

## Dry Coniferous Woodlands (Loblolly/ Slash Pine Forest)

### Mid-Atlantic Coastal Plain

Non-longleaf pine coniferous woodlands occur throughout the Coastal Plain in areas planted in upland loblolly pine or slash pine. This habitat might also include sites that, due to lack of fire, lost their original longleaf component and naturally regenerated in other pine species. The understory and midstory in these areas may be dominated by dense growing pocosin shrubs (e.g., wax myrtle), and hardwood tree species such as oaks, hickories, sweetgum or red maple. The exact midstory and understory species composition and structural diversity in plantations will be influenced by past management strategies and rotation schedules. This in turn determines the wildlife species present at various stages in the history of the stands. Table 1 provides a list of priority species associated with this habitat for which there is conservation concern.

**Table 1. Priority species associated with coastal plain loblolly/ slash pine woodlands.**

Group	Scientific name	Common name	State status* (Federal status)
Birds	<i>Accipiter cooperii</i>	Cooper's Hawk	SC
	<i>Aimophila aestivalis</i>	Bachman's Sparrow	SC
	<i>Caprimulgus carolinensis</i>	Chuck-will's-widow	
	<i>Caprimulgus vociferus</i>	Whip-poor-will	
	<i>Chordeiles minor</i>	Common Nighthawk	
	<i>Colaptes auratus</i>	Northern Flicker	
	<i>Colinus virginianus</i>	Northern Bobwhite	
	<i>Contopus virens</i>	Eastern Wood-pewee	
	<i>Falco sparverius</i>	American Kestrel	
	<i>Helmitheros vermivorous</i>	Worm-eating Warbler	
	<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	
	<i>Picoides borealis</i>	Red-cockaded Woodpecker	E (E)
	<i>Sitta pusilla</i>	Brown-headed Nuthatch	
	Mammals	<i>Lasiurus seminolus</i>	Seminole Bat
<i>Sciurus niger</i>		Eastern Fox Squirrel	SR
Reptiles	<i>Crotalus horridus</i>	Timber (Canebrake) Rattlesnake	SC
	<i>Heterodon platirhinos</i>	Eastern Hog-nosed Snake	
	<i>Sistrurus miliarius</i>	Pigmy Rattlesnake	SC
	<i>Tantilla coronata</i>	Southeastern Crowned Snake	
*Abbreviations			
E    Endangered			
SC    Special Concern			
SR    Significantly Rare			

## **Location And Condition Of Habitat**

There are over 1 million acres of pine plantations (mainly loblolly pine) in the Coastal Plain owned by industrial timber companies that provide a variety of age classes and conditions of stands. Most of this habitat is found in the upper coastal plain since drainage is better there, but it can be found throughout. Most stands are harvested between 18 and 33 years of age, but there are some exceptions. Generally the harvest strategies provide exceptional habitat on a landscape scale for a variety of early successional wildlife species, pine specialists and even forest species for some periods of time over the life of many stands and adjacent areas. (*Also see the coastal plain Early Successional Habitat section*). The silvicultural strategies used determine the species composition and structure of the midstory and understory (e.g., thinnings, herbicide treatments, fertilization, pruning of pines, and prescribed fire). Areas that were most likely dominated by longleaf have evolved to a loblolly component due to lack of fire are scattered throughout the Coastal Plain and are generally in poor structural condition with dense a midstory and sparse to moderate understory. Map 1 depicts locations of dry coniferous woodlands in the Mid-Atlantic Coastal Plain ecoregion.

## **Problems Affecting Species And Habitats**

In former longleaf pine stands now dominated by loblolly pine, fire suppression is the single most important factor causing deterioration in these woodlands. It has greatly increased the hardwood component of these stands, changed the structure of the stands as well as the vegetative species in both the understory and overstory. Acquisition can be problematic in these upland habitats since fewer grant options are available. The Natural Heritage Trust Fund and Recovery Land Acquisition Grants are good possibilities.

Habitat fragmentation has also occurred in some areas, although many former hardwood stands and pond pine pocosins have been converted to loblolly or slash pine plantations for timber production. Site suitability for commercial and residential development is one factor contributing to the habitat fragmentation threat and complicating management of remaining stands. These plantations are well suited for some fauna (prairie warbler, worm-eating warbler) but are not suitable to others (eastern fox squirrel, red-cockaded woodpecker) due to the lack of an open canopy layer, high stocking rate, and short rotation age. These highly managed pine plantations also lack age diversity within stands and few old growth stands are available. High grading of stands, lack of gap management and overstocked stands are leading to a lack of structural diversity for many species. Roads cause particularly high mortality to reptiles and amphibians.

## **Species And Habitat Conservation Actions and Priorities For Implementation**

Unlike nearly all other forest types mentioned in this Strategy, the loblolly/slash pine forest is mostly non-natural (either through fire suppression of longleaf pine stands or conversion of other types to pine plantations). Thus, there is a need to decrease this habitat type and return acreage to natural types. Management and protection of non-longleaf pine woodlands to promote large, unfragmented tracts along with land and easement acquisition on non-industrial forestland should be considered.

Fire should be re-introduced, and the fire frequency should be increased to at least once every three years on most tracts when possible. This will necessarily involve resolving smoke management issues, negative public sentiment and liability concerns associated with prescribed burning. Restoration of natural fire frequency, intensity, and seasonality is critical for pine-related reptiles, amphibians, and their prey (Bailey et al. 2004). Restoration of dry longleaf communities should be the primary goal. Additional older aged pine acreage is needed, or management to mimic the characteristics of older stands (e.g., provide canopy gaps, leave dead and downed material, leave cavity trees). Specific management will need to be implemented/continued to manage for red-cockaded woodpecker populations (banding efforts, population monitoring).

Cooperative efforts related to management activities need to continue and expand with large-scale industrial forest landowners to continue to try and improve habitat conditions at the landscape and stand level for a variety of wildlife species (Measells et al. 2002). In addition continued cooperative efforts with red-cockaded woodpecker working groups (for translocation, or to manage the Sandhills and coastal populations of red-cockaded woodpeckers) is needed.

### **Priority Research, Survey, And Monitoring**

Initial efforts need to be directed towards surveys to determine the current baseline distribution and status of species associated with loblolly/slash pine stands (especially those that are state-listed or believed to be declining) for which that information is lacking. Since we lack baseline information about even common species and their distribution and status in this habitat type, we need to direct secondary efforts to conduct surveys to understand current status from which we can then measure future population changes over time.

Protocols and procedures developed from baseline surveys should then provide a means to convert from baseline surveys to long-term population monitoring. Current monitoring systems and protocols (e.g., MAPS and BBS) may need to be enhanced to better cover certain species not well covered by current monitoring efforts.

#### **• Surveys**

- Identify locations of red-cockaded woodpecker colonies around and between designated recovery populations.
- Determine breeding status/distribution of Cooper's hawk.
- Conduct status/distribution surveys for the brown-headed nuthatch, red-headed woodpecker, worm-eating warbler, American kestrel, chuck-will's-widow, whip-poor-will, and common nighthawk.
- Conduct status/distribution surveys of neotropical migrant landbirds on industrial forestland.
- Conduct species specific surveys for bird species not well tracked by BBS.
- Determine the status of Bachman's sparrow in stands with the appropriate structure and basal area (e.g., some industrial forestland stands).
- Conduct distribution and population surveys for eastern fox squirrel.

- Determine the status and distribution of timber and pigmy rattlesnakes.
- Determine the status and distribution of priority small mammals, bats, reptiles and amphibians on industrial forestland.
- **Monitoring**
  - Expand MAPS and migration bird banding stations, especially on industrial forestland.
  - Conduct long-term monitoring of winter birds, small mammals, bats, reptiles and amphibians on industrial forestland (compare results in older pine forests to those of typical industrial forestland).
- **Research**
  - Population demographics*
    - Examine causes of declines among nightjars on industrial forestland (Weyerhaeuser has conducted some of this research already on pine plantations).
    - Conduct life history studies on priority bat species.
    - Conduct life history and activity patterns of eastern fox squirrel.
  - Genetics*
    - Explore possibility of a sub-species for the coastal worm-eating warbler.
  - Predator effects*
    - Study predator effects (and cowbird parasitism) on bird nest productivity.
  - Telemetry*
    - Document timber (canebrake) rattlesnake activity patterns on industrial forestland (using telemetry).
  - Management practices*
    - Explore the impacts of various silvicultural practices on industrial forestland on neotropical migrants, cavity nesters and ground nesting birds.
    - Examine the effects of habitat enhancement in Cooperative Upland Habitat Restoration and Enhancement (CURE) project sites on bats and herpetofauna.
  - Habitat use*
    - Explore habitat-area relationships of shrub-scrub birds on industrial forestland (Lanham and Guynn 1998).
    - Examine the effects of large scale floods on herpetofauna.
    - Examine the response of small mammal and herpetofauna to pine management strategies (Hood et al. 2002 and Yates et al. 1997).
    - Explore bat habitat use of managed pine stands (Ellis et al. 2002).

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