Kissimmee Prairie Preserve State Park (Okeechobee County) Photo by Gary Knight

Wet Prairie

Description: Wet prairie is an herbaceous community found on continuously wet, but not inundated, soils on somewhat flat or gentle slopes between lower lying depression marshes, shrub bogs, or dome swamps and slightly higher wet or mesic flatwoods, or dry prairie. It is typically dominated by dense wiregrass (*Aristida stricta* var. *beyrichiana*) in the drier portions, along with foxtail club-moss (*Lycopodiella alopecuroides*), cutover muhly (*Muhlenbergia expansa*), yellow butterwort (*Pinguicula lutea*), and savannah meadowbeauty (*Rhexia alifanus*). In the wetter portions, wiregrass may occur with, or be replaced by, species in the sedge family, such as plumed beaksedge (*Rhynchospora plumosa*), featherbristle beaksedge (*R. oligantha*), Baldwin's nutrush (*Scleria baldwinii*), or slenderfruit nutrush (*S. georgiana*), plus longleaved threeawn (*Aristida palustris*). Also common in wetter areas are carnivorous species, such as pitcher plants (*Sarracenia* spp.), sundews (*Drosera* spp.), butterworts (*Pinguicula* spp), and bladderworts

(*Utricularia* spp.). Other characteristic species in this community include toothache grass (*Ctenium aromaticum*), pineland rayless goldenrod (*Bigelowia nudata*), flattened pipewort (*Eriocaulon compressum*), water cowbane (*Oxypolis filifolia*), and coastalplain yellow-eyed grass (*Xyris ambigua*).

Wet prairies in northern Florida and the calcareous variant in south-central Florida are some of the most diverse communities in the United States, with an average of over 20 species per square meter in some places and over 100 total species in any given stand (Walker and Peet 1983; Norquist 1984; Kindell 1997; Burks 1997; Orzell and Bridges 2006). Factors contributing to this diversity include subtle spatial differences in moisture conditions across the wet prairie and temporal differences in fire and flooding regime from year to year, which favor different species and prevent any one species from excluding the others.

Wet prairie is noted for its many showy flowering herbs including false foxgloves (*Agalinis* spp.), grass pinks (*Calopogon* spp.), pipeworts (*Eriocaulon* spp.),rein orchids (*Platanthera* spp.), milkworts (*Polygala* spp.), meadowbeauties (*Rhexia* spp.), rosegentians (*Sabatia* spp.), yellow-eyed-grasses (*Xyris* spp.), white-top sedge (*Rhynchospora latifolia*), and composites in the genera *Balduina*, *Carphephorus*, *Coreopsis*, *Eupatorium*, *Eurybia*, *Helenium*, *Helianthus*, *Rudbeckia*, *Solidago*, and *Symphyotrichum*. Re-sprouting short shrubs that grow intermixed with the grasses, include two species of St. John's wort (*Hypericum brachyphyllum*, *H. myrtifolium*), evergreen bayberry (*Myrica caroliniensis*) and, in Panhandle Florida, bog tupelo (*Nyssa ursina*). A few stunted trees of slash pine (*Pinus elliottii*), pond cypress (*Taxodium ascendens*), or swamp tupelo (*Nyssa sylvatica* var. *biflora*) may be present. In northern Florida clumps of wetland shrubs such as titi (*Cyrilla racemiflora*), coastal sweet pepperbush (*Clethra alnifolia*), myrtle-leaved holly (*Ilex cassine* var. *myrtifolia*), and large gallberry (*Ilex coriacea*) are also seen.

Wet prairie usually occurs on acidic, nutrient-deficient, saturated soils. Soil series associated with wet prairies in the Panhandle include Plummer fine sands , Rutledge sandy loams, and Bladen sandy loams with clay subsoils (Weeks et al. 1980; USFS 1984). In the Florida peninsula, wet prairies, including those dominated by cutthroat grass (Bacchus 1991), are often found on poorly drained Basinger fine sands (Orzell and Bridges 2006). Calcareous wet prairies are found in Central and south-central Florida on circum-neutral Felda or Wabasso fine sands with sandy loam subsoils (McCollum and Pendleton 1971; Orzell and Bridges 2006).

Characteristic Set of Species: pitcherplants, wiregrass, blue maidencane, cutthroat grass, wiry beaksedges, flattened pipewort, toothache grass, water cowbane, yellow-eyed grasses, pineland rayless goldenrod

Rare Species: The Panhandle is a hotspot for rare plants of the wet prairie community with 25 out of the 30 rare species found in this community; 12 of these are endemic to the Panhandle (Table 1).

The rare Morse's flightless grasshopper (*Gymnoscirtetes morsei*) is known only from open boggy habitats in northern Florida.

Range: Wet prairie occurs throughout Florida except for extreme South Florida where limestone soils predominate (Orzell and Bridges 2006). Outside Florida, wet prairies (also known as pitcher plant bogs) are found in the southeastern coastal plain from eastern Texas to North Carolina (Folkerts 1982; Walker and Peet 1983; MacRoberts and MacRoberts 2001). Wet prairies in the Panhandle are closest floristically to other areas in the East Gulf Coastal Plain, i.e. pitcher plant bogs in Mississippi, Alabama, and southwestern Georgia (Harper 1905; Norquist 1984; Sorrie 1997).

Natural Processes: Natural fires likely entered wet prairie from surrounding pinelands and burned through them when they were dry enough to carry fire. Hermann (1995) estimates a natural fire return interval of 2-3 years where wet prairie vegetation is adjacent to mesic/wet flatwoods or sandhill in the Apalachicola National Forest. A similar fire interval was also determined by Huffman (2006) for mesic flatwoods near the Panhandle coast from an analysis of fire scars on pine stumps. In the absence of fire, shrubs and trees invade wet prairie and shade out the light-loving herbaceous species. A further indication of their dependence on fire is the requirement for fire to stimulate flowering in many wet prairie herbs, including two of the dominant grasses, wiregrass and cutthroat grass (Myers and Boettcher 1987).

The nutrient-poor, acid sands of wet prairie in the Panhandle make these habitats a center for both carnivorous plant diversity and for diversity of arthropod species dependent on them. At least 16 arthropod species are obligate associates of the genus *Sarracenia* (Rymal and Folkerts 1982) including three species of moth in the genus *Exyra* (*E. fax, E. ridingsii,* and *E. semicrocea*) and a mosquito (*Wyeomyia smithii*).

Community Variations: Species present in Panhandle wet prairies and not in those of the peninsula include thistleleaf aster (*Eurybia eryngiifolia*), Chapman's aster (*Symphyotrichum chapmanii*), Florida pineland spurge (*Euphorbia inundata*), and Chapman's butterwort (*Pinguicula planifolia*). In the peninsula, Curtiss' dropseed (*Sporobolus curtissii*), blue maidencane (*Amphicarpum muhlenbergianum*), cutthroat grass (*Panicum abscissum*), or Gulf hairawn muhly (*Muhlenbergia sericea*) may also be dominants or co-dominants with wiregrass.

Three common variants of wet prairie occur within Florida.

Variants:

CUTTHROAT SEEP – Wet prairies dominated by the endemic cutthroat grass occur along the eastern and western edges of the Lake Wales Ridge in Central Florida and are characterized by many wildflowers in common with other acidic wet prairie areas. They are maintained in saturated condition by water seeping out from the deep sands of the Lake Wales Ridge onto adjacent lower flat lands.

CALCAREOUS WET PRAIRIE – In central and south-central peninsular Florida wiregrass may co-occur with Gulf hairawn muhly as a dominant species in wet prairies where calcareous substrate is not far below the surface and soils are circum-neutral (Orzell and Bridges 2006). Other calcium-loving species found in these prairies include pineland heliotrope (*Heliotropium*

polyphyllum), sweet shaggytuft (*Stenandrium dulce*), and starrush white-top (*Rhynchospora colorata*).

PITCHERPLANT PRAIRIE – Wetter portions of wet prairies in the Panhandle are often characterized by dense stands of tall pitcherplants, primarily yellow pitcherplant (*Sarracenia flava*) near the Apalachicola River and white-top pitcherplant (*S. leucophylla*) to the west. Other species of pitcherplants found in this variant include sweet pitcherplant (*S. rubra*), parrot pitcherplant (*S. psittacina*), and Gulf purple pitcherplant (*S. rosea*).

Associated Communities: Wet prairie has many species in common with seepage slope and differs mainly in its occurrence on low, gently sloping terraces surrounded by mesic or wet flatwoods, or dry prairie, rather than on steeper slopes surrounded by sandhill or upland pine communities. Wet prairies are maintained in saturated condition by lateral seepage of groundwater, but, unlike seepage slopes, their water table is not perched above the level of the normal water table. Wet prairie differs from depression and basin marshes in having a relatively complete cover of wiregrass, cutthroat grass, nutrush (*Scleria* sp.), blue maidencane, or wiry beaksedges and in being inundated only to very shallow depth, if at all. It differs from the grassy form of wet flatwoods in having no, or only a very sparse, cover of pines. It differs from the wetter forms of dry prairie in the absence of upland shrubs such as saw palmetto (*Serenoa repens*), dwarf live oak (*Quercus minima*), or gallberry (*Ilex glabra*; Orzell and Bridges 2006). The calcareous variant of wet prairie differs from marl prairie, which is found in South Florida and may also be dominated by Gulf hairawn muhly, in having a more continuous herbaceous cover, without limestone exposed extensively at the surface, and without standing water or periphyton mats characteristic of marl prairie (Wade et al. 1980).

Management Considerations: In the absence of fire, woody shrubs may encroach on wet prairie from both the bordering uplands (e.g. gallberry, wax myrtle [*Myrica cerifera*]) and wetlands (e.g. peelbark St. John's wort [*Hypericum fasciculatum*], titi [*Cyrilla racemiflora*], and black titi [*Cliftonia monophylla*]; Hermann 1995) and eventually shade out the sun-loving herbaceous species. Hermann (1995) cites one area in the Apalachicola National Forest where fire had been absent for 12-15 years (based on ring counts of titi stems), where shrubs had invaded and the cover of herbaceous wet prairie species was reduced to 15-20 percent of the area, compared to 100 percent cover of herbaceous species in a nearby area burned every 2-4 years. A study comparing extent of shrub cover on geo-rectified aerial photographs of Apalachicola National Forest from the 1930s with current aerials shows expansion of shrubs into formerly grassy areas (Hess 2007).

Wet prairies are sensitive to relatively slight physical alterations to the soil surface which can permanently alter the hydrology (Hermann 1995). Such disturbances include soil rutting within the prairies caused by trampling, vehicles, plowed fire lanes, or other heavy equipment damage, placing roads and ditches near the prairies and hog rooting. These disturbances can cause major changes in species composition that require expensive restoration to repair (Mize et al. 2005).

Exemplary Sites: Tarkiln Bayou Preserve State Park (Escambia County), Garcon Point Water Management Area (Santa Rosa County), Apalachicola National Forest (Apalachicola Unit; Liberty County), Avon Park Air Force Range (Highlands and Polk counties), Three Lakes Wildlife Management Area and Triple N Ranch Wildlife Management Area (Osceola County), Kissimmee Prairie Preserve State Park (Okeechobee County)

Global and State Rank: G2/S2

Crosswalk and Synonyms:

Kuchler	112/Southern Mixed Forest
Davis	13/Grasslands of Prairie Type
	2/Pine Flatwoods
SCS	10/Cutthroat Seeps
	23/Pitcher plant bog
Myers and Ewel	Freshwater Marshes - wet prairies
	Flatwoods - wet flatwoods and seepage savannas
SAF	N/A
FLUCCS	310/Herbaceous
	641/Wet Prairies

Other synonyms: moist pine barrens (Harper 1905), grass-sedge savannah (Clewell 1986), grass-sedge seepage bog (Clewell 1986), pine savanna (Gaddy 1982), wet savanna (Kindell 1997), pitcher plant bog (Folkerts 1982)

Table 1. Rare species in wet prairie community.

Panhandle Endemic	**Panhandle and northern peninsula**
Arnoglossum album	*Asclepias viridula*
Cuphea aspera	*Linum westii*
Eriocaulon nigrobracteatum	*Parnassia grandifolia*
Gentiana pennelliana	*Platanthera integra*
*Harperocallis flava **	*Ruellia noctiflora*
Justicia crassifolia	
Nyssa ursina	**Northeast Florida**
Oxypolis filifolia ssp. greenmanii	*Balduina atropurpurea*
Physostegia godfreyi	*Cleistes divaricata*
*Pinguicula ionantha**	
*Scutellaria floridana**	**Peninsular Florida Endemic**
Verbesina chapmanii	*Hartwrightia floridana*
	Helianthus carnosus
Panhandle	*Panicum abscissum*
Dichanthelium nudicaule	
Lachnocaulon digynum	
Lilium iridollae	
Macranthera flammea	
Parnassia caroliniana	
Sarracenia rubra	
Sarracenia leucophylla	
Xyris scabrifolia	

***** Federally listed species

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Apalachicola National Forest (Liberty County) - Pitcherplant Prairie variant Photo by Ann F. Johnson