Pygmy Shrew
Sorex hoyi (Baird, 1858)

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CONTENT AND TAXONOMIC COMMENTS

Because early taxonomists overlooked a small, disk-like upper unicuspid, the pygmy shrew (*Sorex hoyi*) was originally described as *Microsorex hoyi.* The supposed total dental complement was less than the 32 teeth characteristic of the genus *Sorex*. The error was subsequently recognized, but *Microsorex* was retained until Diersing (1980) relegated it to subgeneric status. Many common references and most field guides erroneously retain *Microsorex* (Hall 1981). Five subspecies of *S. hoyi* currently are recognized (Diersing 1980). Pygmy shrews in the southern United States, referred to *S. h. winnemana* by Diersing (1980), were believed to be isolated from populations of *S. h. thompsoni* to the north by 300 km. Records from western Maryland and Pennsylvania (Kirkland et al. 1987, Kirkland and Sheppard 1994, Laerm et al. 1994) indicate that there is a continuous distribution of *S. hoyi* from the southern to the central Appalachians. The literature on *S*. (*Microsorex*) *hoyi* is reviewed by Long (1974).

DISTINGUISHING CHARACTERISTICS

The pygmy shrew is the smallest mammal in the southern United States. It is a minute, long-tailed soricid with a long, pointed snout. The measurements are: total length, 70–96 mm; tail, 25–34 mm; hind foot, 7–10 mm; weight, 2–4 g. This species has tiny eyes and ears that are concealed in the pelage. The dorsal pelage is reddish gray-brown during the summer, becoming gray-brown in the winter; the ventral pelage is much lighter. The tail is distinctly bicolored, dark above and pale below. The pygmy shrew may be confused with the masked shrew (*S. cinereus*) and southeastern shrew (*S. longirostris*) with which it is sympatric. The minute third upper unicuspid distinguishes *S. hoyi* from all other shrews in the region (Junge and Hoffman 1981). The dental formula of the pygmy shrew is: I 3/1, C 1/1, P 3/1, M 3/3 = 32 (Figure 1). See keys for additional details.

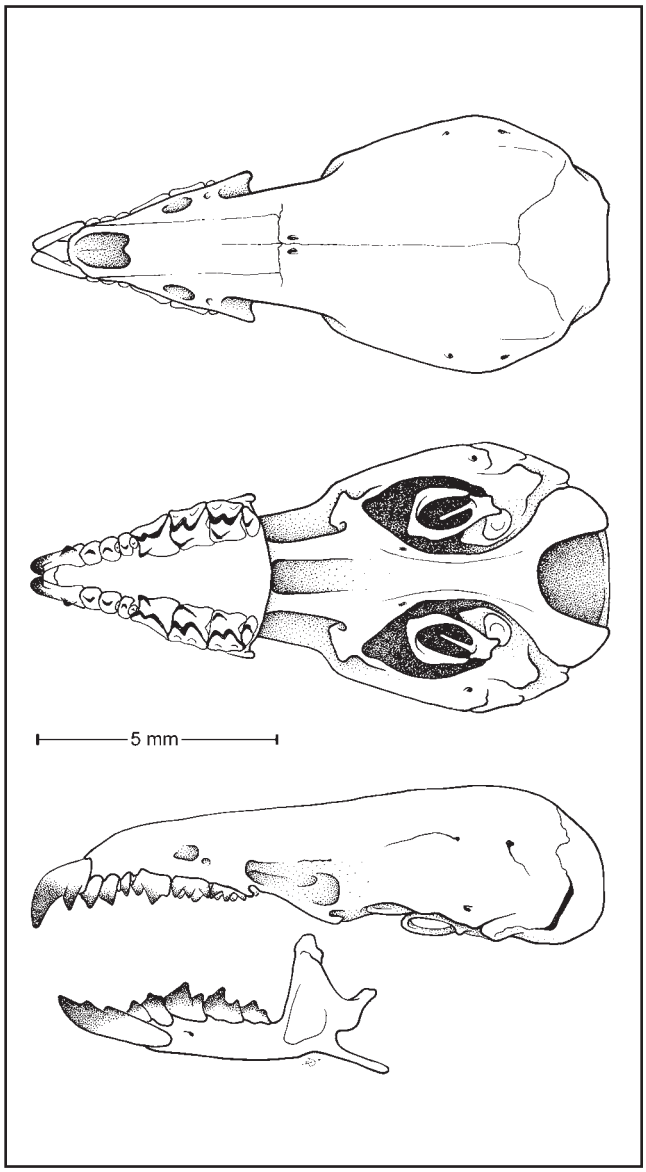

Figure 1. Dorsal, ventral, and lateral view of cranium and lateral view of mandible of *Sorex hoyi* from Ft. Resolution, Mackenzie, Northwest Territories (USNM 110889, female).

CONSERVATION STATUS

The pygmy shrew has a global rank of Secure (NatureServe 2007). It is Apparently Secure in Kentucky and Virginia, but Vulnerable in North Carolina and South Carolina. The shrew is Critically Imperiled in Alabama. Georgia and Tennessee classify the pygmy shrew as Imperiled.

DISTRIBUTION

The pygmy shrew occurs from Alaska east throughout most of Canada and south into the United States

as far south as Colorado in the Rocky Mountains and the southern Appalachians to northwest Alabama and to the central portions of Virginia and North Carolina in the South (Long 1974, Diersing 1980). Figure 2 depicts the distribution of the pygmy shrew in the South. Once regarded as extremely rare, it is now known to be distributed across a wide range of habitats (Laerm et al. 1999). Considerable information on the distribution, abundance, and habitat associations of this species is now available for Virginia (Pagels 1987, Handley 1991, Pagels et al. 1992, Kalko and Handley 1993, Mitchell et al. 1993, 1997; Linzey 1998, Bellows et al. 2001), Kentucky (Caldwell 1980, Caldwell and Bryan 1982, Bryan 1991, Meade 1992, Feldhamer et al. 1993, Kiser and Meade 1993), Tennessee (Kennedy et al. 1979, Kennedy and Harvey 1980, Tims et al. 1989, Harvey et al. 1991, 1992; Feldhamer et al. 1993, Linzey 1995), North Carolina (Smith et al. 1960, Lee et al. 1982, Webster 1987, Padgett and Rose 1994, Laerm et al. 1995*a,* 1999; Ford et al. 2000), South Carolina (Mengak et al. 1987, Laerm et al. 1999, 2000), Georgia (Wharton 1968, Ford et al. 1994, Laerm et al. 1995*b*, Ford et al. 1997, Laerm et al. 1999, 2000), and Alabama (Laerm et al. 1996). With the exception of the southeastern shrew, the pygmy shrew is the most widespread of the long-tailed soricids in the region.

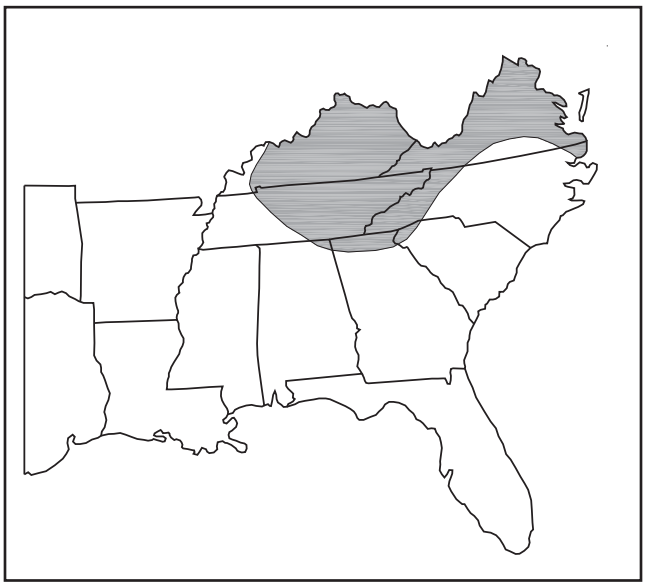

Figure 2. Distribution of *Sorex hoyi* in the South.

ABUNDANCE STATUS

The pygmy shrew often is ubiquitous, but rarely comprises a significant component of the small mammal community. No quantitative data on population densities are available from the region. Recovery rates per 100 pitfall trapnight efforts in the southern Appalachians range from 0.1–0.8 individuals (Mengak et al. 1987, Harvey et al. 1991, Kalko and Handley 1993, Ford et al. 2006). About 4% of small mammals collected in the central Piedmont of Virginia were pygmy shrews (Pagels et al. 1992). Similarly, Feldhamer et al. (1993) reported that 2.2% of the small mammals surveyed in the Land Between the Lakes area in western Kentucky and Tennessee were pygmy shrews.

PRIMARY HABITATS

The pygmy shrew is known from virtually the entire spectrum of forest communities, seral stages, moisture regimes, and elevations in the region from high elevation red spruce–Fraser fir (*Picea rubens-Abies fraseri*) in the mountains, to bottomland gum–bald cypress (*Nyssa* spp.-*Taxodium distichum*) in low lying coastal areas (Padgett and Rose 1994, Ford et al. 2006). It also is reported from oldfields and young clearcuts. Pygmy shrews appear to prefer areas with canopy closure in the Coastal Plain, whereas in mesic cove hardwoods in the southern Appalachians the opposite is true (Ford et al. 1997, Bellows et al. 2001). Similarly, substrate and understory associations also are varied, particularly its association with coarse woody debris (Bellows et al. 2001, Ford and Rodrigue 2001). Laerm et al. (1999, 2000) noted that it has the greatest niche breadth of all soricids in the southern Appalachians, although pygmy shrews may select or be competitively relegated to more xeric forest habitats where it is sympatric with masked shrews (Ford et al. 1994, 1997; Laerm et al. 1999).

REPRODUCTION

Long (1972, 1974, 1976) reviews the pertinent literature. Apparently, births of 3–7 young can occur throughout the year in the South, but reproduction is concentrated from November to March, with a peak in January (Feldhamer et al. 1993, McCay et al. 1998). In northern populations, births are reported from June through August with no evidence of a second breeding pulse. The gestation period is unknown. Adult size is reached in 8–12 weeks. Maximum longevity is approximately 70 weeks.

FOOD HABITS

Pygmy shrews are known to eat a wide variety of invertebrates including lepidopteran larvae, coleoptera, hymenoptera, and gastropods (Long 1974, Whitaker and French 1984, Ryan 1986, Whitaker and Cudmore 1987). Pygmy shrews concentrate primarily on invertebrate prey <10 mm in length (Churchfield 2002).

ASSOCIATED SPECIES

Depending on habitat, the pygmy shrew is associated with most insectivores and rodents that occur within its distribution. Ford et al. (2001) found pygmy shrews to be syntopic with the southeastern and masked shrews in the southern Appalachians at 53% and 68% of survey sites, respectively. Xeric forest sites where pygmy shrews and southeastern shrews occurred together often violate Fox and Kirkland's (1992) size-based assembly rules for shrews (Ford et al. 2006).

VULNERABILITY AND THREATS

Although the pygmy shrew is uncommon, there seem to be no obvious threats to its survival in the region.

MANAGEMENT SUGGESTIONS

The pygmy shrew appears tolerant of forest management activities such as regeneration harvest and prescribed burning (Ford et al. 1997, 1999, 2000; Bellows et al. 2001).

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