

19. Hardwood Flatwoods

Rarity Rank: S2S3/G2G3

Synonyms: Willow Oak Flats, Pin Oak Flats

Ecological Systems:

CES203.548 West Gulf Coastal Plain Nonriverine Wet Hardwood Flatwoods

CES203.193 Lower Mississippi River Flatwoods

CES203.557 East Gulf Coastal Plain Southern Loblolly-Hardwood Flatwood

CES203.278 West Gulf Coastal Plain Pine-Hardwood Flatwoods

General Description:

(Note: Wet hardwood flatwoods and mesic hardwood flatwoods are described as two distinct communities in the LNHP community classification system but are being treated together here due to similarities in the two habitat types.)

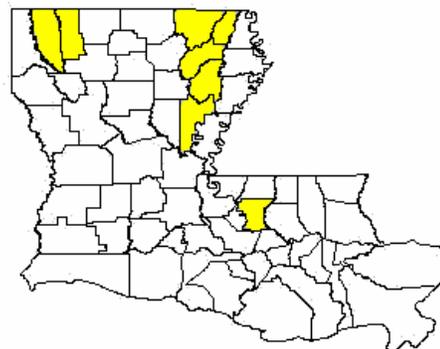
Wet hardwood flatwoods occur on hydric soils and are isolated and not usually affected by overbank flooding of a drainage. They occur on poorly drained flats and depressions. Mesic hardwood flatwoods occur on non-hydric, better drained soils on higher topographic positions than wet hardwood flatwoods, such as on low ridges and knolls. Wet hardwood flatwoods occur on Pleistocene Red River Channels in northwest Louisiana and on Pleistocene Valley Train Sediments on Macon Ridge in the northeast part of the state. Wet hardwood flatwoods historically occurred as primary habitat in East Baton Rouge Parish (Smith 1999). Soils are poorly drained silt loams to clays. On Macon Ridge the principal soil series that support this community are Calhoun and Gilbert silt loams. Occurrences in the Red River Valley are found on the Acadia series. Currently all known occurrences of mesic hardwood flatwoods are on Macon Ridge in West Carroll, Richland, Franklin and Morehouse Parishes in northeast Louisiana.

Dominant overstory trees of wet hardwood flatwoods include *Quercus phellos* (willow oak), *Fraxinus pennsylvanica* (green ash), *Carya ovata* (shagbark hickory), *Ulmus americana* (American elm), *Ulmus crassifolia* (cedar elm) and *Celtis laevigata* (hackberry). Other trees that are fairly frequent but not as common locally include *Quercus stellata* (post oak), *Q. pagoda* (cherrybark oak), *Liquidambar styraciflua* (sweetgum), *Carya myristiciformis* (nutmeg hickory) and *Gleditsia aquatica* (honeylocust). *Quercus lyrata* (overcup oak), *Quercus texana* (Nuttall oak), *Planera aquatica* (planertree), and *Forestiera acuminata* (swamp privet) dominate in wetter examples of this habitat. *Ulmus alata* (winged elm) and *U. crassifolia* are often abundant in the midstory. *Sabal minor* (palmetto) can be thick in the understory. Other important shrubs are *Ilex decidua* (deciduous holly) and *Styrax americana* (snowbell). Important herbaceous plants include *Cardamine bulbosa* (bulbous bitter cress), *Cynoscadium digitatum* (finger dog shade), *Tradescantia occidentalis* (small-flowered spiderwort), *Amsonia tabernaemontana* (bluestar), *Clematis crispa* (curl-flower), *Hymenocallis liriosome* (spider lily), *Carex intumescens* (common bladder caric sedge), *Trepocarpus aethusae* (muskweed), *Ranunculus pusillus* (low spearwort), and *Galium tinctorium* (dye bedstraw). *Climacium* sp. (tree moss) is usually abundant on the forest floor.

Mesic hardwood flatwoods support greater floristic diversity than wet hardwood flatwoods. Overstory dominants include *Carya alba* (mockernut hickory), *Nyssa sylvatica* (blackgum), *Quercus alba* (white oak), *Q. pagoda* (cherrybark oak), *Q. nigra* (water oak), *Q. michauxii* (cow oak), and *Liquidambar styraciflua* (sweetgum). *Quercus shumardii* (Shumard oak) and *Q. falcata* (southern red oak) are fairly frequent but not usually abundant. Common midstory trees include *Cornus florida* (flowering dogwood), *Ostrya virginiana* (eastern hophornbeam), *Aralia spinosa* (Devil's walking stick), *Ulmus alata* (winged elm), *Sassafras albidum* (sassafras), and *Acer rubrum* (red maple). Important shrubs/small trees are *Vaccinium arboreum* (tree huckleberry), *V. virgatum* (large cluster blueberry), *Viburnum rufidulum* (rusty blackhaw), *Crataegus marshallii* (parsley hawthorn), *Aesculus pavia* (red buckeye), *Frangula caroliniana* (Carolina buckthorn), *Asimina triloba* (pawpaw), *Hypericum hypericoides* (St. Andrew's Cross), and *Euonymus americana* (strawberry bush). Although infrequent, *Hamamelis virginiana* (witch hazel) can be locally abundant. Important woody vines include *Toxicodendron radicans* (poison ivy), *Parthenocissus quinquefolia* (Virginia creeper), *Vitis rotundifolia* (muscadine), *V. aestivalis* (summer grape), and *Smilax smallii* (lance-leaf greenbrier). Poison ivy and Virginia creeper are usually thick on the ground and are well-represented by high climbing individuals. Common and characteristic herbaceous plants include *Chasmanthium laxum* var. *sessiliflorum* (woods oats), *Dichantherium boscii* (panic grass), *Podophyllum peltatum* (mayapple), *Carex cherokeensis* (Cherokee caric sedge), *Elephantopus carolinianus* and *E. tomentosus* (elephant's foot), *Scleria oligantha* (littlehead nutsedge), *Aristolochia serpentaria* (Virginia Dutchman's pipe), *Botrychium virginianum* (rattlesnake fern), *Passiflora lutea* (yellow passionflower), *Dioscorea villosa* (wild yam), *Clitoria mariana* (Atlantic pigeonwings), *Sanicula canadensis* (sanicle), *Geum canadense* (white avens), *Galium circaezans* (wild licorice), *Agrimonia rostellata* (woodland agrimony), *Spigelia marilandica* (Indian pink), *Clematis virginiana* (virgin's bower), *Phryma leptostachya* (lopseed), *Ruellia caroliniensis* (wild petunia), and *Smallanthus uvedalia* (bear's foot).

Current Extent and Status:

Most known occurrences of hardwood flatwoods are on the Macon Ridge in northeast Louisiana. The habitat is rare and threatened where it occurs in Bossier and Webster Parishes. A small amount of acreage of this habitat is captured by Bodcau WMA in Bossier Parish. The Louisiana Army Ammunition Plant in southern Bossier and Webster Parishes supports a high quality 69 acre hardwood flatwoods (McInnis and Martin 1995). In addition to East Baton Rouge, hardwood flatwoods may have been present in adjacent parishes of East Feliciana and Livingston.



Hardwood flatwoods represent a gap in our knowledge. Research is needed to determine more accurately its former extent in Louisiana and to identify and characterize remnants of this habitat type.

HARDWOOD FLATWOODS SPECIES OF CONSERVATION CONCERN (17)		
AMPHIBIANS Southern Dusky Salamander	Yellow-throated Vireo Northern Parula Swainson's Warbler Kentucky Warbler	Southeastern Myotis Louisiana Black Bear Long-tailed Weasel Eastern Spotted Skunk
BIRDS American Woodcock Yellow-billed Cuckoo Chuck-Will's-Widow Wood Thrush	Painted Bunting Orchard Oriole MAMMALS Southeastern Shrew	REPTILES Timber Rattlesnake

Priority Species Research and Survey Needs:

Songbirds:

- Continue to support research on silviculture/land management practices and their effects on all songbird species.
- Develop long-term monitoring projects that focus on abundances and reproductive success (with emphasis on species of conservation concern) in this habitat type through the establishment of MAPS stations and BBS routes.

Chuck-Will's-Widow: Research is needed to better understand the population dynamics of this species. Studies should focus on distribution patterns, habitat availability and use, nesting success, and territory size requirements. Implementation of night-time surveys along with sighting reports by foresters, birders, etc. are needed to augment sparse BBS records.

Louisiana Black Bear: Continue research on its ecology and support repatriation efforts.

Eastern Spotted Skunk: Considered critically imperiled in Louisiana, intensive surveys needed to update occurrence records and abundance for inclusion in the LNHP database.

Southeastern Shrew: Considered imperiled in Louisiana. Together with Arkansas and Missouri, Louisiana represents the western edge of its range. Intensive surveys needed to update occurrence records and abundance for inclusion in LNHP database.

Document the habitat relationships of species of conservation concern and how dependent they are upon hardwood flatwoods, relative to other habitat types.

Determine the microhabitat preferences and requirements of species occupying hardwood flatwoods to understand how these species are utilizing the habitat and to determine management needs.

Species Conservation Strategies:

1. Identify IBA's or potential IBA's and partner with BRAS, OAS, and the NAS to implement conservation recommendations from SWG project T27 upon completion.

2. Chuck-Will's-Widow: Work with federal agencies and bird conservation organizations to produce technical pamphlets highlighting the habitat and management requirements of this species and make them available to landowners.
3. Louisiana Black Bear: Partner with the BBCC, USFWS and continue to support the implementation of recovery efforts for this species.
4. Timber Rattlesnake: Naturally low-occurring population levels and persecution make persistence in isolated forest blocks untenable. Prohibit killing of timber rattlesnakes and retain connectivity of flatwoods.
5. Promote use of appropriate silvicultural techniques to restore/manage hardwoods flatwoods for wildlife (include importance of tree species diversity, den trees for birds and mammals, leaf litter, etc).
6. Promote snag retention during logging operations to increase the numbers available for cavity-nesting wildlife species. Efforts need to be made to maintain sufficient levels of woody debris in stands for reptiles, amphibians and small mammals.

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 Destruction or Conversion	Habitat Disturbance	Habitat Fragmentation
Conversion to agriculture or other forest types		XXX		XXX
Incompatible forestry practices	XXX		XXX	
Invasive/alien species	XXX			
Residential development		XXX	XXX	XXX

Habitat Conservation Strategies:

1. Support additional research on the extent of this habitat type, its ecological characteristics, and its classification.
2. Map remnants of this habitat type to aid in establishing priority sites for acquisition and conservation.
3. Work with appropriate planning commissions to provide LNHP data that illustrates locations of this habitat type.
4. Provide educational information on this habitat type and its importance to species of conservation concern to landowners/land managers through technical pamphlets and the LDWF website.

5. Work with the legislature to provide incentives (tax breaks, etc.) to landowners to retain the natural state of areas where this habitat occurs.

References:

LNHP. 1986-2004. The natural communities of Louisiana. Louisiana Natural Heritage Program, Louisiana Department of Wildlife and Fisheries, Baton Rouge, LA.

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McInnis, N.C. and R.P. Martin. 1995. Louisiana army ammunition plant - threatened and endangered species-natural areas survey. The Nature Conservancy, Louisiana Field Office, Baton Rouge, LA.

SMITH, L. M. 1999. Historic vegetation of the Florida Parishes. Louisiana Natural Heritage Program, Louisiana Department of Wildlife and Fisheries, Baton Rouge, LA.