

Star-nosed Mole

Condylura cristata (Linnaeus, 1758)

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CONTENT AND TAXONOMIC COMMENTS

The star-nosed mole (*Condylura cristata*) includes two subspecies, *C. c. cristata* and *C. c. parva* (Yates 1978, Peterson and Yates 1980). The distribution of the subspecies in the region is confused. Paradiso (1959) defined the range of *C. c. cristata* as extending north from a line through central Virginia and southern West Virginia, and the range of *C. c. parva* was from south of that line. Biologists in the region (Handley and Gordon 1979, Webster 1987, Handley and Pagels 1991) followed this arrangement, but Peterson and Yates (1980) expanded the northern boundary of *C. c. parva* northward well into the Great Lakes and New England. Accordingly, all populations in the region are believed to be *C. c. parva*. The literature on the species is reviewed by Peterson and Yates (1980).

DISTINGUISHING CHARACTERISTICS

Condylura cristata is a medium-sized mole with a robust body. Its measurements are: total length, 153–238 mm; tail, 51–92 mm; hind foot, 23–32 mm; weight 35–70 g. The dental formula is: I 3/3, C 1/1, P 4/4, M 3/3 = 44 (Figure 1). The pinnae are absent, and the eyes are small and partially concealed in the pelage. The pelage is dense, soft, and silky, and is blackish-brown to black dorsally and only slightly paler ventrally. The tail is 1/3 to 1/2 of the body length and constricted at the base. The rostrum, the most distinctive feature of the species, has 22 fleshy appendages at the tip. It is unlikely that the star-nosed mole would be confused with any other mammals in the region. See keys for additional details.

CONSERVATION STATUS

The star-nosed mole has a global rank of Secure (NatureServe 2007). It is Apparently Secure in North Carolina and Virginia, but Vulnerable in South Carolina. Both Georgia and Tennessee classify the star-nosed mole as Imperiled. It is unranked in Florida.

DISTRIBUTION

The star-nosed mole is distributed throughout most of eastern Canada and the northeastern United States (Hall 1981). Figure 2 depicts the distribution of the star-nosed mole in the South. Lee (1987) provides a review of regional distribution records. The star-nosed

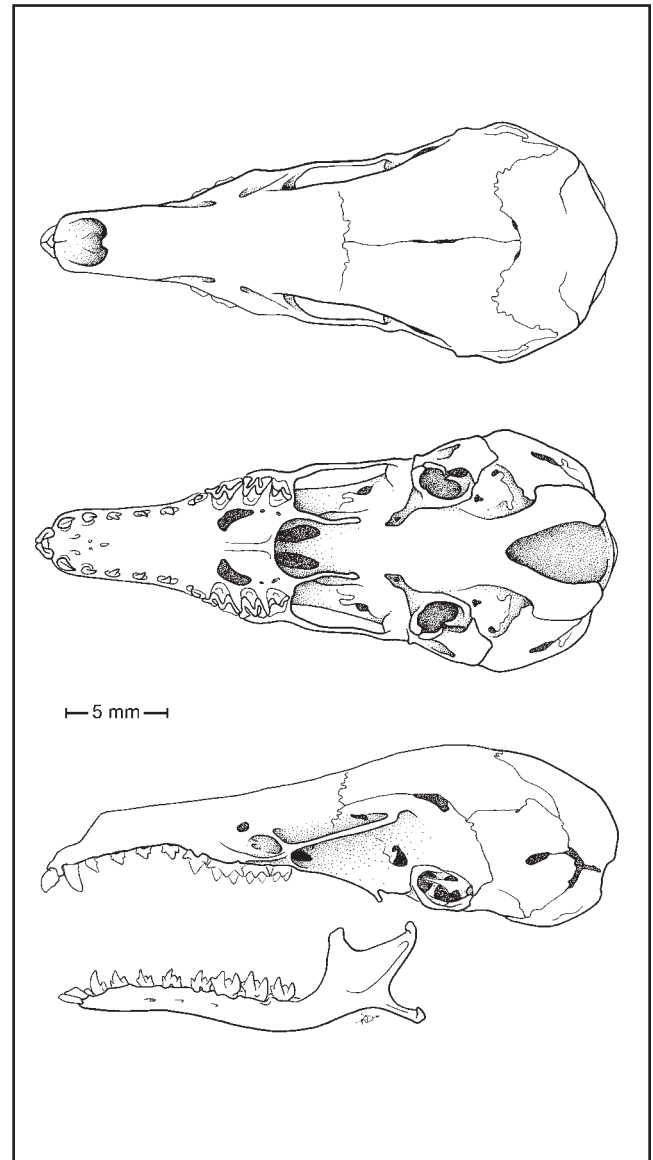


Figure 1. Dorsal, ventral, and lateral view of cranium and lateral view of mandible of *Condylura cristata* from Fauquier County, Virginia (USNM 566403, gender unknown).

mole is known from scattered records in Virginia, but apparently is absent from the south-central portion of the state (Paradiso 1959, Handley 1979, Handley and Pagels 1991, Pagels et al. 1992, Linzey 1998, Bellows et al. 1999). From central Virginia south, populations appear to be restricted to either the Coastal Plain or the Blue Ridge and upper

Piedmont of North Carolina (Odom 1949, Johnston 1967, Lee et al. 1982, Clark et al. 1985, Webster 1987, Beane 1995), South Carolina (Grimm 1955, Cothran et al. 1991, Laerm et al. 1996, McCay et al. 1999), and Georgia (Harper 1927, Golley 1962, Laerm 1981, Laerm et al. 1982, Laerm 1992, Laerm et al. 1996). The star-nosed mole similarly is restricted to the Blue Ridge of Tennessee (Kellogg 1939, Smith et al. 1974, Kennedy and Harvey 1980, Harvey et al. 1992), and known from one extralimital record from northwestern Kentucky (R. Morton, Kentucky Department of Fish and Wildlife Resources, personal communication).

ABUNDANCE STATUS

The status of the star-nosed mole is uncertain. Most regional accounts indicate that it is rare to uncommon, though it may be locally abundant (Webster 1987). No population estimates are available for the species in the region. In the northern portion of its range, the star-nosed mole can reach 41/ha (van Zyll de Jong 1983).

PRIMARY HABITATS

The star-nosed mole is typically associated with moist, swampy habitats such as fens, bogs, seeps, and streambanks with heavy leaf litter in both forested and early successional communities. In the southern Appalachians, it is found in mesic forest cover types including northern hardwood, cove hardwood, and white pine-eastern hemlock (*Pinus strobus-Tsuga canadensis*) communities around streams and low wet sites. In the Coastal Plain, it generally occurs in saturated wetlands, pocosins, and forested floodplain cover types, although it also has been reported in an upland longleaf pine (*P. palustris*) habitat (McCay et al. 1999). The star-nosed mole constructs burrows and short surface runways, typically around coarse woody debris, tree roots, and rocks near water. These runways may open directly into aquatic habitats. Nests are constructed in the burrows above water level.

REPRODUCTION

Breeding in the star-nosed mole occurs from March to August with a peak in April or May (Peterson and Yates 1980). Gestation is about 45 days (Jackson 1961); a single litter is produced each year (Eadie and Hamilton 1956). The litter size ranges from 3–7 (Eadie and Hamilton 1956, Davis and Peek 1970). Individuals reproduce after their first winter.

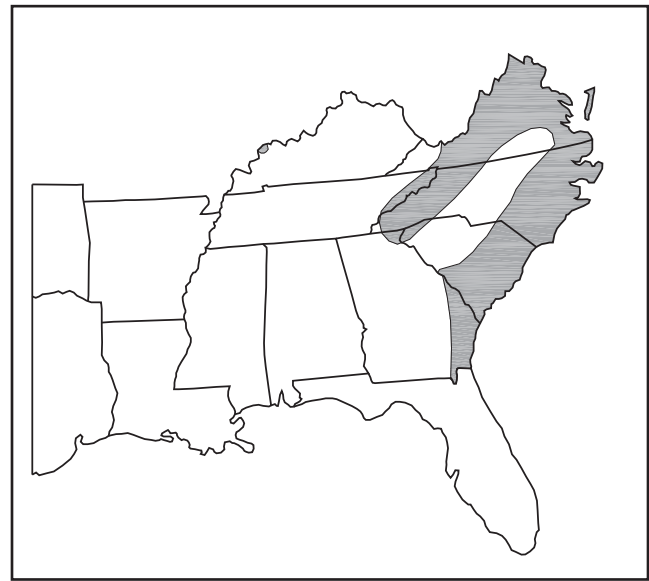


Figure 2. Distribution of *Condylura cristata* in the South.

FOOD HABITS

The nasal star is an electro-sensory device that is used to detect prey (Gould et al. 1993), best described as a “tactile” eye (Catania 1999), in leaf litter, underground burrows, and even water. Primary foods consist of terrestrial and aquatic annelids and insects, although crustaceans, mollusks, and fish also are eaten (Hamilton 1931, Rust 1966, Whitaker and Mumford 1972).

ASSOCIATED SPECIES

The star-nosed mole is associated with the hairy-tailed mole (*Parascalops breweri*), woodland jumping mouse (*Napaeozapus insignis*), and southern bog lemming (*Synaptomys cooperi*) in the Appalachian Mountains, and the eastern mole (*Scalopus aquaticus*) and rice rat (*Oryzomys palustris*) in the Coastal Plain.

VULNERABILITY AND THREATS

Little information is available regarding the abundance and life history traits of the star-nosed mole in the region. Because the species appears to be closely associated with moist habitats and friable soils, land management practices that impact aquatic ecosystems through draining, ditching, and conversion to agricultural or industrial uses probably are detrimental. As a result, the known geographic range appears fragmented and the species frequently is absent in otherwise appropriate habitat. Surveys to determine if this species occurs in the Cumberland Mountains and Plateau of Kentucky and Tennessee are warranted.

MANAGEMENT SUGGESTIONS

Activities that substantially alter natural hydrologic regimes should be avoided. The impact of locally raised water tables following timber harvest should be investigated.

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