

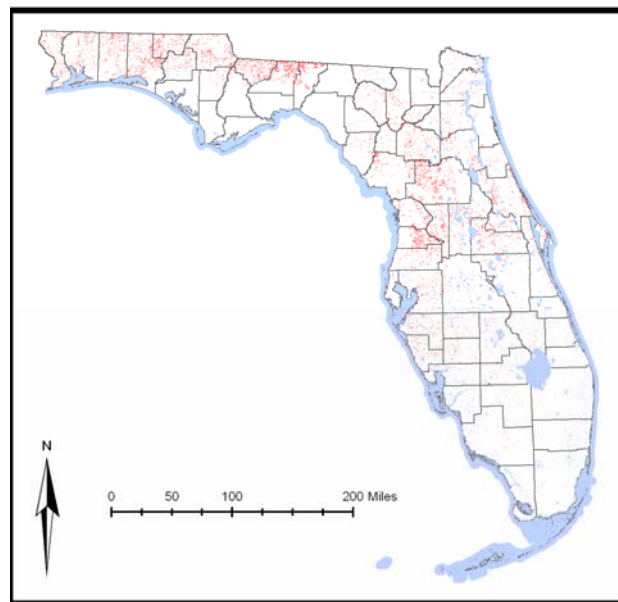
Mixed Hardwood-Pine Forest



Status

Current condition: Good and declining.

According to the best available GIS information at this time (see Appendix D. GIS Data Tables), 879,766 acres (356,029 ha) of Mixed Hardwood-Pine Forest habitat exist, of which 16% (141,495 ac; 57,261 ha) are in conservation or managed areas. Another 3% (30,783 ac; 12,457 ha) are in Florida Forever projects and 6% (49,009 ac; 19,833 ha) are in SHCA-designated lands. The remaining 75% (658,479 ac; 266,477 ha) are other private lands.



Some habitat distributions or locations may be misrepresented on this map due to size, resolution and insufficient data sources.

Habitat Description

FNAI type: Upland Mixed Forest

This community is the southern extension of the Piedmont southern mixed hardwoods, and occurs mainly on the rolling hills of sandy clay soils of the northern Panhandle. Younger stands may be predominantly pines, whereas a complex of various hardwoods become co-dominants as the system matures over time through plant succession. The overstory consists of shortleaf and loblolly pine, American beech, mockernut hickory, southern red oak, water oak, American holly, and dogwood.

Also included in this category are other upland forests that occur statewide and contain a mixture of conifers and hardwoods as the co-dominant overstory component. These communities contain well developed associations of longleaf pine, slash pine, and loblolly pine in mixed company with live oak, laurel oak, and water oak, together with other hardwood species

characteristic of the Hardwood Hammock Forest community type. In this habitat, the ground is usually covered with a thick layer of leaf mulch which helps in the retention of moisture. Adding to the mesic condition is a thick canopy with low air flow and light penetration. Due to this damp environment, Mixed Hardwood-Pine Forests seldom burn.

Associated Species of Greatest Conservation Need

Mammals

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|--|------------------------------|
| • <i>Blarina carolinensis shermani</i> | Sherman's Short-tailed Shrew |
| • <i>Sorex longirostris</i> | Southeastern Shrew |
| • <i>Myotis austroriparius</i> | Southeastern Bat |
| • <i>Myotis grisescens</i> | Gray Bat |
| • <i>Lasiurus borealis</i> | Eastern Red Bat |
| • <i>Lasiurus seminolus</i> | Seminole Bat |
| • <i>Lasiurus intermedius</i> | Northern Yellow Bat |
| • <i>Lasiurus cinereus</i> | Hoary Bat |
| • <i>Corynorhinus rafinesquii</i> | Rafinesque's Big-eared Bat |
| • <i>Eptesicus fuscus</i> | Big Brown Bat |
| • <i>Pipistrellus subflavus</i> | Eastern Pipistrelle |
| • <i>Sciurus niger niger</i> | Southeastern Fox Squirrel |
| • <i>Sciurus niger shermani</i> | Sherman's Fox Squirrel |
| • <i>Tamias striatus</i> | Eastern Chipmunk |
| • <i>Ursus americanus floridanus</i> | Florida Black Bear |
| • <i>Mustela frenata olivacea</i> | Southeastern Weasel |
| • <i>Mustela frenata peninsulæ</i> | Florida Long-tailed Weasel |
| • <i>Puma concolor coryi</i> | Florida Panther |

Birds

- | | |
|--|------------------------------------|
| • <i>Colinus virginianus</i> | Northern Bobwhite |
| • <i>Ictinia mississippiensis</i> | Mississippi Kite |
| • <i>Haliaeetus leucocephalus</i> | Bald Eagle |
| • <i>Buteo platypterus platypterus</i> | Broad-winged Hawk |
| • <i>Melanerpes erythrocephalus</i> | Red-headed Woodpecker |
| • <i>Picoides villosus</i> | Hairy Woodpecker |
| • <i>Colaptes auratus auratus</i> | Northern Flicker |
| • <i>Hylocichla mustelina</i> | Wood Thrush |
| • <i>Dendroica dominica stoddardi</i> | Stoddard's Yellow-throated Warbler |
| • <i>Dendroica cerulea</i> | Cerulean Warbler |
| • <i>Helmitheros vermivorum</i> | Worm-eating Warbler |
| • <i>Seiurus montacilla</i> | Louisiana Waterthrush |
| • <i>Oporornis formosus</i> | Kentucky Warbler |
| • <i>Wilsonia citrina</i> | Hooded Warbler |

Amphibians

- | | |
|------------------------------------|-------------------------------|
| • <i>Ambystoma cingulatum</i> | Flatwoods Salamander |
| • <i>Ambystoma tigrinum</i> | Tiger Salamander |
| • <i>Notophthalmus perstriatus</i> | Striped Newt |
| • <i>Desmognathus monticola</i> | Seal Salamander |
| • <i>Desmognathus apalachicola</i> | Apalachicola Dusky Salamander |
| • <i>Hemidactylium scutatum</i> | Four-toed Salamander |

- *Eurycea chamberlaini* Chamberlain's Dwarf Salamander
- *Eurycea cf. quadridigitata* Bog Dwarf Salamander
- *Pseudacris ornata* Ornate Chorus Frog
- *Rana okaloosae* Florida Bog Frog
- *Rana capito* Gopher Frog

Reptiles

- *Terrapene carolina bauri* Florida Box Turtle
- *Gopherus polyphemus* Gopher Tortoise
- *Eumeces anthracinus* Coal Skink
- *Storeria dekayi wrightorum* Midland Brown Snake
- *Heterodon platirhinos* Eastern Hognose Snake
- *Heterodon simus* Southern Hognose Snake
- *Drymarchon couperi* Eastern Indigo Snake
- *Pituophis melanoleucus mugitus* Florida Pine Snake
- *Lampropeltis getula* Common Kingsnake
- *Stilosoma extenuatum* Short-tailed Snake
- *Agkistrodon contortrix* Copperhead
- *Crotalus horridus* Timber Rattlesnake
- *Crotalus adamanteus* Eastern Diamondback Rattlesnake

Invertebrates

- *Callophrys gryneus swadneri* Swadner's Juniper Hairstreak

Conservation Threats

Because of serious problems interpreting this habitat in the workshops, no threats could be identified and hence no conservation actions were developed. As identified in TNC's Final Report (Gordon et al., 2005), it is recommended that the mapping for this habitat be revisited and/or the habitat itself re-classified. In all three of the regional threats workshops, experts concurred that Mixed Hardwood-Pine Forest is not a habitat unto itself. When experts examined the distribution of this cover type, they suggested that it represents either areas of degraded pinelands into which hardwoods have invaded and require fire or other restoration to reduce the hardwoods, or floodplain forest and other hardwood-dominated systems into which pines have invaded, perhaps because of altered hydrology. The experts suggested that each pixel of this habitat type be reclassified the same as the adjacent pixel of a hardwood or pineland site, and the assumption was made that they adequately covered the stresses and sources for these areas when they assessed the other cover types. It is recommended that the threats and conservation actions for the habitats identified as more accurately depicting this cover type should be extrapolated to this "habitat" or that this habitat be eliminated as a separate category and/or subsumed into other habitats.

While threats to its conservation as well as remedial actions were identified during earlier workshops, the Mixed Hardwood-Pine Forest habitat category was not addressed in TNC workshops that generated tables of ranked threats and actions, as seen in most other habitat categories. The decision to not rank threats and actions for this habitat was made (1) to maximize discussion time for higher-priority habitats and (2) because of some disagreement over recognition

of this habitat type as important to wildlife conservation. Therefore, threats and actions are presented as simple bulleted lists, arranged in alphabetical order, with no prioritization.

The following stresses threaten this habitat:

- Altered community structure
- Altered landscape mosaic or context
- Altered fire regime
- Altered species composition/dominance
- Fragmentation of habitats, communities, ecosystems
- Habitat degradation/disturbance
- Habitat destruction or conversion
- Insufficient size/extent of characteristic communities or ecosystems
- Missing key communities, functional guilds, or seral stages

The sources of stress, or threats, were used to generate conservation actions.

- Conversion to commercial and industrial development
- Conversion to housing and urban development
- Conversion to recreation areas
- Incompatible fire
- Incompatible forestry practices
- Incompatible recreational activities
- Incompatible wildlife and fisheries management
- Invasive animals
- Invasive plants
- Roads

Conservation Actions

Actions to abate threats to Hardwood-Pine Forest were designed to increase the awareness and appreciation of this habitat by professionals and the public. Many actions point to the need for more information and definition of this habitat. All threats were also identified as statewide (see sources of stress above) and are in the Chapter Multiple Habitat Threats and Conservation Actions.

Specific actions to abate threats that were identified for Mixed Hardwood-Pine Forest habitat are below, though none were prioritized for implementation.

Land/Water Protection

- Support and encourage land protection that utilize easements

Land/Water/Species Management

- Encourage use of the “master logger program” and expand to smaller timber companies
- Develop a plan to fund management programs long term after reclamation—include invasive flora and fauna

Law and Policy

- Minimize connectivity impacts to wildlife through supporting effective land-use planning

Research, Education and Awareness

- Better define and map the current condition, and develop management practices to achieve the future condition of this habitat
- Research plans for restoration of this habitat and its hydrology
- Research management practices for controlling invasive species
- Educate landowners about management practices for controlling invasive species
- Increase public/private training and awareness about value of these lands
- Continue to educate landowners about the proper use of BMPs

Economic and Other Incentives

- Provide landowner incentive (public and private) for protection and restoration of habitat

Capacity Building

- Form and facilitate partnerships, alliances, and networks of organizations willing to research, conserve and manage this habitat