and if the Mean C were still 5.3, then the FQI would be much higher:

5.3 X $\sqrt{200}$ = 5.3 X 14.14 = **74.9**

So, you can see that the assessed floristic quality of a site is directly related to species richness, since it goes up when more species are present. But it is also obviously directly related to Mean C of the plants present. Play around with these numbers if you're interested in seeing how that might vary.

An FQA of the Louisiana Coastal Prairie

Back in 2006, I worked with Larry Allain (lead instigator/author, USGS, retired, remains a wealth of go-to knowledge), Charles Allen, Malcolm Vidrine and Jim Grace to produce a paper on FQA for Louisiana's coastal prairie. For this paper, my primary role was to assign a coefficient of conservatism score for each coastal prairie plant that I

Floristic Quality Assessment – FQA

Using Plants to Rate the Relative Ecological Quality of Sites

Cont.

knew well. Contrary to the current "standard" method of FQA, where non-native plants receive a score of zero, Larry decided to assign (I believe with merit) negative numbers for non-native plants based on their relative capacity to significantly alter the composition and structure of coastal prairie. For example, a relatively "benign" non-native such as little quaking grass (*Briza minor*) received a score of -1, while a more problematic and invasive species, such as Bermuda grass (*Cynodondactylon*) received a score of -2.

Download full paper here, https://digitalcommons.unl.edu/napcproceedings/62/).

As you would think, there are a number of criticisms of the method. As summarized nicely by Spyreas in 2019 (https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/ecs2.2825), the method has been criticized as imprecise, inconsistent, biased, subjective, romantic, tautological, untested, and unsubstantiated by ecological theory. The author goes on to effectively rebut most of the criticisms (and provide an excellent summary of FQA), but a few are valid. For me, a key shortcoming is that the relative abundance of plants is not taken into account. This clearly can and does have a major bearing on the overall floristic quality of a site. Also, it does not in any way gauge the value of a site for particularly important functional floral groups, such as plants that are important for pollinators or important for certain groups of wildlife of concern (such as legumes for grassland birds). But the method was not devised to do that – it was devised to evaluate sites/habitats based on the tolerance or intolerance of plants present to anthropogenic disturbance or alteration.

Despite the criticisms, the approach remains one of the most used in the US to assess the ecological integrity or quality of sites, and will continue to be. It can and arguably should be an integral part of any system used to evaluate the worthiness of any place for conservation action. But the assessment of sites for conservation action should include a number of other metrics, such as size, landscape context, presence of key functional plant groups, and importance to wildlife that goes beyond what plants are present. That notwithstanding, FQA is a very useful tool for helping evaluate the relative ecological integrity of any site, plant community or habitat.

Latimore Smith retired from The Nature Conservancy after 17 years as a Restoration Ecologist and Director of Stewardship in Covington, LA. He and his wife Nelwyn McGinnis now have their own company named **Southern Wild Heritage, LLC.**

A Survey of Woody Plants On Poverty Point National Monument & World Heritage Site

By Kelby & Amy Ouchley

Poverty Point National Monument and World Heritage Site consists of large prehistoric earthworks dating to 1650 BC. Located on the eastern edge of Macon Ridge in northeastern Louisiana, it lies about 15 miles west of the Mississippi River. Of the 402 acres in the monument, approximately 235 acres are forested. Using field surveys, we compiled a list of trees, shrubs, and woody vines of the site. The purpose of the project was to provide current botanical information that can be used as needed by staff interpreters and archaeologists.

On a site map we overlaid a grid of 17 rectangular plots. Two pairs of plots were combined because they consisted mostly of fields. We attempted to record all woody plant species in each plot by walking transects approximately 50 yards apart. Transects generally ran north-south or east-west depending on the shape of the forest patch in the plots. Seven days were required to complete the field work in 2020 and 2021.

Ninety-four species of woody plants were recorded on the site including 16 species of vines. Ten species are non-native and 6 of these are considered invasive. The greatest diversity of species was found in the southeast portion of the site and includes riparian species along Bayou Macon and introduced species around the visitor center.

Excluding non-native species and species native to the general region but apparently introduced at Poverty Point in historic times, 77 species were identified that were likely present when the site was occupied. The area is relatively flat and capped with loess soil except in barrow areas and eroded banks along streams and Bayou Macon. Forest patch size ranges from 7 to 80 acres, and Bayou Macon borders the site for one and a half miles. This topography is sufficiently varied to provide different habitat niches that result in high plant diversity on the relatively small forested site.

No rare or unanticipated species were encountered, and no obvious "misses" of woody flora were noted. The presence of old growth forest characteristics was the most unexpected finding of the study. These included many giant, over-mature trees of several species, dead standing and fallen trees due to senescence, and an abundance of very large woody vines. The fallen trees create canopy gaps that permit sunlight to reach the forest floor where young trees thrive, resulting in a multi-layered forest – another old growth characteristic. Most of this type forest is in the northeast area of the site. It is of such botanical significance and rarity in the Lower Mississippi Valley that a determined effort should be made to preserve it as is.

The site archaeologist provided a list of macrobotanical remains from excavations at Poverty Point. It contains 25 woody plants identified at least to genus in samples of wood, seeds, or fruits. We found 20 of these plants in our survey. Of the 5 that we did not record, none are known to grow naturally on the Macon Ridge today. Except for one, however, they do occur nearby in the hills east of the Mississippi River.

On the western side of the site we documented a serious infestation of invasive Chinese tallow adjacent a swampy slough. We recommended that a tallow control program be implemented to limit its spread. The well-recognized values of using native plants in the landscaping of buildings and facilities are biological (such as providing pollinator habitat and food for birds) and educational, especially in a public setting. We encouraged the Poverty Point staff to phase out existing non-native woody species around the visitor center and maintenance area by replacing them with appropriate native plants.

For a more detailed version of this article and a woody plant list of Poverty Point, email Kelby Ouchley at rockybranch@centurytel.net.

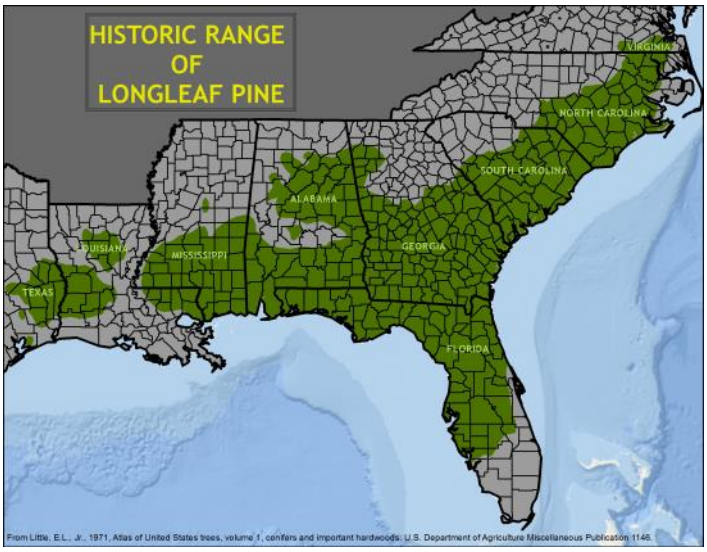
Kelby and Amy Ouchley are long-time naturalists living on 72 acres in Union Parish, Farmerville, LA. Kelby is retired from the U.S. Fish and Wildlife Service and author of numerous books.

Return of the Longleaf:

A Unique Opportunity in Restoration and Research on Kisatchie National Forest

Csanyi Matusicky (WAE Botanist) & Brian Sean Early (Plant Community Ecologist)
Louisiana Department of Wildlife and Fisheries, Wildlife Diversity Program
(Reprinted with LDWF Permission, Wildlife Insider Fall/Winter 2022)

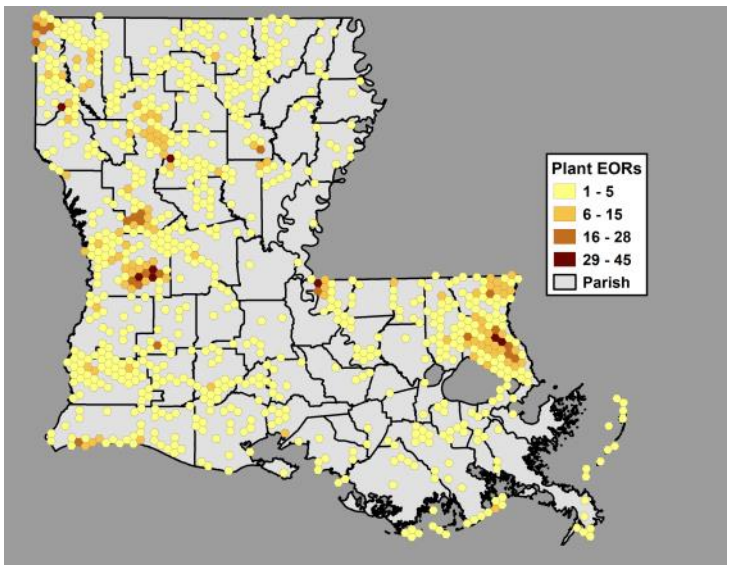
The once expansive complex of longleaf pine (*Pinus palustris*) savannas and woodlands covered approximately 93 million acres across the majority of the Atlantic and Gulf Coastal Plains from southeast Virginia to east Texas.



Longleaf pine natural communities have been reduced drastically since European colonization and only about 3-5 percent (3-4 million acres) remained by 2007. This precipitous decline was largely due to over harvest, incompatible silviculture practices, land use conversion, and fire suppression. Range wide other forest types, primarily slash pine (*Pinus elliottii*) and loblolly pine (*Pinus taeda*) plantations, replaced most of the longleaf pine savannas and woodlands. Like most native grasslands, longleaf pine natural communities are among the most threatened systems in the United States (McCaskill & Jose 2012, Bragg et al 2020), second only to prairies.

Despite significant losses, the longleaf pine natural communities still have high rates of species endemism and are the most diverse and species rich set of plant assemblages outside the tropics (MacRoberts et al 2002, 2007, 2014, Varner and Kush 2004, Clark et al. 2007). This diverse ecosystem occupies large portions of both the Eastern and Western Gulf Coastal Plains of Louisiana.

While the longleaf pine systems on the Eastern and Western Gulf Coastal Plains share many foundational similarities, a myriad of nuanced physical and biological differences render them distinct. Most of these differences result from slightly different geological history; yielding some differences in biota and ecology between the Eastern and Western Gulf Coastal Plains.



Many studies have examined longleaf pine and their associated natural communities. These works mainly

Return of the Longleaf:

A Unique Opportunity in Restoration and Research on Kisatchie National Forest cont.

focused on timber productivity, community structure, and habitat quality for a specific species or taxonomic group (Bragg et al 2020). The focus for much of this work has been on the Eastern Gulf Coastal Plain while the floristic significance of the longleaf pine natural communities on the Western Gulf Coastal Plain has received almost no attention in the published literature (MacRoberts et al 2002, 2014). The current literature rarely addresses interactions between management practices and longleaf pine biodiversity (MacRoberts et al 2002, 2014, Bragg et al 2020). Restoration of this ecosystem is increasingly important to avoid continued decline or complete loss of the ecosystem processes and functions on which many species depend.

The extant longleaf pine systems in Louisiana sustained further impacts during the 2020 hurricane season. Approximately 200,000 acres on Kisatchie National Forest (KNF) received various degrees of wind damage. The Vernon Unit of the Calcasieu Ranger District suffered the most damage with more than 20,000 acres of severely damaged timber stands.

The longleaf pine flatwood savannas on the southern portion of the Vernon Unit received the most extensive wind damage. Wind events from the 2020 hurricane season caused over $63 million in losses on the KNF. **Where many would see this destruction as a devastating loss to biodiversity and economic resources, the Kisatchie National Forest Supervisor saw it as an opportunity for restoration of a new kind.**

Return of the Longleaf:

A Unique Opportunity in Restoration and Research on Kisatchie National Forest cont.

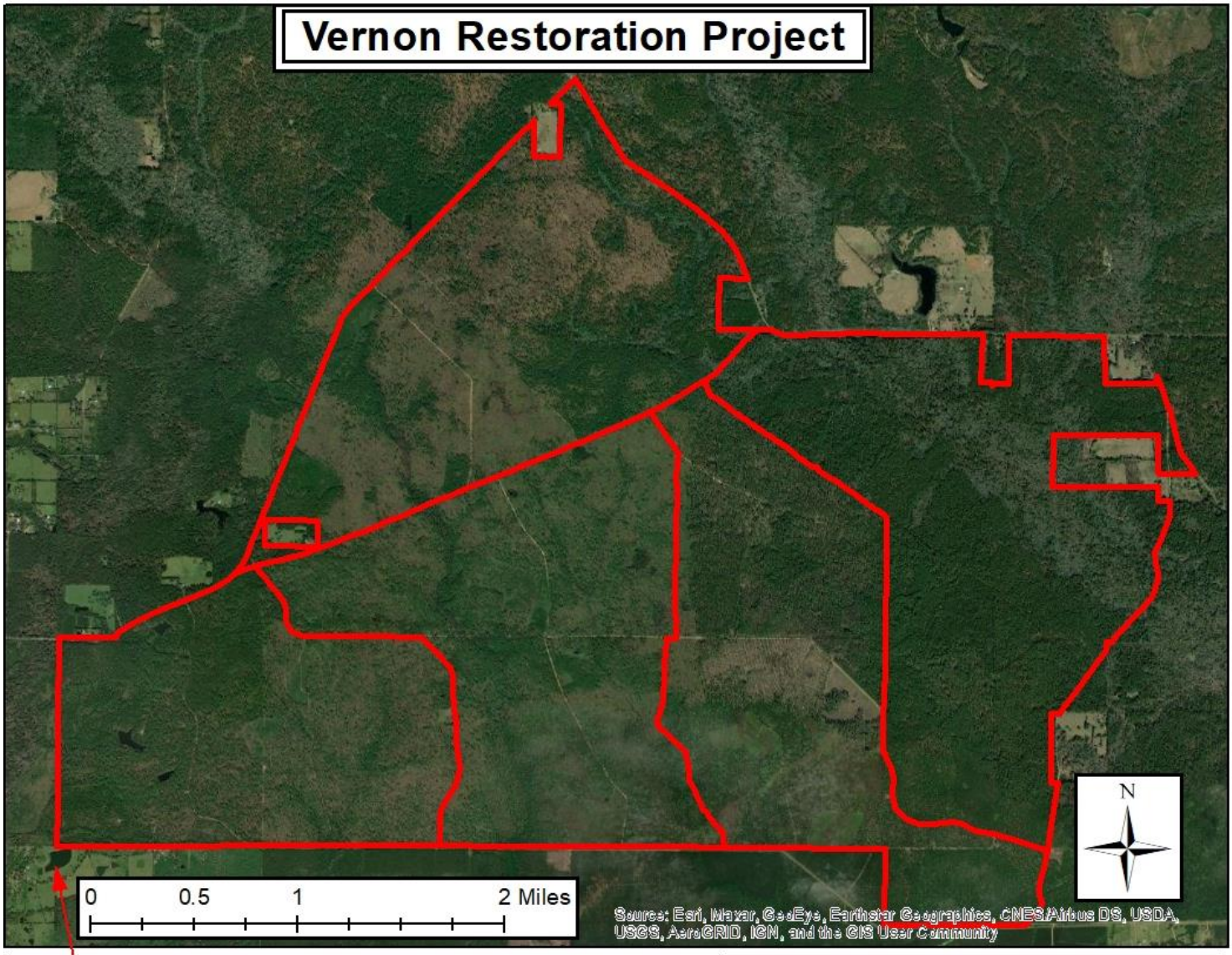
The KNF in collaboration with the Louisiana Department of Wildlife and Fisheries and other conservation partners has initiated the Longleaf Pine Flatwood Savanna and Restoration Project. Although the United States Department of Agriculture Forest Service (FS) is conducting restoration efforts throughout KNF, the flatwood savanna area has been set aside for intensive ecological restoration and research due to the distinct geology, high biodiversity, critical status, and extensive damage from past anthropogenic activities and recent severe wind events. This project encompasses approximately **8,056 acres** on the southern end of Vernon Unit.

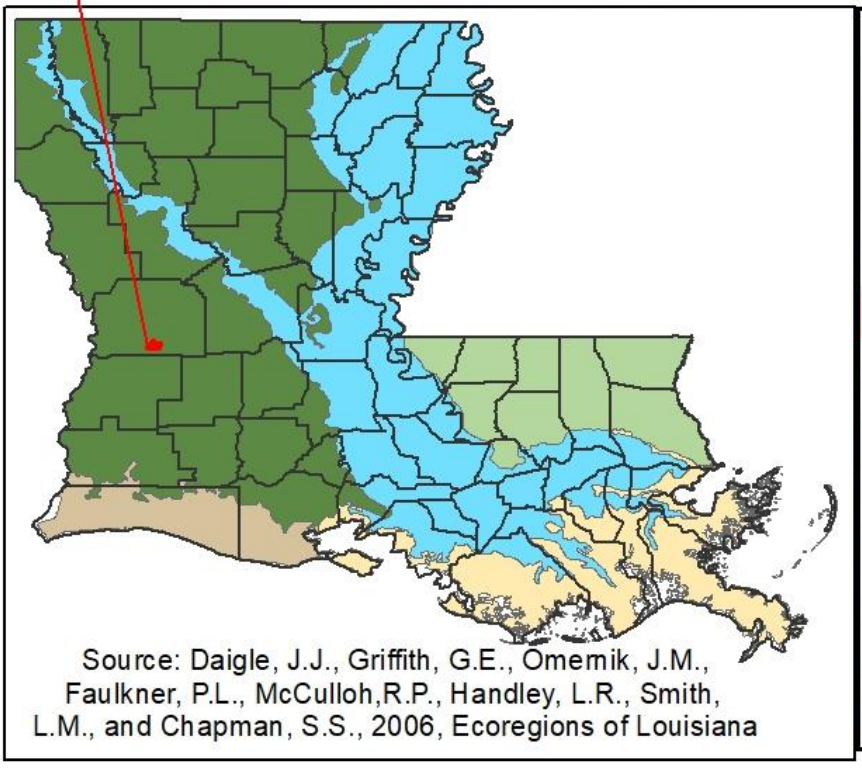
Prior to FS ownership this restoration site was clear-cut in the 1930s. A natural longleaf pine seed source was no longer on site to readily reforest the area. The task of replanting was assigned to the Civilian Conservation Corps (CCC). Slash pine, non-native to the Western Gulf Coastal Plain, was used by the CCC in the reforestation efforts due to its ability to withstand the saturated soil conditions that are typical of flatwood savannas. At present, less than seventy percent of this restoration site has longleaf pine and virtually none of the longleaf pine on site has reached maturity (30+ years). Most of this area remained as stands of slash pine until the wind events of 2020, which caused severe timber damage. KNF has set a noble mission to restore the longleaf pine flatwood savannas. This restoration site not only represents the only longleaf pine flatwood savanna on the KNF, but also the largest tract of this ecotype under conservation management within the state of Louisiana.

Return of the Longleaf:

A Unique Opportunity in Restoration and Research on Kisatchie National Forest cont.

Aerial view of the hurricane damaged area of the flatwood savanna on Kisatchie National Fprest.





Legend

Louisiana Parishes

Vernon Restoration Boundary

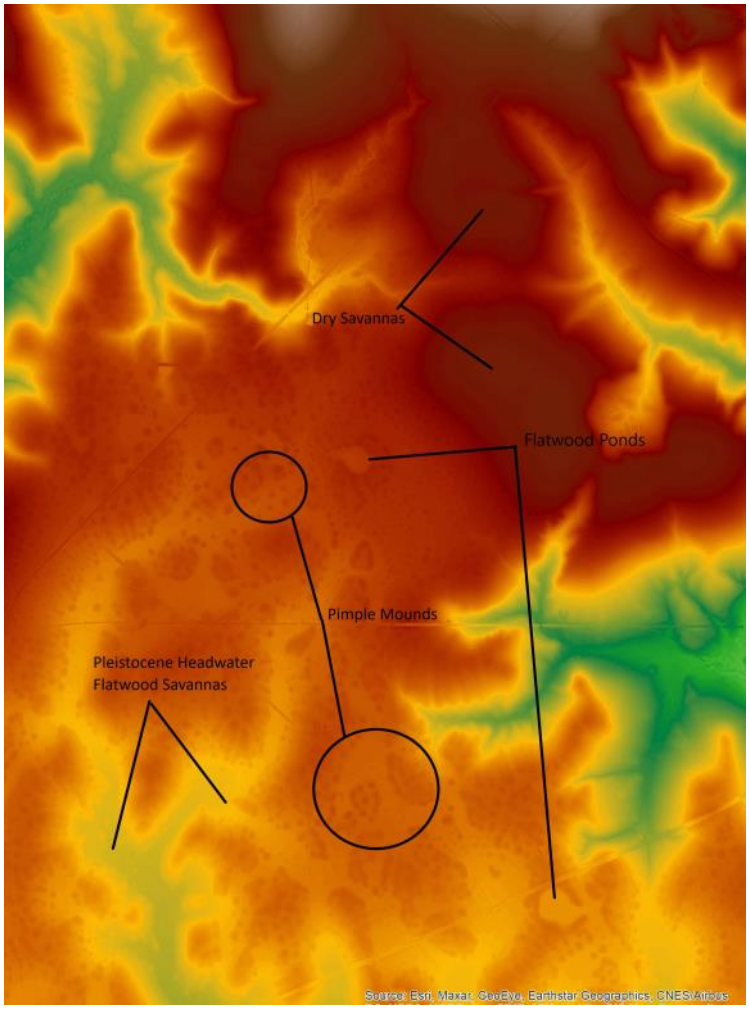
Louisiana Ecoregions

- Alluvial Plain
- Chenier Plain
- Deltaic Plain
- Eastern Gulf Coastal Plain
- Western Gulf Coastal Plain

Return of the Longleaf:

A Unique Opportunity in Restoration and Research on Kisatchie National Forest cont.

The longleaf pine flatwood savanna restoration is unique for many reasons, which is why this part of Vernon Parish is highlighted as a significant landscape in the America's Longleaf Restoration Initiative (America's Longleaf. 2014). This site is an ecotone incorporating the northern limit of longleaf pine flatwood savannas and the southern limit of the longleaf pine rolling dry-mesic slope savannas. Additionally, this site captures all the unique expressions of longleaf pine flatwood savannas including flatwood depression ponds, pimple mounds, intermound flats, Pleistocene hydric headwater savannas, and hillside seepage bogs.



LiDAR imagery of the project site highlighting the subtle yet diverse topographic features of longleaf pine flatwood savannas (pimple mounds, flatwood ponds, unchannelized headwaters, dry slopes and wet flats (Source: https://www.usgs.gov/ngp-standards-and-specifications/3dep-product-metadata).

The unique geological foundation and topography of the Western Gulf Coastal Plain greatly contributes to the complexity and diversity of the restoration site as well as the longleaf pine ecosystem as a whole. Although relatively small, the topographic heterogeneity provides many environmental gradients in close proximity, which yields numerous micro habitats for plants thus bolstering one of the most diverse and species rich natural community complexes in North America.

The restoration of this unique site requires novel restoration techniques, methods, and approaches. Some of these techniques will include contour and cohort planting, both sparse (0-150 trees per acre) and dense 300-500 trees per acre) plantings, intensive annual fire, irregular shelterwood thinning and proportional basal area selection. This work will also incorporate the development of an ecoregion specific floristic quality index to monitor the quality of herbaceous diversity and richness throughout the restoration process in response to various techniques and research treatments. Information garnered from this research and restoration efforts will also guide longleaf pine restoration on private, state and federal public lands; especially reverting slash pine and other forest types back to longleaf pine savannas.

Return of the Longleaf:

A Unique Opportunity in Restoration and Research on Kisatchie National Forest cont.

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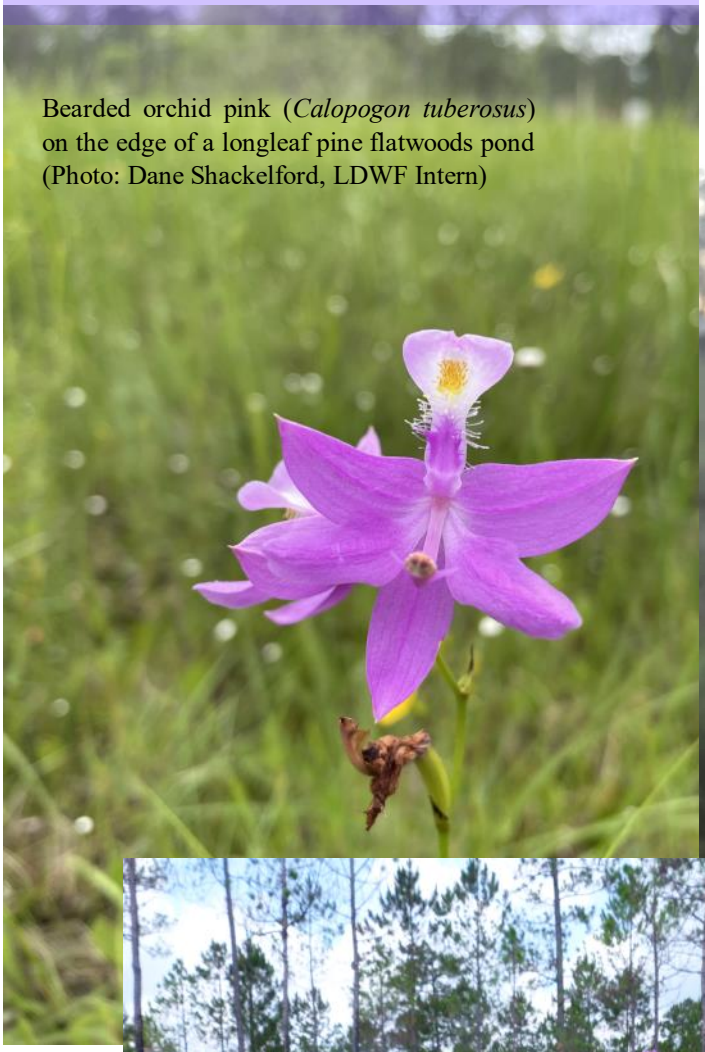
Healthy longleaf pine flatwood savanna on the Western Gulf Coastal Plain of Louisiana

Return of the Longleaf:

A Unique Opportunity in Restoration and Research on Kisatchie National Forest



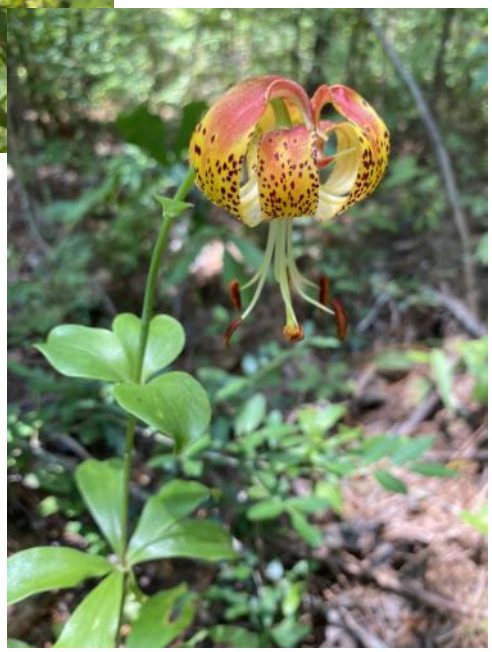
Bearded orchid pink (*Calopogon tuberosus*) on the edge of a longleaf pine flatwoods pond (Photo: Dane Shackelford, LDWF Intern)

Pale coneflower *(Echinacea pallida*) on a sandy pimple mound in a longleaf pine flatwood savanna

Winged pitcher plants (*Sarracenia alata)* in a high quality pine flatwood savanna

NOTICES AND ACTIVITIES

1. If you are interested in the **Louisiana Certified Habitat Program,** please email louisianacertifiedhabitat@gmail.com for more information and to receive the application.
2. August 19-21. Dr. Allen's Lily Orchid Days at Allen Acres, 5070 Hwy 399, Pitkin, LA. Caravan to see Carolina lilies and yellow fringed orchid spots plus other plants. For more information, contact Dr. Charles Allen or Susan Allen 337- 328-2252 or email native@camtel.net. Allen Acres has a B and B (www.allenacresbandb.com).
3. August 20. Baton Rouge, **Wonders of Wildlife** event at Bluebonnet Swamp There will be educational presentations, games, live animals, trail activities, crafts and more.
4. August 25. Hilltop Arboretum LSU **summer learning hilltop Meadows Workshop: Past, Preent, and Future;** 9am till 3pm. Featuring Dr. Charles Allen htt;s://www.lsu.edu/hilltop/programs/adult/summer_learning_series_2022.php
5. August 27. Cajun Prairie Habitat Preservation Society Meeting. Details pending.
6. September 20-22, October 4-6, October 11-13, October 18-20. Basic plant ID classes, Allen Acres
7. September 10, 24, October 8 and 15: Edible Plant Workshop, Allen Acres.
8. September 17. Haynesville Butterfly Festival
9. September 27-29. Graminoid ID class, Allen Acres.
10. September 30– October 2. Butterfly Blast, Allen Acres. More details later.
11. October 29. Briarwood Nature Preserve. Tom Sawyer Day.
12. November 5. Briarwood Nature Preserve. Fall Plant Sale. See Facebook page for details.



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The deadline for newsletter articles, etc. is **Nov 15** for the next LNPS newsletter. Any article involving native plants is welcomed.

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Circle one: Individual, $10. Student/Senior, $5. Family, $15. Organization, $25. Sustaining, $50. Corporate, $100.

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