

32. Southern Mesophytic Forest

Rarity Rank: S2S3/G1G2

Synonyms: Relict Northern Hardwood Forest, Bluffland Forest, Beech-Magnolia Forest, Upland Hardwood Forest, Mixed Mesophytic Forest

Ecological Systems:

CES203.556 East Gulf Coastal Plain Southern Loess Bluff Forest

CES203.476 East Gulf Coastal Plain Southern Mesic Slope Forest

General Description:

This community is currently recognized in Louisiana only in the northwestern Florida Parishes, primarily in the region known as the Tunica Hills. It develops on deep, fertile, circum-neutral to slightly alkaline loessial deposits that have eroded over thousands of years to form a characteristic highly-dissected landscape of high, narrow ridges, steep slopes, and deep ravines (usually with intermittent to permanent streams). These topographic characteristics create a relatively cool, moist micro-climate on the slopes and in the ravines. Thus, these dissected hills have sustained localized populations of some characteristic Appalachian species, principally herbaceous, thought to have originally migrated south ahead of advancing glaciers in the past ice-age.



Overstory species include *Fagus grandifolia* (beech), *Quercus shumardii* (shumard oak), *Q. alba* (white oak), *Q. muhlenbergii* (chinkapin oak), *Q. michauxii* (cow oak), *Q. nigra* (water oak), *Liriodendron tulipifera* (yellow poplar), *Magnolia grandiflora* (southern magnolia), *M. acuminata* (cucumber magnolia), *M. pyramidata* (pyramid magnolia), *Ulmus americana* (American elm), *U. rubra* (slippery elm), *Tillia caroliniana* (Carolina basswood), *Morus rubra* (red mulberry), *Acer floridanum* (Florida sugar maple), *Carya glabra* (pignut hickory), *C. cordiformis* (bitternut hickory), *Fraxinus americana* (white ash), *Celtis laevigata* (hackberry), and *Platanus occidentalis* (sycamore). *Ilex opaca* (American holly) is rarely encountered as a tree, almost always as a shrub. No pine species are thought to be native to this habitat. Shrub species include *Lindera benzoin* (spice bush), *Hydrangea quercifolia* (oak-leaf hydrangea), *H. arborescens* (mountain hydrangea), *Asimina triloba* (paw-paw), *Euonymus americanum* (stawberry bush), *Halesia diptera* (silverbell), *Cercis canadensis* (red bud), *Sambucus canadensis* (elderberry), and *Ostrya virginiana* (hop-hornbeam). Thick stands of *Arundinaria gigantea* (giant cane) may be present, especially in ravine bottoms. Vines may include *Schisandra glabra* (smooth woodbine), *Vitis* spp. (grapes), *Bignonia capreolata* (cross-vine), *Trachelospermum difforme* (climbing dogbane), *Parthenocissus*

quinquefolia (Virginia creeper), and rarely *Celastrus scandens* (climbing bittersweet). The exotic vine *Lonicera japonica* (Japanese honeysuckle) has become a serious pest in many places.

The herbaceous flora is particularly rich in ferns, including *Adiantum pedatum* (northern maidenhair-fern), *Thelypteris* spp. (marsh ferns), *Athyrium thelypteroides* (silver glade-fern), *A. pycnocarpon* (glade-fern), *A. felix-femina* (southern lady fern), *Cystopteris protrusa* (lowland brittle-fern), *Polystichum acrostichoides* (christmas fern), *Botrychium virginianum* (rattlesnake fern), *B. biternatum* (southern grape-fern), *Asplenium platyneuron* (ebony spleenwort), and *Phegopteris hexagonoptera* (broad beech-fern). A number of exotic ferns are apparently thriving in the Tunica Hills. Additional herbs of prominence include *Sanicula* spp. (snakeroots), *Actaea pachypoda* (bane-berry), *Laportea canadensis* (nettle), *Podophyllum peltatum* (may-apple), *Trillium foetidissimum* (foetid wake-robin), *Cynoglossum virginianum* (hound's-tounge), *Aristolochia serpentaria* (dutchman's-pipe), *Cryptotaenia canadensis* (hone-wort), *Lithospermum tuberosum* (tuberous puccoon), *Lobelia* spp. (lobelias), and *Pachysandra procumbens* (Allegheny-spurge). *Panax quinquefolius* (ginseng) and *Asarum canadensis* (Canadian ginger) rarely occur. Mosses and liverworts are common (Delcourt and Delcourt 1974,1975, LNHP 1986-2004, Martin 1992).

Current Extent and Status:

Currently only about 25 % (50,000 to 100,000 acres) of Louisiana's southern mesophytic forests remain intact (Smith 1993). Clearing for agriculture, timber harvesting and development in West Feliciana Parish brought about loss, degradation, and fragmentation of these forests. The southern mesophytic forest type is extremely susceptible to soil damage, particularly erosion stemming from any form of disturbance, such as logging or road building, that exposes bare soil.

In such cases, the very steep slopes and loess soil result in frequent landslides (Quigley and Platt 1996). The largest protected tract of this habitat in Louisiana is found on the Tunica Hills WMA with 5,231 acres. Nearby the OSP manages a site that will open in the near future as a state preservation area, and TNC manages 110 acres on the Mary Ann Brown Preserve southeast of St. Francisville. The Natural Areas Registry Program has several properties registered for a total of 618 acres with another 815 acres proposed for membership in the program.



| SOUTHERN MESOPHYTIC FOREST SPECIES OF CONSERVATION CONCERN (24) | | |
|---|--|--|
| <p>AMPHIBIANS Webster's Salamander Barking Treefrog Eastern Spadefoot</p> <p>BIRDS American Woodcock Yellow-billed Cuckoo Wood Thrush Yellow-throated Vireo Northern Parula</p> | <p>Worm-eating Warbler Swainson's Warbler Louisiana Waterthrush Kentucky Warbler Hooded Warbler Orchard Oriole</p> <p>BUTTERFLIES Falcate Orangetip Creole Pearly Eye</p> | <p>MAMMALS Southeastern Shrew Southeastern Myotis Big Brown Bat Louisiana Black Bear Long-tailed Weasel Eastern Spotted Skunk</p> <p>REPTILES Scarlet Kingsnake Timber Rattlesnake</p> |

Priority Species Research and Survey Needs:

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

Long-tailed Weasel: Considered vulnerable in Louisiana. Intensive surveys needed to update occurrence records and abundance for inclusion in the LNHP database.

Songbirds:

- Continue to support research on the effects of silviculture/land management practices on all songbird species.
- Develop longterm 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.

Butterflies: Conduct surveys to determine current distribution and abundance of all butterfly species, especially species of conservation concern, for inclusion in the LNHP database.

Conduct habitat use and life history studies for mammal species of conservation concern that may potentially use this habitat.

Document the habitat relationships of priority species to know how dependent they are upon Southern Mesophytic Forest habitats, relative to other habitat types.

Determine the microhabitat preferences and requirements of species occurring in southern mesophytic forests to understand how these species are utilizing the habitat to determine management needs.

Species Conservation Strategies:

1. Timber Rattlesnake: Naturally low-occurring population levels and persecution make persistence tenuous. Prohibit the killing and removal of timber rattlesnakes. Reduce vehicular traffic in sensitive areas.
2. Work with landowners to initiate or continue the implementation of PIF bird conservation plans, conservation plans developed for amphibians and reptiles, and USFWS threatened and endangered species recovery plans over the next 10 years.

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 | Soil Erosion |
| Conversion to agriculture or other forest types | | XXX | | XXX | |
| Development/maintenance of pipelines, roads or utilities | | XXX | XXX | XXX | |
| Incompatible forestry practices | XXX | | XXX | | XXX |
| Invasive/alien species | XXX | | | | |
| Recreational use/vehicles | | | XXX | | XXX |
| Residential development | | XXX | XXX | XXX | XXX |

Habitat Conservation Strategies:

1. Develop partnerships with federal and state agencies, NGO’s and others to identify potential parcels of this habitat type for acquisition and conservation.
2. Provide education/outreach to promote conservation and preservation of this habitat type.
3. Work with the legislature to provide incentives (tax breaks, etc.) to landowners to retain the natural state of areas where this habitat occurs.
4. Provide loggers and landowners with updated BMPs for harvesting timber in this habitat type.
5. Partner with OSP to design nature/recreational trails for state parks lands and develop similar trails on Tunica Hills WMA.

References:

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