

35. Western Hillside Seepage Bog

Rarity Rank: S2/G2G3

Synonyms: Pitcher Plant Bog, Herbaceous Bog, Bog, Hillside Seep, Hillside Bog

Ecological Systems: CES203.194 West Gulf Coastal Plain Herbaceous Seepage Bog

General Description:

Hillside seepage bogs are open, mostly treeless, herb-dominated natural wetlands of hilly, sandy uplands historically dominated by *Pinus palustris* (longleaf pine) of the East and West Gulf Coastal Plains in Louisiana. In the WGCP, these bogs occur on the Pleistocene high and intermediate terraces and on Tertiary uplands (Catahoula, Fleming, and Sparta formations). They occur commonly on mid- to low slopes, on saturated, strongly acidic (pH ca. 4.5 - 5.5) and nutrient-poor substrates of fine sandy loams or loamy fine sands with relatively high organic matter content (Smith 1996). Soil series names have generally not been assigned to bogs due to the naturally very limited acreage in the state (Smith 1996).



These bogs are generally persistently wet from seepage, and are variable in size being most often less than 1 acre but rarely exceeding 10 acres. WGCP bogs are underlain by an impervious clay or sandstone layer that, when conditions are right, causes ground water to constantly seep to the soil surface. The herbaceous groundcover is dense, continuous and floristically rich. It is dominated by sedges, grasses and grass-like plants, and many kinds of unusual forbs, including pitcher-plants (*Sarracenia alata*) and a variety of orchid species. Patches of shrubs are often present within bogs, and can become more prevelant, possibly degrading the habitat, if fire is excluded from the system. Since hillside bogs are embedded in what are now or historically were longleaf pine forests, they are fire-driven systems. They evolved with frequent growing-season fire events. Among other things, frequent fire deters invasion by shrubs and trees and stimulates growth, flowering and seed production by indigenous bog herbs (Barker 1980).

The degree to which a bog remains wet throughout the year depends on the size of the watershed, the soil infiltration rate upslope, the rate of saturated flow in the soil, the topographic position of the bog, the bog's water storage capacity, and the rate of water leaving the bog from evapo-transpiration and through surface and sub-surface flow. In general, the greater the infiltration rate of the watershed soils and the water holding capacity of bog soils, the smaller the recharge area needed to maintain seepage throughout dry periods of the year. Therefore, bogs are extremely sensitive to

surrounding land management activities, and are easily degraded or destroyed by activities that alter natural hydrologic regimes.

Hillside seepage bogs are rich in herbaceous plant species, primarily grasses and grass-like plants (graminoids), although a large variety of forbs is present. There appears to be a distinct relationship between the number of species present and bog (MacRoberts and MacRoberts 1992, 1993). More than 100 plant species may be found in a relatively large bog (MacRoberts and MacRoberts 1988). Many species are restricted to this habitat and closely allied longleaf pine flatwood savannahs.

Vegetation dominants include: *Andropogon* spp. (bluestems), *Aristida* spp. (threeawn grasses), *Panicum* spp. (panic grasses), *Ctenium aromaticum* (tooth-ache grass), *Muhlenbergia capillaris* (hairawn muhly), *Rhynchospora* spp. (beak-rushes), *Rhynchospora stenophylla* (narrow-leaved beakrush, S1G4), *Xyris* spp. (yellow-eyed grasses), *Eriocaulon* spp. (pipeworts), *Lachnocaulon* spp. (bog buttons), *Dichromena latifolia* (giant white top sedge), *Scleria* spp. (nut-rushes), *Fuirena* spp. (umbrella grasses), and *Fimbristylis* spp. (fimbry-sedge). Primary forbs include *Sarracenia alata* (green pitcher plant), *Rhexia* spp. (meadow beauties), *Polygala* spp. (milkworts), *Liatris* spp. (blazing stars), *Aletris lutea* (colic-root), *Eupatorium* spp. (thorough-worts), *Coreopsis linifolia* (narrow-leaved tickseed), *Drosera* spp. (sundews). Many rare forbs are found in EGCP bogs including *Sarracenia psittacina* (parrot pitcherplant, S3G4), *Pinguicula lutea* (yellow butterwort, S2G4G5), *Lilium catesbaei* (southern red lily, S1G4), *Tofieldia racemosa* (coastal false-asphodel, S2S3G5), *Lophiola aurea* (golden crest, S2S3G4), and *Macranthera flammaea* (flame flower, S2G3). Various orchids, especially *Platanthera* spp. (fringed orchids), are often conspicuous members of the flora. Ferns (principally *Osmunda* spp.) and club-mosses (*Lycopodium* spp.) are usually present and sphagnum moss is often abundant (LNHP 1986-2004, MacRoberts and MacRoberts 1988, 1993a, 1993b, 1991).

Current Extent and Status:

In the WGCP hillside seepage bogs are found from Calcasieu north to Natchitoches and Winn Parishes. There are many known for Vernon and Natchitoches probably due to KNF and Ft. Polk and the superior habitat conditions on those areas plus the ease of access to conduct surveys. There are probably many in Beauregard Parish. The habitat is rare in Calcasieu Parish and restricted to the extreme northern part of the parish. There is one known non-*Sarracenia* bog in each of Grant and Rapides Parishes and they are both poorly developed. There are a handful of bogs known in northern Winn Parish and these currently represent the northern most bogs in Louisiana.



This habitat overall has good viability in the WGCP, owing to the many protected occurrences on KNF and Ft. Polk. There are likely many examples on private land that are degraded (mainly by fire suppression) but recoverable, especially in Beauregard Parish.

WESTERN HILLSIDE SEEPAGE BOG SPECIES OF CONSERVATION CONCERN (5)		
BIRDS Sedge Wren Henslow's Sparrow Le Conte's Sparrow	BUTTERFLIES Arogos Skipper	CRUSTACEANS Pine Hills Crawfish

Priority Species Research and Survey Needs:

Sedge Wren, Henslow's Sparrow, Le Conte's Sparrow: Continue to inventory and monitor the status of these species and their habitat on public and private lands to fill data gaps in species distribution and abundance for inclusion in the LNHP database and Audubon nationwide database.

Arogos Skipper: Conduct surveys to determine its current distribution and abundance for inclusion in the LNHP database.

Examine the demographics, habitat-use patterns, and impacts of feral hogs on ground nesting birds, salamanders, and small mammals (Warren and Ford 1997).

Species Conservation Strategies:

1. Work with landowners to initiate or continue the implementation of PIF bird conservation plans, conservation plans developed for amphibians and reptiles, and USFWS threatened and endangered species recovery plans over the next 10 years.
2. Examine the demographics, habitat-use patterns, and impacts of feral hogs on ground nesting birds, salamanders and small mammals (Warren and Ford 1997).
3. Implement conservation and management recommendations of SWG projects T22 and T32 upon completion.

Threats Affecting Habitat:

The following table illustrates the threats identified for this habitat type and the sources of these threats. This represents all threats and sources of threats identified across all ecoregions of the state where this habitat occurs.

Source of Threat	Threat		
	Altered Composition/ Structure	Habitat Disturbance	Modification of Water Levels; Changes in Natural Flow Patterns
Fire suppression	XXX		
Incompatible forestry practices	XXX	XXX	XXX
Invasive/alien species	XXX	XXX	
Recreational use/vehicles	XXX	XXX	

Habitat Conservation Strategies:

1. Conduct surveys to determine the extent and condition of this habitat type with a focus on identifying the surrounding landscape context (i.e., residential developments, etc.) that might be affected by prescribed burning.
2. Once bogs are identified, conduct landowner surveys to aid in the development of management strategies for these sites.
3. Continue to encourage landowners to implement BMPs and adopt SFI standards in the management of this habitat type.
4. Work with land managers/hunting clubs/extension agents, etc. to discourage the placement of food plots in this habitat type.
5. Promote the utilization of federal cost share programs (NRCS) to address invasive species problems.
6. Provide additional cost share funds for landowners to drastically reduce or eliminate the costs associated with conducting prescribed burns on their property.
7. Provide education/outreach to promote conservation and preservation of this habitat type.
8. Work with the legislature to provide incentives (tax breaks, etc.) to landowners to retain the natural state of areas where this habitat occurs.
9. Work with appropriate planning commissions to provide them with LNHP data that illustrates locations of this habitat type.
10. Develop strategies to address damage from feral hogs within this habitat type.

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