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Northern Short-tailed Shrew

Northern short-tailed (Blarina brevicauda) shrews inhabit most of North America from southern Saskatchewan and Nova Scotia in Canada to central Nebraska and Georgia in the United States. Latin words brevis, meaning "short" and cauda, meaning "tail". Subspecies **Blarina brevicauda kirtlandi** inhabits most of PA, with the subspecies B. b. talpoides in the north-eastern corner of PA. Most common mammal in PA, and the most abundant and widespread shrew in PA.

Total Length: 3.9 – 5.1 in. Tail Length: .7 – 1.2 in. Weight: .4 - .8 oz. Males are slightly larger than females. Population Density: 1 – 10/acre. Home Range: .5 – 1 acre. Longevity: in wild, up to 2 years; captivity, up to 33 months. Teeth: 32.

Possesses a pair of extrapulmonary bronchial diverticula emerging from the dorsal caudal margin of the right posterior lobe of the lung, which may be a morphological adaptation to the environment in which the shrews live. Dust collect in the diverticula, balls up, is ejected into the lungs by the muscular action of the diverticula, and is removed by peristalsis.

The average red blood cell count was 18 million/mm, very high for mammals, whereas the average white blood cell count of 2,730/mm was low.

The metabolic rate is characterized by short periods of activity with intervening periods of inactivity. The pattern is nearly continuous, although there is a distinct tendency for them to be more active in the early morning. Shrews are active of only 16% of a 24-hour period, the remainder being spent at a lower, resting metabolic rate. Researchers hypothesized that this, together with the proclivity of these shrews to eat nearly any source of energy, accounts for the ability of the species to survive in cold temperature climates. Food consumption in winter is about 43% higher than in summer. If we were to eat proportional same amount, that would be between 100 and 200 pounds of food per day.

The venomous nature of the saliva was suspected as early as 1889, and several researchers described the serious effects experienced after they were bitten. Containing a neurotoxin and a hemotoxin, the poison is secreted from the submaxillary glands through a duct at the base of the lower incisors; when it bites another animal, the toxic saliva flowers along the groove between the two teeth into the wound. In small mammals, the toxin can lead to death from respiratory failure accompanied by severe peripheral vasodilation. In addition to its role in predation, it may aid in the breakdown of protein during digestion. One function of the venom is to stun or paralyze its prey. If not consumed immediately, the prey is cached in a comatose state and, thus, is available as a fresh source of food for a period after capture.

Evidence that they employ echolocation to explore their environment was first presented in 1964. Ultrasonic "clicks" emitted by the shrews were used to distinguish size of openings, open and closed tunnels, and bends. They could also distinguish among different kinds of materials in the tunnels. Similar to other shrews, northern short-tailed shrews also have a highly developed sense of touch, particularly in the snout and vibrissae.

Northern short-tailed shrews make a variety of sounds (chirps, buzzes, twitters) when fighting with other individuals. They make a clicking sound during courtship.

Normally solitary, the breeding season extends from February to September. Females produce 2 to 3 liters per year. Gestation lasts about 21 days. Litter sizes range from 4 to 8 young. Neonates are born naked and helpless (altricial) (except for tiny whiskers (vibrissae)) and about “honeybee size”, with closed eyes and ears. Weaning occurs at 25 days of age and can reproduce at 85 days of age.

Insects, annelids, plant material, centipedes, arachnids, mollusks, earthworms, millipedes, vertebrates (mice, voles, snakes, salamanders, and birds), fungus and carrion make up their diet. Northern short-tailed shrews are also known to cache food induced by a sudden abundance of prey.

Shrews are preyed upon by owls, hawks, snakes, shrikes, wild and feral cats, wild and domestic canids, skunk, weasel, raccoon, opossum and even fish. Many animals will kill, but not eat due this shrew due to its offensive smell. The musky odor is produced by three large scent glands and is important in establishing territories and individual recognition.

These shrews are semifossorial (under the ground) or subnivean (under snow) with runways usually parallel to the surface but occasionally ascend vertically. Shrews generally dig with their front feet and, when enough soil accumulates, kick it from the tunnel entrance with their hindfeet. If the distance to the entrance is great enough, they do a sideways somersault and push the dirt out with their noses. They dig at a rate of approximately 1 inch/min with frequent stops for short naps. Shrews spend relatively little time on the surface of the ground but have been reported to climb trees. They commonly forage in runways of meadow voles. They are more active on cloudy days than on sunny or rainy days.

During snowy winters, these shrews achieve a higher survival as they take advantage of the development of the subnivean space, which in turn provides a very stable microclimate foraging zone. The presence of snow eliminated temperature fluctuation and the combination of snow and leaf litter during winter was effective in moderating temperatures at the soil-leaf litter interface. Generally solitary and quite uncommon for shrews, this species, and more so in winter, can be gregarious and colonial. As many as 31 individuals were found sharing a single nest in the wild, which is thought to aid in conserving heat during frigid weather.

Two distinct types of nests are constructed: a breeding nest and a smaller resting nest. Both are generally located from 6 to 16 inches below ground or under logs, stumps, or old boards. They are made of grasses, sedges, leaves and sometimes mammal fur arranged in the form of a hollow ball. Breeding nests are considerably larger, ranging in size from 6 to 8 inches in diameter. Both nests have openings radiating to elaborate underground burrow system. Rarely defecating in their nest, shrews usually deposit feces along the side of outdoor runways or in special “latrine” sites in their burrows.

These shrews do well in a variety of moist habitats including deciduous, coniferous, and mixed forests, old fields, meadows, brushy thickets, and grasslands. Habitats lacking a well-developed layer of leaf litter and humus, dry ridges and shall banks do not support a population of this insectivore.