

- <sup>1</sup> Brown, C. A. 1972. *Wildflowers of Louisiana and Adjoining States*. Louisiana State Press, Baton Rouge, LA.
- <sup>2</sup> Luer, C. A. 1975. *The Native Orchids of the United States and Canada Excluding Florida*. New York Botanical Garden, New York.
- <sup>3</sup> Thomas, R. D. and C. M. Allen. 1993. *Atlas of the Vascular Flora of Louisiana, Vol. I: Ferns & Fern Allies, Conifers, & Monocotyledons*. Department of Wildlife and Fisheries, Baton Rouge, LA.
- <sup>4</sup> Louisiana Department of Wildlife and Fisheries Natural Heritage Program. (undated). *Pteroglossaspis ecristata* (Fern.) Rolfe Giant Orchid, Wild Coco. Rare Plant Fact Sheet PMORC27010.
- <sup>5</sup> Brown, C. A. 1972. p. 36.
- <sup>6</sup> Flora of North America Editorial Committee (eds.). 1993+. *Flora of North America North of Mexico*. 7+ vols. New York and Oxford.
- <sup>7</sup> Louisiana Department of Wildlife and Fisheries Natural Heritage Program. (undated). *Calopogon multiflorus* Lindl. Many-flowered Grass-pink. Rare Plant Fact Sheet PMORC0C020.
- <sup>8</sup> Larke, J. O. and L. M. Smith. 1994. *Rare Plants of Pine-Hardwood Forests in Louisiana*. Natural Heritage Program, Louisiana Department of Wildlife and Fisheries, Baton Rouge, LA.
- <sup>9</sup> Louisiana Department of Wildlife and Fisheries Natural Heritage Program. (undated). *Cypripedium kentuckiense* C. F. Reed Southern Lady's Slipper, Kentucky Lady's Slipper, Yellow Lady Slipper. Rare Plant Fact Sheet PMORC0Q0FO.

In the eastern portion of the flatwoods region (the Florida Parishes), longleaf pine savannas historically covered about 100,000 to half a million acres. They now occur on less than 1 percent of this area.<sup>20</sup> About 5,000 acres of eastern longleaf savanna is currently protected. Almost 40 species of conservation concern in the state occur in this vegetation type. You will find a walking trail through The Nature Conservancy's Lake Ramsay preserve just a few miles north of Highway 190 near Covington. Longleaf savannas once covered one to two million acres of the western flatwood region, but today, only 1 to 5 percent remains.<sup>21</sup> Examples are protected in one of The Nature Conservancy's preserves and in Kisatchie National Forest. Western longleaf savannas are habitat for 23 species of conservation significance in the state.

## Prairie

Large areas of western Louisiana were once open prairies (figures 2-2, 2-16). In fact, as figure 2-17 shows, Louisiana had some of the largest areas of





*Figure 2-17. Most of the southeast was once densely forested. A few large areas, however, were open grassland. The largest of these was the coastal prairie in south-central Louisiana (after Deselm, H. R. and N. Murdock. 1993. Grass-dominated communities. p. 87-141 in W. H. Martin, S. G. Boyce and A. C. Echternacht (eds.). Biodiversity of the Southeastern United States: Upland Terrestrial Communities. John Wiley & Sons, New York, NY).*

The Louisiana prairies (figure 2-19) extended across ancient beds of sand, gravel, silt, and clay. Most of these areas have poor drainage and dense clay subsoil. Smaller areas of prairie were probably scattered through the woodlands wherever a past fire had created clearings. Where prairie-like conditions extend eastward into the longleaf pine region, these areas are known as pine savannas. Because the kinds of plants and animals are so different in savannas compared to prairies, savannas were previously described under the section on longleaf pine ecosystems.

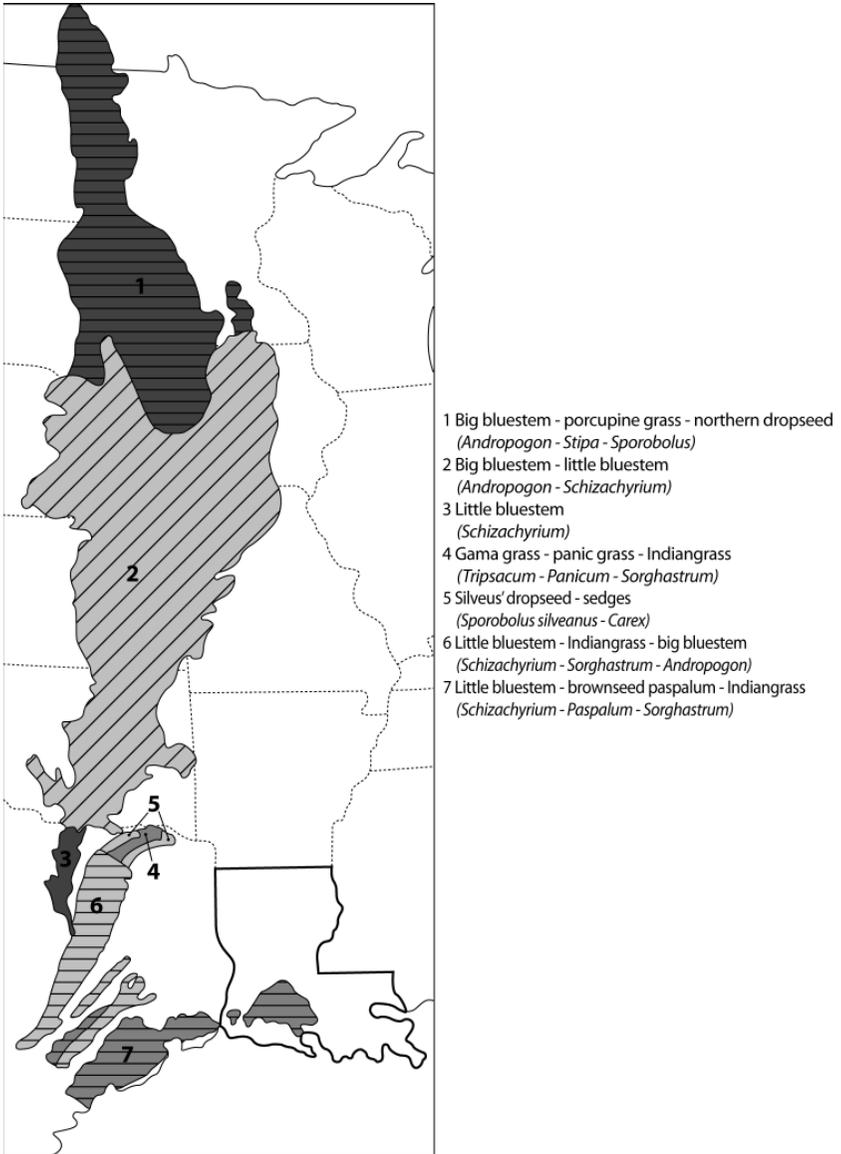


Figure 2-18. Plant communities and characteristic grass species for the true prairies (1-6) and the upper coastal prairie (7), (modified from Diamond, D.D. and F.E. Smeins. 1988. Gradient analysis of remnant true and upper coastal prairie grasslands of North America. *Canadian Journal of Botany* 66: 2152-2161).



*Figure 2-19. In August, the coastal prairie is ablaze with color. This prairie is dominated by the tall purple spikes of blazing star (Liatris sp.). Coastal prairie once covered over six million acres in southwestern Louisiana (see figure 2-16; courtesy C. LaChance, Texas A&M University).*

An emigrant from Maryland describes the prairie of the Attakapas and Opelousas regions in 1817:

The prairies are mostly level, but sometimes waving. Nothing can surpass the soft beauty of these prairies . . . These prairies resemble natural meadows, covered with external verdure; they are interspersed here and there with clumps of trees and groves of timber. The banks of the bayous and rivers which flow in every direction, are covered with woods, filled with the sweetest songsters of the groves. It is in these prairies, some of which are 150 miles in length, the large flocks of horses and horned cattle range.<sup>23</sup>

For Lockett, the prairies resembled large bodies of water:

The grass that grows upon their surface waves in the wind and looks like ripples on the bosom of the ocean; the dark blue borders of woods are like distant shores, the projecting spurs, like capes and promontories, the

“coves,” like bays and gulfs, and the occasional clumps of detached trees, like islands in the sea.<sup>24</sup>

The prairies along the western gulf coast were once over 22 million acres, at least six of which occurred in Louisiana.<sup>25</sup> So efficient have we been at plowing, that less than 1 percent of this prairie remains. Early explorers such as Darby (1816) and Hilgard (1869, 1873) described these prairies, and botanists collected specimens from remnants that survived into the 1940s. Now their past distribution must be largely inferred from soil types or from the distribution of rare plants that have survived in relict pieces of prairie such as road and railway rights-of-way. These remnants today total 93 acres of upland prairie and about 500 acres of wet fringing prairie.<sup>26</sup> Highway widening and roadside herbicide spraying, as well as fire suppression, threaten many of these prairie pockets.

The dominant species in coastal prairies were grasses. To judge from adjoining areas of Texas (Table 2-3), four plant species dominated: little bluestem (*Schizachyrium scoparium*), Indiangrass (*Sorghastrum nutans*), brownseed paspalum (*Paspalum plicatulum*) and prairie bishop (*Biflora americana*).<sup>27</sup> Some forest species occurred, scattered through the grasslands, such as pines, eastern red cedar, or saw palmetto. The prairie was also dotted with wet depressions having cane breaks—areas dominated by canes (*Arundinaria gigantea*) and reeds (*Phragmites australis*).<sup>28</sup> Some sand plains in the interior also developed into prairies, an example being those along the Ouachita River that extend northward into Arkansas. Here there are two distinctive landscape types—uplands and bottomlands, separated by bluffs 30 to 50 feet high. Forester, A. E. Wackerman, described in 1929 how prairies were best developed on the flat terraces (recall figure 1-8):

The prairies occur on the terrace areas not as yet reached by the heads of the streams, which, it must be remembered, are of an intermittent type. The logical assumption therefore, especially since the soils all have the same origin, the climate is uniform, and the topography does not afford protection for the forest areas against wind, is that the prairies are restricted to the undrained areas primarily because of the lack of drainage and its effects on the soil . . .

If this is true, it would be expected that as the stream system grows and matures the prairies would be gradually eliminated. The evidence points to this being the case. The undrained areas are prairie, the poorly drained areas surrounding the prairies are occupied by the “post oak flatwoods” type, and the better drained areas around the “flatwoods” are occupied by the pine-hardwood type.<sup>29</sup>

According to Wackerman, the post oak flatwoods around the edges of the prairies included post oak (*Quercus stellata*), water oak (*Q. nigra*), willow oak (*Q. phellos*), and blackjack oak (*Q. marilandica*). In the pine-hardwoods, where

drainage was better, the former occurred along with white oak (*Q. alba*), black oak (*Q. velutina*), loblolly pine (*Pinus taeda*), and shortleaf pine (*P. echinata*). Pine and oak forests are also known to be created by fire, and it seems that the relative frequency of fire may also control the transition from prairie to forest. In this case, the effects of flooding and infertile soils on the terraces would slow the reinvasion by oaks after fire.

The original fauna of these grasslands requires guesswork since most of it has vanished. The prairie deer mouse and meadow vole are two small mammals considered by zoologists to be true grassland species.

Today, while some 8 percent of the state is reported to be in grassland, most of this is areas that are heavily grazed. Depending upon the timing and intensity of the grazing, the grassland can lose typical prairie species and be invaded by exotic plants. Macartney rose (*Rosa bracteata*) and Chinese tallow tree (*Triadica sebiferum*, also known as *Sapium sebifera*) pose the greatest threats as invaders.<sup>30</sup> They can easily invade abandoned farmland and overgrazed fields and are able to escape the effects of fire due to their growth form. Mixed grazing, with several species such as horses, goats, and cattle combined, can be particularly detrimental to native species. In contrast, rotational grazing allows the vegetation time to recover and probably comes closest to duplicating the effects of natural herds of grazing animals. In small areas, mowing may simulate these effects. In the western part of the country, prairies are produced largely by drought, but here in the southeast, fire plays an important role. The interference of human settlement with natural fire patterns causes eastern prairies to revert rapidly to woodlands, and the prairie plants disappear. The reintroduction of fire will be required to re-create the original prairies of Louisiana. This requires careful consideration of intensity, duration, and season for controlled burning.

Since soils of the coastal plain tend to be infertile, fertilizer is often used to increase plant growth. In natural grasslands, this often leads to the invasion of exotic grasses that are better able to exploit the added nutrients. Those few species that exploit the fertilizer tend to exclude all other species, greatly reducing the number of kinds of plants in these grasslands. Native grasslands in the north of the country are being increasingly converted to plantations of exotic grasses including orchard grass (*Dactylis glomerata*), tall fescue (*Festuca arundinacea*), and Kentucky bluegrass (*Poa pratensis*). In warmer areas, such as Louisiana, warm season grasses such as Bermuda grass (*Cynodon dactylon*), dallisgrass (*Paspalum dilatatum*), and species of bush-clover (*Lespedeza*) are commonly planted for pastures. While green and productive, like lawns around homes, these mixtures of a few exotic grasses are inhospitable to most native plants and animals.

Will our prairie paradise be lost? Despite major losses of land area and native species, considerable prairie biodiversity still remains. Numerous government and private agencies have been working to restore this critically imperiled ecosystem (chapter 6) since the late 1980s. There are three major projects. The Eunice Prairie,

Table 2-3. The coastal prairies of Texas and Louisiana (see figures 2-18, 2-19) have a remarkable number of plant species. Only a few, however, are common. Graminoids are grass-like plants, and forbs are other herbaceous plants. Frequency is a measure of abundance, and cover indicates the relative amount of ground covered by the species. Bold type indicates the four most common species (data and nomenclature according to Diamond, D. D. and F. E. Smeins. 1988. Gradient analysis of remnant true and upper coastal prairie grasslands of North America. *Canadian Journal of Botany* 66: 2152-2161).

	Common Name	% Frequency	Cover
<b>Graminoids</b>			
<i>Andropogon gerardii</i>	big bluestem	9	2
<i>Bouteloua curtipendula</i>	sideoats grama	24	+
<i>Carex microdonta</i>	littletooth sedge	20	2
<i>Coelorachis cylindrica</i>	cylinder jointtail grass	15	2
<i>Dichanthelium oligoanthos</i>	Heller's rosette grass	43	2
<i>Eragrostis intermedia</i>	plains love grass	10	1
<i>Fimbristylis puberula</i>	hairy fimbry	40	4
<i>Panicum virgatum</i>	switchgrass	4	4
<i>Paspalum floridanum</i>	Florida paspalum	19	5
<b><i>Paspalum plicatulum</i></b>	<b>brownseed paspalum</b>	61	14
<i>Paspalum setaceum</i>	brownseed paspalum	31	2
<i>Rhynchospora</i> sp.	beaksedge	23	2
<b><i>Schizachyrium scoparium</i></b>	<b>little bluestem</b>	94	39
<i>Scleria ciliata</i>	fringed nutrush	16	1
<b><i>Sorghastrum nutans</i></b>	<b>Indian grass</b>	61	13
<i>Sporobolus asper</i>	dropseed	35	4
<i>Stipa leucotricha</i>	Texas tussock grass	6	+
<b>Forbs</b>			
<i>Acacia hirta</i>	prairie acacia	6	+
<i>Aster ericoides</i>	heath aster	16	1
<b><i>Bifora americana</i></b>	<b>prairie bishop</b>	50	2
<i>Cacalia plantaginea</i>	Indian plantain	6	+
<i>Centaurea americana</i>	American star thistle	8	+
<i>Delphinium virescens</i>	Carolina larkspur	12	+
<i>Gnaphalium</i> sp.	cudweed	20	1
<i>Hedyotis nigricans</i>	diamondflowers	6	+
<i>Hymenopappus scabiosaeus</i>	Carolina woollywhite	4	+
<i>Liatriis pycnostachya</i>	prairie blazing star	31	2
<i>Linum medium</i>	stiff yellow flax	15	+
<i>Neptunia lutea</i>	yellow neptunia	11	1
<i>Oxalis</i> sp.	wood sorrel	25	1
<i>Petalostemum</i> sp.	prairie clover	4	+
<i>Physostegia intermedia</i>	slender false dragonhead	11	+
<i>Ratibida columnaris</i>	prairie coneflower	14	1
<i>Rudbeckia hirta</i>	black-eyed Susan	34	+
<i>Ruellia humilis</i>	fringeleaf wild petunia	14	1
<i>Ruellia nudiflora</i>	ruellia	15	+
<i>Salvia azurea</i>	blue sage	16	+
<i>Schrankia uncinata</i>	litttleleaf sensitive-briar	17	1
<i>Solidago canadensis</i>	Canada goldenrod	15	1
<i>Tragia urticifolia</i>	nettleleaf noseburn	9	+

a 15-acre site 80 miles west of Baton Rouge, is owned and being restored by the Cajun Prairie Habitat Preservation Society.<sup>31</sup> They are also assisting the U.S. Fish and Wildlife Service in restoring the Duralde Prairie, a 345-acre tract of land a few miles northwest of Eunice. The third project, a privately owned area of 100 acres near Gueydan, is being restored with the assistance of the Natural Resource Conservation Service (USDA) and the U.S. Geological Survey.

Remnant prairies of Louisiana provide habitat for 17 bird species of conservation concern including the whooping crane, short-eared owl, and grasshopper sparrow. The other seven species of conservation concern include three lepidopterans, the ornate box turtle, western slender glass lizard, eastern spotted skunk, and southern crawfish frog.