

Shrews

Masked Shrew *Sorex cinereus*

Pygmy Shrew *Sorex hoyi*

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DESCRIPTION

Taxonomy and Basic Description

All shrews have long pointed snouts, short dense fur and small eyes. The ears blend in well with the surrounding fur. The masked shrew was first named by Kerr in 1792 and the pygmy shrew by Baird in 1858. The pygmy shrew and the masked shrew closely resemble each other; both are small with gray-brown fur on the back and a more faded version underneath. Both have distinctly bicolored tails, dark above and pale underneath, that are more than half the head and body length (Webster et al. 1985). In the summer, the pygmy shrew has a reddish hue to its pelage, whereas the masked shrew has a brown hue.

Only one subspecies of masked shrew, *Sorex cinereus cinereus*, is found in South Carolina. The total length of this animal ranges from 80 to 111 mm (3.1 to 4.3 inches), including a tail of 34 to 48 mm (1.34 to 1.9 inches). Masked shrews weigh 3 to 5 g (0.10 to 0.17 ounces).



Masked Shrew Photo by E.B. Pivorun



Pygmy Shrew Photo by Roger Barbour/
ATBI Program

Pygmy shrews are the smallest mammal in South Carolina, weighing only 2 to 4 g (0.07 to 0.14 ounces), about the weight of a dime (Webster et al. 1985). They range in total length from 70 to 96 mm (2.7 to 3.8 inches) (Ford et al. 2004). Tail length is 25 to 34 mm (0.99 to 1.34 inches). The most reliable distinguishing feature is a third upper unicuspid tooth (one with only one point) that is reduced when compared to preceding unicuspid. In shrews found sympatrically with pygmy shrews, such as the masked shrew or the southeastern shrew (*Sorex*

longirostris), the third upper unicuspid is similar in size to other unicuspid (Long 1974). *Sorex hoyi winnemana* is the only subspecies of pygmy shrew known from the extreme southern range, including its range within South Carolina (Diersing 1980). The pygmy shrew was originally classified as *Microsorex hoyi*. Diersing (1980) subsequently determined that the species was more appropriately classified in the genus *Sorex*; *microsorex* was reclassified to a subgenus.

Status

Both the masked shrew and the pygmy shrew have a global rank of secure or G5 (NatureServe 2004). The state rank for the masked shrew is unknown (S?) in South Carolina. This species is considered secure in the northern part of its range from Virginia north through the continental United States, through Canada and into Alaska. The masked shrew is apparently secure in North

Carolina and Tennessee but is considered vulnerable in Kentucky and imperiled in Georgia (NatureServe 2004).

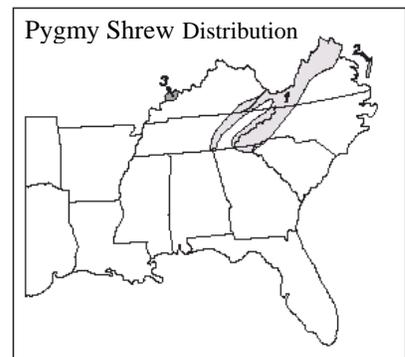
The pygmy shrew, ranked as S3/S4 (uncommon but believed to be secure) in South Carolina, is designated as apparently secure in Virginia and Tennessee and imperiled in Georgia and Tennessee; there is no ranking for the pygmy shrew in West Virginia (NatureServe 2004).

These species are considered of conservation concern in interest of maintaining the biological diversity of the state of South Carolina. Both species are indicative of habitats that are uncommon in the state and, therefore, provide an index of proper management of all habitats in this state.

POPULATION SIZE AND DISTRIBUTION

South Carolina's mountains represent the southeastern most extent of masked shrew and pygmy shrew distribution.

Distributions for both extend into Alaska and Canada, ranging into the Rocky Mountains and across much of the Great Lakes region, New England and down the Appalachians to northern Georgia and South Carolina.



Masked shrews are at the extreme edge of their range in Georgia and South Carolina. Here, they are uncommon and found only at high elevations or in sheltered coves (Ford et al. 1994; Laerm et al. 1995).

There are no population estimates available in the southern Appalachians for either the pygmy or masked shrew.

HABITAT AND NATURAL COMMUNITY REQUIREMENTS

Both the masked and pygmy shrews are restricted to the southern Appalachian ecoregion in South Carolina. Within that ecoregion, they show some overlap in habitat; both species use mesic mixed forest, mesic deciduous hardwood, dry deciduous forest and eastern hemlock ravine forests. Masked shrews are more selective in their southern habitats and tend to use more northern-type communities like high elevation sites. The pygmy shrew is rather prevalent throughout most mountain habitats (Ford et al. 2004; Laerm et al. 2005). Masked shrews use sites with thick understory, high soil moisture and high organic matter (Brannon 2000). Features like logs, stumps, rocks and dense leaf litter are often components of masked shrew habitat. Neither species is sensitive to timber harvest or prescribed burning in the central Appalachians (Ford et al 2004; Laerm et al. 2005).

Shrews are beneficial mammals in that they eat many grubs and larvae, which are often pest species (Merritt 1987). Predators of the masked shrew and pygmy shrew include domestic and

feral cats and dogs, hawks, owls, foxes, coyotes, weasels and snakes. None of these predators are currently reported to be major threats to the species' survival.

CHALLENGES

In South Carolina, a large portion of the habitat in the Blue Ridge ecoregion that is appropriate for masked shrews and pygmy shrews is on public land, including National Forests, State Parks, Nature Conservancy properties and DNR managed properties. None of these properties were purchased specifically to protect these shrews; however, these species benefit from acquisition and protection of habitat. While these protected areas provide needed habitat, populations on private lands are still threatened by land conversion. Land development in the southern Appalachians represents a major threat to the masked and pygmy shrews. Land use in this region is rapidly changing from rural/agricultural to urban. An unpublished study conducted by SCDNR showed a 4-fold increase in development to every one-fold increase in population between 1983 and 1998 (Richard Lacy, personal communication). Increased predation from domestic cats and dogs, direct displacement from development and limited movement across roads that form barriers are expected as development increases in the southern Blue Ridge Mountains.

Shrews and some other rodent species are readily found dead in discarded glass and plastic uncapped bottles; sometimes multiple animals are trapped in a single bottle. Therefore, unnecessary losses associated with refuse entrapment represents one of the challenges that litter poses to the ecosystem.

Destruction of hemlock forests by the exotic hemlock wooly adelgid (*Adelges tsugae*) may also impact local masked shrew populations (Laerm et al. 2004). It is important that entire hemlock-associate communities be sampled and monitored at permanent plots in order to measure effects of hemlock wooly adelgid infestations and to evaluate the effectiveness of recent releases of exotic predatory beetles to control the infestation (Conway and Culin 2004).

CONSERVATION ACCOMPLISHMENTS

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CONSERVATION RECOMMENDATIONS

- Re-examine current state rankings for masked shrews and pygmy shrews. Adjust those rankings based on any new surveys, as appropriate.
- Encourage various groups to increase litter removal.
- Conduct ecoregion-wide surveys to determine masked shrew and pygmy shrew distribution and density. All capture data should be shared with neighboring states.
- Consider partnerships that can help educate the public that litter can be extremely harmful to native wildlife.

MEASURES OF SUCCESS

As research and management needs are identified, projects should be proposed and prioritized by those with the greatest conservation applicability. Surveys and density estimates in the southern region should provide population estimations that will be used to more accurately rank the species and prioritize future management needs. The effectiveness of anti-litter campaigns can be readily verified by the amount of trash removed before and after the projects.

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