

Southern Short-tailed Shrew

Blarina carolinensis (Bachman, 1837)

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CONTENT AND TAXONOMIC COMMENTS

Revision of the northern short-tailed shrew (*Blarina brevicauda*) complex resulted in the recognition of the southern short-tailed shrew (*B. carolinensis*) as a distinct species on the basis of morphological and karyological differences (Genoways and Choate 1972, Tate et al. 1980, French 1981, George et al. 1982, Braun and Kennedy 1983). Four subspecies, *B. c. carolinensis*, *B. c. minima*, *B. c. peninsulae*, and *B. c. shermani*, currently are recognized, but the taxonomic status is problematic. Hutterer (1993) incorrectly lists *B. c. minima* as a subspecies of Elliot's short-tailed shrew (*B. hylophaga*; see Easterla 1968, Lowery 1974, Schmidly 1983, Sealander and Heidt 1990). The taxonomy of the populations in lower peninsular Florida that are referred to *B. c. peninsulae* is uncertain (Layne 1992). George et al. (1982) recognized two distinct chromosomal groups of short-tailed shrews in Florida: *B. c. carolinensis* to the north and *B. c. peninsulae* in the south. The karyotype of *B. c. peninsulae* is sufficiently different from the northern short-tailed shrew (*B. brevicauda*) and southern short-tailed shrew to suggest that *B. c. peninsulae* may be a distinct species (Jones et al. 1984, George et al. 1986, Layne 1992). A population of short-tailed shrews known only from their type locality at Fort Myers, Florida, was described by Hamilton (1955) as *B. b. shermani*. Although this taxon was referred to *B. carolinensis* by George et al. (1982) and Layne (1992), the United States Fish and Wildlife Service (1991) referred them to *B. brevicauda*. Confusion regarding the status of *B. c. peninsulae* adds to the uncertain relationship of *B. c. shermani*, as *B. c. shermani* may be a subspecies of either *B. brevicauda* or *B. carolinensis* and it might be synonymous with *B. c. peninsulae* (Layne 1992). We follow Layne (1992) in the use of *B. c. shermani*. Furthermore, there is no consensus about the subspecific affinities of *B. carolinensis* in southern and eastern Arkansas, eastern Texas, and southeastern Oklahoma. Traditional maps (Hall 1981) suggest that two subspecies, *B. c. carolinensis* and *B. c. minima*, occur in that area. The status of the populations referable to *B. c. carolinensis* in southeastern Arkansas, southeastern Oklahoma, and eastern Texas is uncertain. They may represent isolates of *B. c. carolinensis*, intergrades between Elliot's short-tailed shrew (*B. hylophaga*) and *B. carolinensis*, or populations that should be referred to *B. c. minima*. The literature on the southern short-tailed shrew was reviewed by McCay (2001).

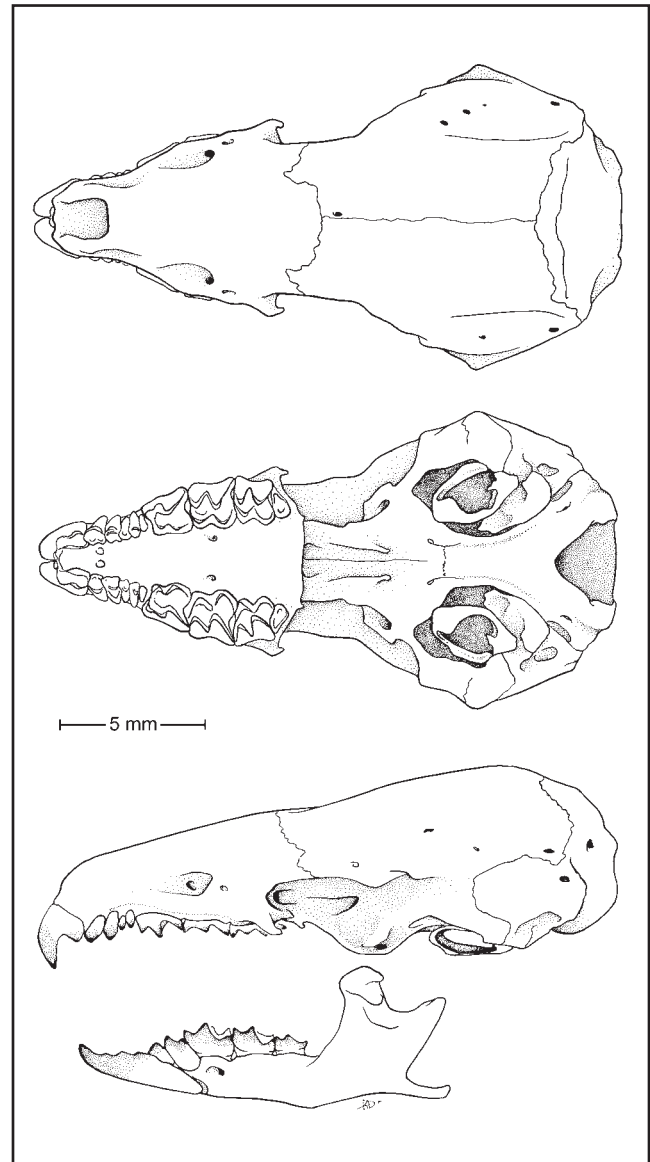


Figure 1. Dorsal, ventral, and lateral view of cranium and lateral view of mandible of *Blarina carolinensis* from Charleston County, North Carolina (USNM 574241, male).

DISTINGUISHING CHARACTERISTICS

The southern short-tailed shrew is a large, short-tailed soricid and is the smallest of the three *Blarina* species in the region. Measurements are: total length, 79–123 mm; tail, 14–27 mm; hind foot, 10–17 mm; weight 8–15 g. The southern short-tailed shrew has small ears that

are concealed in the pelage, tiny eyes, and a long, pointed snout. The pelage color is variable, ranging from grayish brown to slate black dorsally and only slightly paler below. The species may be confused with the northern short-tailed shrew and Elliot's short-tailed shrew, and although distinction often can be made on the basis of distribution, in areas of parapatry or sympatry, morphometric or genetic comparisons must be made (Tate et al. 1980, French 1981, George et al. 1981, 1982; Braun and Kennedy 1983, Stangl and Carr 1997). The dental formula of the southern short-tailed shrew is: I 3/1, C 1/1, P 3/1, M 3/3 = 32 (Figure 1). See keys for additional details.

CONSERVATION STATUS

The southern short-tailed shrew has a global rank of Secure (NatureServe 2007). It is Secure in Alabama, Georgia, Kentucky, Mississippi, North Carolina, and Virginia. It is Apparently Secure in Arkansas, Louisiana, and Texas, but is Vulnerable in Oklahoma. It is unranked in Florida and South Carolina.

DISTRIBUTION

Figure 2 depicts the distribution of the short-tailed shrew, which occurs throughout much of the southeastern and south-central United States (Whitaker and Hamilton 1998). It ranges from south-central and eastern portions of Virginia (Tate et al. 1980, Pagels and French 1987, Linzey 1998) south throughout the Coastal Plain and lower Piedmont of North Carolina (Lee et al. 1982, Webster 1988, Mitchell et al. 1995), Coastal Plain and Piedmont of South Carolina (Schacher and Pelton 1979, French 1981, Mengak et al. 1989, Cothran et al. 1991), Coastal Plain, lower Piedmont and extreme northwestern portions of Georgia (Harper 1927, Neuhauser and Baker 1974, Wharton et al. 1981, Laerm et al. 1982, Thurmond and Miller 1994, Parmley et al. 1997, Laerm et al. 1999, Ford et al. 2006), all of Florida (Rand and Host 1942, Moore 1946, Pournelle 1950, Hamilton 1955, Ivey 1959, Layne 1992), and all but the Piedmont of east-central Alabama (Holliman 1963, Wolfe and Rodgers 1969, Linzey 1970, French 1981, Ford et al. 2006). It is found throughout Mississippi (Wolfe 1971, Kennedy et al. 1974, Wolfe and Esher 1981, Wolfe and Lohofener 1983, Jones and Carter 1989), all but the coastal marshes of Louisiana (Lowery 1974), and eastern Texas (Baumgardner et al. 1992, Jones and Jones 1992, Davis and Schmidly 1994). The southern short-tailed shrew is found west of the Tennessee River in western Tennessee (Goodpaster and Hoffmeister 1952, Braun and Kennedy 1983, Kennedy 1991) and western Kentucky (Rose and Seegert 1982, Bryan 1991), in all but northwestern Arkansas (Garland and Heidt 1989, Sealander and Heidt 1990,

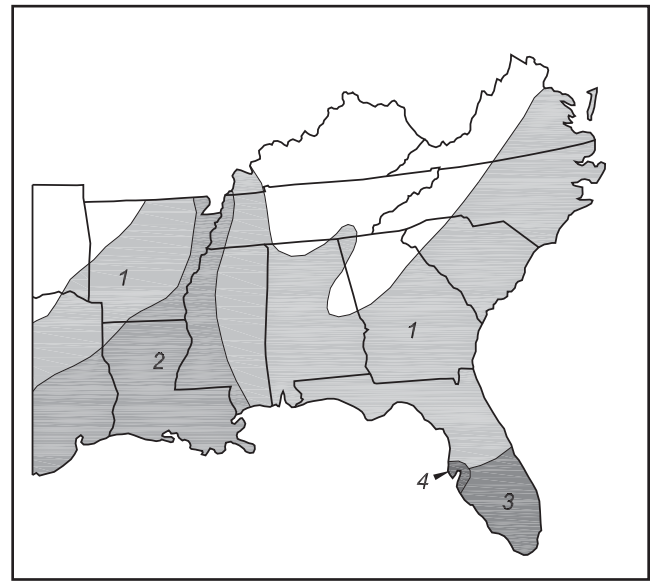


Figure 2. Distribution of *Blarina carolinensis* in the South: (1) *B. c. carolinensis*; (2) *B. c. minima*; (3) *B. c. peninsulae*; (4) *B. c. shermani*.

Tumlison et al. 1992), and into extreme southeastern Oklahoma (Caire et al. 1989).

ABUNDANCE STATUS

The southern short-tailed shrew is common in most of the lower Piedmont and Coastal Plain, except for Florida (Hamilton 1955, Layne 1992), eastern Texas (Schmidly 1983), and Oklahoma (Caire et al. 1989). Density estimates of 11 individuals/ha were reported in South Carolina (Smith et al. 1974). It is uncommon in the southern portions of the Ridge and Valley and Cumberland Plateau, along with the upper Piedmont (Ford et al. 2006). Populations may fluctuate dramatically (Briese and Smith 1974).

PRIMARY HABITATS

The southern short-tailed shrew is considered a habitat generalist; within its range, it is known from all forest cover types except mangrove (*Avicennia germinans*-*Rhizophora mangle*) swamps in Florida. It is common in oldfields (Golley et al. 1965), young loblolly pine (*Pinus taeda*) plantations (Perkins et al. 1989), pine flatwoods (Wolfe and Lohofener 1983, Mullin and Williams 1987), upland margins of pocosins and Carolina bays (Clark et al. 1985), and forested wetlands and bottomland hardwoods (Wharton et al. 1981, Menzel et al. 2005). The southern short-tailed shrew is most abundant in hardwood forests (Golley 1962, Lowery 1974, Kennedy 1991). In the upper Piedmont and southern Appalachians, this species only occurs at low elevations (Ford et al. 2006), utilizing the same cover types as the northern short-tailed

shrew. Hartman et al. (2001) found that southern short-tailed shrews utilize mole tunnels extensively, often preferring these tunnels during cold weather.

REPRODUCTION

The breeding season for southern short-tailed shrews extends from February through November with peaks in spring and late summer–early fall (Dapson 1968, O'Farrell et al. 1977). The litter size ranges from 2–6 and there are multiple litters per year (McCay 2001).

FOOD HABITS

The food habits of the southern short-tailed shrew probably are similar to those of the northern short-tailed shrew, for which more information is known. The diet likely includes annelids, gastropods, lepidopteran larvae, chilopods, arachnids, and other invertebrates. Small quantities of plant material and fungi are eaten, and occasionally small mammals are taken (Calhoun 1941, George et al. 1986, Whitaker et al. 1994). Similar to the northern short-tailed shrew, *B. carolinensis* has modified salivary glands that give the species a venomous bite (Lowery 1974, McCay 2001).

ASSOCIATED SPECIES

The southern short-tailed shrew associates with most other soricids and small rodents within its range. It occupies relatively narrow zones of sympatry with the northern short-tailed shrew to the north (Tate et al. 1980, French 1981, Ford et al. 2006) and Elliot's short-tailed shrew to the west (George et al. 1981, 1982; Jones et al. 1984, Baumgardner et al. 1992). It is broadly sympatric, but not syntopic, with the northern short-tailed shrew in eastern North Carolina where it occupies mineral-based soils and *B. brevicauda* occurs on organic soils (Webster 1996) or in the Blue Ridge (McCay et al. 2004).

VULNERABILITY AND THREATS

There are few threats to its survival in most of the southern region. *Blarina c. peninsulae* is widespread throughout southern peninsular Florida, but at low population densities (Layne 1992). The status of *B. c. shermani* is uncertain as only a few specimens are known from its type locality and subsequent efforts to document its presence have been unsuccessful, suggesting that the subspecies is either rare or extirpated (Layne 1992).

MANAGEMENT SUGGESTIONS

The southern short-tailed shrew is tolerant of the disturbance resulting from many forest management activities (Perkins et al. 1989, Menzel et al. 2005). Conditions that promote abundant coarse woody debris, thick leaf litter, and moist microhabitats may promote higher population densities (Thurmond and Miller 1994).

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