

# HUDSONIA HARLEM VALLEY BIODIVERSITY MANUAL SUPPLEMENT

## Southern bog lemming (*Synaptomys cooperi*) Rare in region

### Habitats in the Study Area

For this species, diet is an important determinant of habitat. Southern bog lemming grazes on grasses, sedges or rushes throughout the year, so habitats must include an adequate renewable supply of these plants. Sphagnum bogs, coniferous or deciduous forests with swamp patches, wet, semi-open areas such as old fields, and clear cuts in forest are probably the main habitats in the study area. Connor (1959) reported this species as tunneling during drought periods in dry sphagnum moss of bogs in New Jersey. In Otsego and Schoharie Counties of New York (west of the Hudson River), Connor (1960) found this species only in deciduous woods and not in bogs. In the study area, perched bogs on ridges may be used, but this has not been confirmed. E. Kiviat found this species using wet patches on a hillside logging road in the Town of Dover (Dutchess County) (Kiviat 1988). Dry fields with bulm-stem grasses (*Andropogon* and *Schizachyrium*) are habitats in the Midwest and New Jersey (Whittaker and Hamilton 1998).

### Study Area Distribution

Potentially occurring throughout the region in suitable habitat. More information on the geographic and elevational distribution of this species is needed.

### Other Relevant Aspects of Ecological Niche and Behavior

Southern bog lemming is active year-round, day or night, throughout its range. In winter this species is active beneath snow and under dense, matted grasses, making tunnels or using those of other animals. Often colonial, bog lemmings also associate with other voles, mice, moles and shrews, sharing burrow networks (Whittaker and Hamilton 1998). Nests built of dry grasses are concealed under stumps or sphagnum mounds. The diet of southern bog lemming consists of grasses, rushes, sedges, mosses, fruits, fungi, bark, and roots. Stems of grasses, sedges and rushes are bitten off near ground level, and the upper parts then eaten. Bog lemmings also eat invertebrates, especially slugs and snails. Population density ranges from 6-35 individuals per hectare.

Breeding occurs in all seasons, with most young born between April and September. Wild females produce 2 or 3 litters or 1-7 young per year. The nest, constructed of grass cuttings, is large and deep, located in an existing underground chamber, or in wet substrates above ground in sheltered places such as hollow logs or stumps (Connor 1959, Choate et al. 1994). Gestation lasts from 23-26 days, mean litter size is 3 (1-8), and mean weight at birth is 3.7 grams. Males reach sexual maturity in about 5 weeks. Wild southern bog lemmings usually do not live for more than a year.

### Description and Identification

A small vole (12 to 15.4 cm long, 21 to 50 g) with chestnut to dark brown back, the fur somewhat grizzled, and a silvery-gray underside. The eyes and ears are effectively hidden by the dense fur. Females of this species have 6 mammae while those of northern bog lemming (*S. borealis*) have 8 mammae. The orange incisors are broad and longitudinally grooved. The tail is very short, barely longer than the hind foot.

### Threats and Conservation

In many areas, numbers of this species seem to be declining as a result of habitat destruction and vegetational changes in bogs. Natural enemies of southern bog lemming include weasels, foxes, coyotes, short-tailed shrews, skunks, bears, owls, hawks, crows, and snakes (Doutt, et al. 1977). Some studies indicate that meadow vole (*Microtus pennsylvanicus*) may cause decline of southern bog lemming in

deforested habitats (Krupa, 1996). Connor (1959) found meadow vole and bog lemming commonly associated in New Jersey.

## Survey Technique Constraints

Trapping has been successful along woodland edges and in forest clearings with abundant sedges (Connor 1960). Snap traps [check Connor's methods section re bait, probably baited] were set in underground tunnels such as those made by moles. Presence of southern bog lemming may be verified by clippings of grass-like plants about 8 cm long, along with the characteristic, bright green, pellet-like droppings. No other northeastern small mammal leaves green scats. Baits have proven ineffective in trapping this species (Whittaker and Hamilton 1998).

## References cited

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Doutt, J. K., C. A. Heppenstall, and J. E. Guilday. 1977. Mammals of Pennsylvania. Pennsylvania Game Commission and Carnegie Museum. Pittsburgh, Pennsylvania. 283 p. + maps.

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## References to Identification Literature

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