



Blackwater River State Forest (Santa Rosa and Okaloosa counties)

Photo by Gary Knight

Seepage Slope

Description: Seepage slope is an open, grass-sedge dominated community kept continuously moist by groundwater seepage. It occurs in dissected topography, with 30 to 50-foot elevation differences, and is usually bordered by well-drained sandhill or upland pine communities. Such areas include inland portions of the Panhandle, plus a small area along the St Mary's River in northeast Florida (FNAI 2007). Drier portions of seepage slope are dominated by wiregrass (*Aristida stricta*). Other characteristic species include toothache grass (*Ctenium aromaticum*), cutover muhly (*Muhlenbergia expansa*), savannah meadowbeauty (*Rhexia alifanus*), flattened pipewort (*Eriocaulon compressum*), variableleaf sunflower (*Helianthus heterophyllus*), and clubmoss (*Lycopodiella* sp). Wetter portions of seepage slope are dominated by several species of beaksedge, including plumed beaksedge (*Rhynchospora plumosa*), featherbristle beaksedge (*R. oligantha*), and large beaksedge (*Rhynchospora macra*) and are characterized by carnivorous plants such as pitcherplants, sundews and butterworts. Pitcherplants in the Panhandle include yellow trumpets (*Sarracenia flava*), white-top pitcherplant (*S. leucophylla*), sweet pitcherplant (*S. rubra*), and parrot pitcherplant (*S. psittacina*). In northeast Florida, the parrot pitcherplant and hooded pitcherplant (*S. minor*) are found. Sundews include dewthreads (*Drosera tracyi*) in the Panhandle, and pink sundew (*D. capillaris*) and dwarf sundew (*D. brevifolia*) in both the Panhandle and the northeast. Butterworts include Chapman's butterwort (*Pinguicula planifolia*) and primrose-flowered butterwort (*P. primuliflora*) in the Panhandle. Other species found in wetter portions include longleaf threeawn (*Aristida palustris*), Texas pipewort (*Eriocaulon texense*), shortleaf sneezeweed (*Helenium brevifolium*), sandbog deathcamas (*Zigadenus*

glaberrimus), golden crest (*Lophiola aurea*), and rush featherling (*Pleea tenuifolia*). Georgia Indian plantain (*Arnoglossum sulcatum*), and switchcane (*Arundinaria gigantea*) are found on edges of seepage slopes where they border shrub bogs. Scattered low shrubs are often present in seepage slopes, including woolly huckleberry (*Gaylussacia mosieri*), gallberry (*Ilex glabra*), evergreen bayberry (*Myrica caroliniensis*), coastal plain St. John's Wort (*Hypericum brachyphyllum*), and poison sumac (*Toxicodendron vernix*) (Johnson and Hipes 1997; FNAI 2006).

A common soil type is Albany loamy sand. The soil is often soft and mucky underfoot, in contrast to the firm texture of the bordering sandhill and upland pine soils. Crayfish chimneys are commonly present.

Characteristic Set of Species: wiregrass, toothache grass, pitcherplants, plumed beaksedge, flattened pipewort, woolly huckleberry

Rare Species: Rare plant species found in Panhandle seepage slopes include naked-stemmed panic-grass (*Dichanthelium nudicaule*), dark-headed hatpins (*Eriocaulon nigrobacteatum*) bog button (*Lachnocaulon digynum*), panhandle lily (*Lilium iridollae*), hummingbird flower (*Macranthera flammea*), primrose-flowered butterwort (*Pinguicula primuliflora*), giant water-dropwort (*Oxypolis greenmanii*), yellow fringeless orchid (*Platanthera integra*), white-top pitcherplant (*Sarracenia leucophylla*), sweet pitcherplant (*Sarracenia rubra*), and Harper's yellow-eyed grass (*Xyris scabrifolia*). Purple honeycomb-head (*Balduina atropurpurea*) is a rare plant in northeast Florida seepage slopes.

Range: In Florida seepage slope ranges from the Alabama border eastward to Calhoun County in the Florida Panhandle, plus small areas in the northern peninsula. Outside Florida it is found in Conecuh National Forest in Alabama.

In the western Panhandle (e.g. Blackwater River State Forest and Eglin Air Force Base) seepage slope occurs in rolling hilly topography in slumps or concavities in the hillsides where clay lenses in the otherwise sandy substrate (Pliocene Citronelle Formation) intersect the slope, impeding drainage and causing the soil to be saturated most of the year. In Bay and Calhoun counties in the central Panhandle seepage slopes occur on steep slopes above Juniper and Fourmile Creeks where there is an abrupt transition from sandhill to shrub bog (titi) vegetation along the creek slope. In the northern peninsula they occur as steep narrow ecotones along creeks between shrub bog and flatwoods (Johnson 2001).

Natural Processes: Natural fires enter seepage slopes from surrounding pinelands and burn through when they are dry enough to carry fire. The historic fire interval in the surrounding sandhill or upland pine communities is thought to be 1-3 years (Frost 1998). It may have been slightly longer in seepage slopes which would not always be dry enough to burn completely when the surrounding community burned. In the absence of fire, shrubs and trees begin to invade seepage slopes and shade out the light-loving herbaceous species. A further indication of their dependence on fire is the requirement for fire to stimulate flowering of many herbs characteristic of seepage slopes, including the dominant wiregrass.

Community Variations: In inland portions of Santa Rosa and Okaloosa counties seepage slopes occur on slopes with several species that aren't found in seepage slopes of the eastern Panhandle or northeast Florida, including sweet pitcherplant, shortleaf sneezeweed, and Texas pipewort.

Associated Communities: Seepage slope differs from wet prairie in being situated on slopes in dissected landscapes surrounded by sandhill or upland pine, rather than on level or very gently sloping terraces surrounded by mesic flatwoods. It differs from depression and basin marshes in having a relatively complete cover of wiregrass or wiry beaksedges and in being saturated (at least in the wetter portions) but not inundated. It differs from the grassy form of wet flatwoods in the absence of upland shrubs such as saw palmetto (*Serenoa repens*), dwarf live oak (*Quercus minima*), or gallberry (*Ilex glabra*) and in having no, or only a very sparse, cover of pines.

Management Considerations: In the absence of fire, woody shrubs may encroach on open seepage slopes from both the bordering uplands (e.g. gallberry, wax myrtle [*Myrica cerifera*]) and lowlands (e.g. peelbark St. John's wort [*Hypericum fasciculatum*], titi [*Cyrilla racemiflora*], and black titi [*Cliftonia monophylla*]) and eventually shade out the sun-loving herbaceous species (Johnson 2001; FNAI 2006). Seepage slopes are also sensitive to physical alterations to the soil surface which can permanently alter the hydrology (Hermann 1995). Such disturbances include trampling, driving through them, plowing fire lanes around them, or placing roads and ditches near them. Hog rooting can be a major problem leading to lower plant diversity and the dominance of a few species of fast-growing colonizers, such as Carolina redroot (*Lachnanthes caroliana*; Johnson and Hipes 1997).

Exemplary Sites: Blackwater River State Forest (Santa Rosa and Okaloosa counties), Eglin Air Force Base (Brier Creek; Okaloosa County), Chipola Experimental Forest (USFS; Calhoun County), Ralph E. Simmons State Forest (Duval County)

Global and State Ranks: G2/S2

Crosswalk and Synonyms:

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

Other synonyms: hanging bog, pitcher plant bog (Folkerts 1982), seepage bog (Clewell 1986)

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