Mesic Hardwoods

Guild Description:

Reptiles
Virginia valeriae

Amphibians
Eurycea guttolineata

Lepidoptera
Anthocharis midea
Semiothisa promiscuata
Scopula ordinata
Schizura n. sp.
Zale phaeocapna
Nola triquetrana

This guild includes species associated with moist but not regularly flooded stands of hardwoods. Most species in this group are widespread in the Piedmont and Blue Ridge provinces but appear to be extremely scarce and local in the Coastal Plain.

Eastern earth snakes (*Virginia valeriae*) are secretive and little known, but usually occur in mesic sites where hardwood litter and woody debris offer shelter and foraging habitat (Palmer and Braswell, 1995). Over most of its range, three-lined salamanders (*Eurycea guttolineata*) are associated with forested brooks and bottomlands (Martoff, et al., 1980; Wilson, 1995). Within the project area, this species appears to be confined to ravines running through bluffs supporting stands of mesic hardwoods.

Several of the lepidoptera in this guild have larval host plants that occur on only a few rich, mesic slopes within the project area: orange tips (*Anthocharis midea*), which feed on toothworts (*Cardamine* spp.); *Semiothisa promiscuata*, which feeds on redbud (*Cercis canadensis*); *Scopula ordinata,* which feeds on trilliums (*Trillium catesbaei* and possibly other species); *Zale phaeocapna*, which feeds on witch hazel (*Hamamelis virginiana*) and hop-hornbeam (*Ostrya virginiana*); and *Nola triquetrana*, which also feeds on witch hazel. The host plants of *Schizura* n. sp. are unknown, but all North Carolina records for this species are from stands of mesic hardwoods[1].

Vulnerability to Habitat Fragmentation: Spatial requirements, vagility, and population structure are largely unknown for this group. In the Coastal Plain, populations of several of these species may represent relicts from a wider distribution in the Pleistocene.

Habitat Description and Distribution: Natural Communities contributing habitat units for this guild include Mesic Mixed Hardwoods (Coastal Plain Subtype), Basic Mesic Forest (Coastal Plain Subtype), and Dry-Mesic Oak—Hickory Forest. Nonriverine, hardwood-dominated flats also provide habitat, which within the project area is represented only by the rare Wet Marl Forest community type.

[1]Other species in this genus feed on a wide variety of trees and shrubs.

Mesic Forests are naturally uncommon in the study area, occurring primarily on slopes adjoining floodplains as well as on narrow ridges within the floodplains. Only a few small high quality examples are known. The largest area of occurrence of mesic forests is the high bluff system of the Cape Fear River, which is still largely unexplored but has the potential for supporting a sizeable aggregate core area. Mesic forests may also occur on bluffs of the Black and South Rivers.

NCGAP cover units used to represent this habitat include: 12, 14, 28, 61, 101. Successional stands possibly of use to this guild are represented by cover unit 44 (this is the dominant class at Greenbank Bluffs).

Guild Distribution: Smooth earth snakes are the most widely distributed of this group, being recorded at two sites along the Black River, three along the South River, and one site near the Northeast Cape Fear River. The two moths that feed on witch hazel, *Nola triquetrana* and *Zale phaeocapna*, have each been recorded at three sites. The remainder are confined to Greenbank Bluffs or, in the case of the orange-tip, to Greenbank and the Rocky Point Marl Forest.

Core Areas: Greenbank Bluffs, above the Cape Fear River at the northern tip of Brunswick County (Fig. 25b) is the only core area identified for this group. Seven of the guild members occur there but no more than two were recorded at sites elsewhere within the study area.

Two species present at this site may be relicts from the Pleistocene. Three-lined salamanders are common in the ravines at this site (Stephan, 1987), but known historically from only one other site within the project area. *Scopula ordinata*, also caught at this site on a number of occasions, is known from only this site in the entire Coastal Plain; all others of the few records that exist from this species are from the mountains[2].

This site also includes several records for *Schizura* n. sp., a rare moth known from only two other sites within the state, including a stand of mesic hardwoods at Camp Lejuene in Onslow County.

Connectors: The vegetation cover map indicates that the core area at Greenbank Bluffs is isolated, including from what appear to be much more extensive stands of mesic forest located further upstream along the Cape Fear River.

Survey Needs: The Rocky Point Marl Forest has potential for supporting several species in this guild and needs further inventory. Other mesic slopes that should be a high priority for survey include the Colvin s Creek Sandridge Nature Conservancy Preserve and a bluff along Jump and Run Creek within the Holly Shelter Game Land (LeGrand and Sorrie, 1997). According to the cover map, extensive stands of mesic hardwoods occur along the south side of the Cape Fear

[2]There is a possibility that the population at Greenbank Bluff could represent a new species, or at least a new subspecies; the only known host plants for this species are trilliums, a plant that has yet to be recorded at Greenbank Bluff.

River in Bladen County, and should be high priorities for inventory.

Protection Coverage/Needs: Greenbank Bluffs is privately owned and is at some risk to timber harvest or development. Its protection should be one of the highest priorities within the project area. Rocky Point Marl Forest, where two guild members were recorded, is also an extremely high priority for protection.