
The Palmetto

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Natural Communities of Florida's Floodplains

by Linda Conway Duever

Floodplains are intricate environments created by ongoing interactions of geological and hydrological processes. They form where a river crosses gently sloping terrain, flowing so slowly that it meanders from side to side across the valley bottom. During floods, the river overflows the channel banks and forces its most powerful flows through the straightest routes, scouring channels where the velocity is most intense and leaving alluvial de-

posits of mud and debris on the valley floor where the water slows enough for particles to settle out. Thus, the seemingly flat valley floor actually has a varied microtopography with sloughs where there were formerly channels and rises on old levees. And this floodplain may have complex soil patterns, since sediment deposition patterns are influenced by topographic features.

Floodplain characteristics vary with river type. Sandy regions

generally have clear black water streams bordered by acid swamps with highly organic soils. The swamps along alluvial streams have clayey soils deposited by the muddy rivers.

Floodplains are extremely useful ecosystems. They filter river waters, allowing trees to effectively convert the nutrients into valuable timber. They moderate high water flow rates and thus limit the magnitude of downstream flooding. And they retain water well into drought periods, preserving water supplies and providing vital habitat for fish and other wild life.

All these benefits can easily be lost if the floodplain is mismanaged. The channelization of the Kissimmee River is a classic example. A giant straight ditch was gouged down the center of the meandering river's floodplain, draining productive marshes and dumping massive floodwaters and excess nutrients into Lake Okeechobee. An expensive restoration program is now being planned to put the river back as it was and limit continuing impacts. Many floodplains have been des-



troyed by dams, which both flood upstream areas and upset flow patterns and biological cycles downstream. Some floodplains have been destroyed by clearing for agriculture, and others by logging.

FLOODPLAIN SWAMP

Floodplain Swamps and Floodplain Forests are found along rivers throughout northern and central Florida, but are most abundant in the Panhandle. Swamps border the sloughs and backwaters. These sites are generally inundated at least half of the year, and some sites are under water almost constantly. Since anaerobic conditions prevail much of the time, peat accumulates wherever strong flows do not wash it away, and the soils usually have a substantial organic component.

Cypress, *Taxodium distichum*, is the classic dominant in this habitat, but tupelo, *Nyssa aquatica*, is perhaps even more characteristic of the community. It is especially prominent on alluvial rivers. Other typical trees include Ogeechee gum, *Nyssa ogeche*; blackgum, *N. biflora*; water elm, *Planera aquatica*; pop ash, *Fraxinus caroliniana*; pumpkin ash, *Fraxinus profunda*; slash pine, *Pinus elliotii*; and water locust, *Gleditsia aquatica*. Shrubs such as wax myrtle, *Myrica cerifera*; cocoplum, *Chrysobalanus icaco*; dahoon holly, *Ilex cassine*; myrtle-leaf holly, *I. myrtifolia*; large gallberry, *I. coriacea*; swamp haw, *Viburnum nudum*; leucothoe, *Leucothoe racemosa*; latherbush, *Clethra alnifolia*; Virginia willow, *Itea virginica*; buttonbush, *Cephalanthus occidentalis*; willow, *Salix caroliniana*; and male-

berry, *Lyonia ligustrina*, occur on the other wetlands as commonly as on floodplains, but hazel alder, *Alnus serrulata*; may haw, *Crataegus aestivalis*; and swamp privet, *Forestiera acuminata*, seem to prefer this habitat. Prominent herbaceous species include swamp lily, *Crinum americanum*; neverwet, *Orontium aquaticum*; blue flag, *Iris virginica*; lizard tail, *Saururus cernuus*; giant cutgrass, *Zizaniopsis milacea*; beakrush, *Rhynchospora* spp.; leather fern, *Acrostichum* spp.; royal fern, *Osmunda regalis*; and marsh fern, *Thelypteris palustris*. Laurelleaf green brier, *Smilax laurifolia*, and muscadine, *Vitis rotundifolia*, are the most common vines.

These species occur in a wide variety of intergrading floodplain associations. FNAI has defined the following Plant Community types as preliminary categories for sorting information: Cypress Swamp, Cypress/Cabbage Palm Swamp, Cypress/Blackgum Swamp, Cypress/Tupelo Swamp, Blackgum Swamp, Water Elm Slough, Pop Ash Slough, Ogeechee Gum Slough, Slash Pine Swamp, Willow Bar, and Sweet bay Swamp.

FLOODPLAIN FOREST

Floodplain Forest occurs on riverbank levees and floodplain terraces which flood practically every year, but rarely for more than a month or two of the growing season. The soils are highly variable. Terraces generally have a surface layer of fine clay settled out from standing water following flood periods. Since water flows more rapidly over levees, fine materials are not

deposited there and the soils are coarser and sandier.

A great variety of species assemblages are mixed within this community. FNAI has distinguished the following Plant Communities: Overcup Oak/Water Hickory Flat, Diamond leaf Oak Flat, Water Oak Flat, Pioneer Levee, Live Oak Levee, and Oak/Magnolia Terrace.

Overcup oak, *Quercus lyrata*; water hickory, *Carya aquatica*; and cabbage palm, *Sabal palmetto*, are the typical trees in low spots and zones where Floodplain Forest grades into Floodplain Swamp.

Along a transect moving onto higher sites, red maple, *Acer rubrum*; diamond leaf oak, *Quercus laurifolia*; willow oak, *Q. phellos*; green ash, *Fraxinus pennsylvanica*; American elm, *Ulmus americana*; winged elm, *Ulmus alata*; sweetgum, *Liquidambar styraciflua*; sugarberry, *Celtis laevigata*; water oak, *Quercus nigra*; white cedar, *Chamaecyparis thyoides*, and ironwood, *Carpinus caroliniana*, might be encountered. Black walnut, *Juglans nigra*, and bitternut hickory, *Carya cordiformis*, are occasionally encountered. Likely understory species in this zone are blue palmetto, *Sabal minor*; possum haw, *Ilex decidua*; parsley haw, *Crataegus marshalli*; shiny lyonia, *Lyonia lucida*; yaupon, *Ilex vomitoria*; floodplain blueberry, *Vaccinium fuscatum*; swamp azalea, *Rhododendron viscosum*; hoary azalea, *Rhododendron canescens*; sebastian bush, *Sebastiania ligustrina*; silverbell, *Halesia* spp.; Virginia chain fern, *Woodwardia virginica*; netted chain fern, *W. areolata*; cinnamon fern, *Osmunda cinnamomea*; Jackson vine,

Smilax smallii; coral green brier, *Smilax walteri*; poison ivy, *Toxicodendron radicans*; cross vine, *Bignonia capreolata*; supplejack, *Berchemia scandens*; peppervine, *Ampelopsis arborea*; and wild wisteria, *Wisteria frutescens*.

Fairly recent levees are the preferred habitat for early successional species like willows, *Salix caroliniana* and *S. nigra*; cottonwoods, *Populus deltoides* and *P. heterophylla*, elderberry, *Sambucus canadensis*; river birch, *Betula nigra*; silver maple, *Acer saccharinum*; boxelder, *A. negundo*; sycamore, *Platanus occidentalis*; catalpa, *Catalpa bignonioides*; and indigo bush, *Amorpha fruticosa*.

Grasses and sedges are most abundant in the intermediate zones of the floodplain. Typical species include *Leersia lenticularis*, *L. virginica*, *Oplismenus setarius*, *Erianthus strictus*, *Panicum agristoides*, *P. rigidulum*, *Chasmanthium laxa*, *Carex intumescens*, *C. typhina*, *C. lurida*, *C. louisinica*, and *C. greyii*. Dense stands of rivercane, *Arundinaria gigantea*, sometimes form extensive "canebrakes."

Swamp chestnut oak, *Quercus prinus*; live oak, *Q. virginiana* loblolly pine, *Pinus taeda*; spruce pine, *P. glabra*; beech, *Fagus grandiflora*; American holly, *Ilex opaca*; and magnolia, *Magnolia grandiflora*, may occur on the highest terraces at the outer edge of the floodplain. Cherrybark oak, *Quercus pagoda*, which is characteristic of this zone farther north, in Florida grows only along the Apalachicola River. Tuliptree, *Liriodendron tulipifera*, invades northern floodplains from the adjacent uplands, but seems restricted to wetter sites

in Florida. It is typically found on narrow floodplains alongside small streams.

The following are rare species found on Florida floodplains:

*Panhandle buckthorn, *Bumelia lycioides*; Apalachicola wild indigo, *Baptisia megacarpa*; Panhandle lily, *Lilium iridollae*; honewort, *Cryptotaenia canadensis*; bladdernut, *Staphylea trifolia*; wild comfrey, *Cynoglossum virginianum*; corkwood, *Leitneria floridana*; pink root, *Spigelia loganioides*; cedar elm, *Ulmus crassifolia*; Florida merrybells, *Uvularia floridana*; Apalachicola river aster, *Aster vimineus* var. *vimineus*; variable-leaved Indian plantain, *Cacalia diversifolia*; virgin's bower, *Clematis Catesbyana*; naked-stemmed panic grass, *Panicum nudicaule*; spoon flower, *Peltandra sagittifolia*; slender-leaved dragonhead, *Physostegia leptophylla*; Florida willow, *Salix floridana*; Florida water parsnip, *Sium floridanum*; dimpled dog-

tooth violet, *Erythronium umbellicatum*; streambank spiderlily, *Hymenocallis coronaria*; serviceberry holly, *Ilex amelanchier*; and Curtiss' lythrum, *Lythrum curtissii*. Most of these prefer Floodplain Forest habitats, but some may also occur in marshes and swamps. All of them are on the Florida Natural Areas Inventory Special Plant List.

FLOODPLAIN MARSH

Marshes of herbaceous vegetation and low shrubs replace forests on floodplains in open flat country where fires frequently sweep across the prairies and into the river marshes. The vast bulk of these sites are along the Kissimmee, Myakka, and Upper St. Johns rivers. Ecologists speculate that a simple increase in fire frequency is not the only reason these floodplains are not forested. Due to severe seasonal drought, fires in this region are also liable to be more intense, and hence to



kill trees rather than merely damage them. And the sandier river deposits are less stable than the finer alluvial materials carried by north Florida rivers.

Since the herbaceous vegetation supplies organic debris and the dense stems trap it and prevent it from being washed away during high water, Floodplain Marshes generally have considerable peat in the soil. Parts of the St. Johns floodplain are influenced by seepage from ancient saltwater deposits, so some of the plants there are species adapted to brackish conditions.

Though the species associations are often difficult to define, FNAI has thus far recognized several Floodplain Marsh Plant Communities: Maidencane/Sagittaria Marsh, Sawgrass Marsh, Buttonbush Marsh, and Pickerel Weed Marsh.

Maidencane, *Panicum hemitomon*; button bush, *Cephalanthus occidentalis*; and sawgrass, *Cladium jamaicense*, are probably the normal dominant species in undisturbed Floodplain Marsh. Other typical species include sand cord grass, *Spartina bakeri*; water smartweed, *Polygonum punctatum*; sagittaria, *Sagittaria lancifolia*; pickerel weed, *Pontederia cordata*; Cuban river grass, *Reimarochloa oligostachya*; spikerush, *Eleocharis cellulosa* and *E. parvula*; soft rush, *Juncus effusus*; bulrush, *Scirpus* spp.; giant cutgrass, *Zizaniopsis miliacea*; bladder pod, *Sesbania vesicaria*; giant reed, *Phragmites australis*; salt jointgrass, *Paspalum vaginatum*; wild millet, *Echinochloa walteri*; Florida tickseed, *Coreopsis leavenworthii*; agalinis, *Agalinis maritima*; salt-

marsh fimbristylis, *Fimbristylis castanea*; Carolina fimbristylis, *Fimbristylis caroliniana*; dropseed, *Sporobolus virginicus*; St. Augustine grass, *Stenotaphrum secundatum*; glass-worts, *Salicornia* spp.; sea purslane, *Sesuvium portulacastrum*; purple ludwigia, *Ludwigia repens*; and water pennywort, *Hydrocotyle umbellata*.

This is the fifth in a series of articles describing the Natural Communities defined by the Florida. Natural Areas Inventory (FNAI). This classification system must be viewed as a system of mental constructs imposed upon an infinite variety of growing, changing, intergrading, natural environments. Hence, more often than not, a given site will not precisely fit the classic description of the appropriate natural community.

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