

Silver-haired Bat

Lasionycteris noctivagans

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DESCRIPTION

Taxonomy and basic description

The silver-haired bat was described by Le Conte in 1831. It is monotypic. A medium sized insectivorous bat, the silver-haired bat weighs 8.1-11 g (0.286-0.388 oz.) as an adult, and has a total length of 92-115 mm (3.62-4.53 in.). The forearm measures 42-44 mm (1.65-1.73 in.) and the foot measures 7-11 mm (0.27-0.43 in.). The fur is dark brown or black with distinct white or silver tips. Older bats have a less frosted appearance. The ears are rounded and the tragus is broad. Litter size is 1-2 young in a single birth per year, with 2 being typical. Photo by Sally King ,NPS



This bat is often grouped as a tree bat because roosting habitat includes tree features such as foliage, lightening scars and loose bark and they are frequently found roosting alone. Other times it is lumped with colonial cavity or crevice-roosting bat species because they have been found in small groups in tree features and man-made structures. The silver-haired bat is best described as a migratory, often solitary, crevice-roosting bat, with exceptions to each.

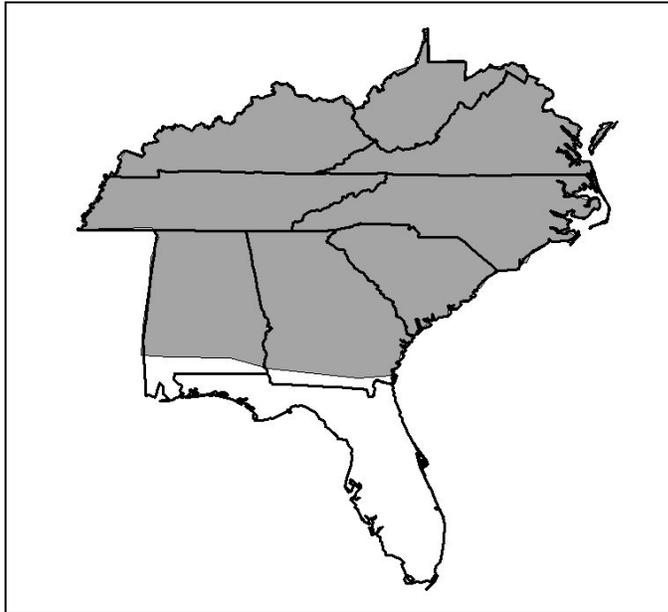
Status

The silver-haired bat is Not Ranked in Virginia, South Carolina and Florida (they are not typically found in Florida). Georgia ranks the silver-haired bat as Secure (S5), while North Carolina ranks the species as Apparently Secure (S4). Its designation in West Virginia is Imperiled (S2). The species has a global status of Secure (G5). The Alabama bat working group ranks the silver-haired bat to be of Moderate Conservation Concern.

POPULATION SIZE AND DISTRIBUTION

The distribution of the silver-haired bat is thought to be widespread in the United States. It is migratory, although in some regions, such as British Columbia, they can be found year-round. They migrate south in the fall, where they overwinter, and north in the spring where they give birth and raise their young. The silver-haired bat is a long-distance migrant, traveling distances of more than 1600 km (994 mi.) between winter sites and summer sites. Evidence suggests that females of the species migrate farther than males.

Summer records for silver-haired bats in South Carolina are lacking. Density estimates are likewise not available. When found in groups, the groups tend to be of a dozen



individuals or less. However, they are often found as singles. Nothing is known about their social structure or why they sometimes form small colonies that tend to re-form when the group changes roosts. When small colonies switch summer (maternity) roosts, they do not all switch at the same time but do switch roosts the same night so as to remain together. Studies of relatedness of individuals in summer and winter colonies have not been done.

Figure 1. Distribution of the *Lasionycteris noctivagans* in the South.

The silver-haired bat is distributed statewide in South Carolina in the winter; they are not typically found in the lower Piedmont or Inner and Outer Coastal Plain in South Carolina in the summer. During a study from 1996-2001, silver-haired bats were not detected at the Savannah River Site in the Inner Coastal Plain of South Carolina during summer. Acoustic survey of sites along the shores of Keowee and Jocassee Lakes in 2012 did detect silver-haired bats in July. Significant silver-haired bat mortality has been documented at wind energy facilities in the eastern United States, particularly during fall migration.

Human deaths from rabies have been linked to tri-colored bat (*Perimyotis subflavus*) and silver-haired bat strains of the rabies virus at a greater rate than the bats' abundance would suggest. The silver-haired bat strain is more virulent than other bat strains, but it is not known if silver-haired bats succumb to rabies at a higher rate than other North American bats.

HABITAT AND NATURAL COMMUNITY REQUIREMENTS

In summer, silver-haired bats are often captured over or near water. Documented summer roosts include tree cavities, under loose bark, under tree foliage, and occasionally in buildings. They engage in frequent roost site switching when using trees. The average distance recorded for summer roost switching noted in British Columbia is 194 m (636 ft.).

Winter roosts include rock crevices, stacks of firewood, caves, tree crevices created by lightning strikes, under loose bark, buildings, bird nest boxes, and in tree cavities, including those created by woodpeckers. In Arkansas, winter roosts are frequently on canopy trees, most often shortleaf pines (under loose bark) and less frequently in cavities in white oak (*Quercus alba*), northern red oak (*Quercus rubra*) and black gum (*Nyssa sylvatica*). However, they are also found in rock crevices (reused over multiple years), and during colder weather, under a tree root or in a hole at the base of a tree. Winter roosts in Arkansas are most often on the south-facing aspect of terrain, and the average height in trees is slightly over 5 m (16.4 ft.). Spring migratory season roosts in Canada are typically 2.5-3 m (8.2-9.8 ft.) above ground in trees. The optimal temperature for hibernating silver-haired bats in Missouri is 5°C (41°F) and is consistent with that for red bats (*Lasiurus borealis*) in the same area.

The silver-haired bat may forage above a cluttered environment. They do not avoid gaps in canopy cover and seem to select larger woodland seasonal pools, in open canopy, over small pools, and in closed canopy. Most foraging is done in openings but they have been documented using low (near 5 meters above ground) open areas below very high canopy trees with little vertical structure below the canopy. They often use pine or mixed pine-hardwood forests for foraging and roosting. Their flight speed has been described as slow, 4-8 m/sec (10.7-11.2 mph). Prey consists of Lepidopterans, Homopterans, Dipterans, Hymenopterans, Hemipterans, Coleopterans and Neuropterans. In the southeast some foraging activity of silver-haired bats has been noted in winter during warm spells.

Silver-haired bats may delay foraging periods, when big brown bats (*Eptesicus fuscus*) are abundant in the same area, and forage earlier when the big brown bat is not prevalent.

CHALLENGES

- Loss of roost habitat due to development and forestry practices (man-made alterations and anthropogenic changes).
- Loss of habitat and direct mortality from natural causes such as hurricanes.
- Collisions with wind turbines or injury from active turbines (currently not in SC).
- Collisions with towers.
- Possible vulnerability to heavy metal contamination because they often forage over water.
- It is not known if white-nose syndrome, a fungal disease of hibernating bats, will afflict silver-haired bats.

CONSERVATION ACCOMPLISHMENTS

None of the experts contacted in the mammal review process had knowledge of any funded projects dealing specifically with the silver-haired bat in South Carolina. These bats are detected sporadically but are poorly understood.

CONSERVATION RECOMMENDATIONS

Management

- In timber harvest projects, retain a snag density of >21 snags/hectare.
- Work with wind energy development companies to mitigate impacts of wind turbines (e.g. increasing the cut-in speed of turbines to reduce mortalities).
- Only flashing lights should be used on towers, rather than constant on lights; this is now regarded as acceptable by the FAA and can reduce bird and bat mortality.

Priority research and survey needs

- Research the migration routes, timing and patterns of the silver-haired bat.
- Determine where South Carolina's over-wintering population goes for the summer (perhaps by using stable isotopes from hair or nail samples).
- Study potential impacts from wind farms and develop strategies to reduce silver-bat mortality.
- Determine winter roost site and habitat requirements.
- Determine if silver-haired bats are threatened by pesticide and/or heavy metal contamination.
- Examine the impacts of winter burns during cold weather on silver-haired bats (particularly on south-facing burn units).

Monitoring

- Maintain capture and location information for silver-haired bats.
- Use vehicular acoustic surveys to monitor silver-haired bats occupancy rates on a seasonal and annual basis.

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 some population estimations that will be used to more accurately rank the species and prioritize future management needs. It is important to determine important roost site locations to provide long-term habitat for the species. Currently, very little is known about silver-haired bats in South Carolina.

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