Muskrat in New Jersey

The muskrat (*Ondatra zibethicus)* is the most valuable furbearing animal in New Jersey in terms of the number of animals harvested and revenue from pelts. Muskrat fur is considered economically valuable and large numbers of animals are harvested for their pelts. The animal is also capable of habitat damage, and management of muskrat populations is essential where they are established.

The muskrat (Ondatra zibethicus) is a semi-aquatic rodent that is widely distributed throughout North America. The muskrat is widely distributed throughout most of North America (Perry, 1982) ranging from the McKenzie Delta, Alaska, in the North and in all but the northern extremes of Canada, to northern Mexico in the South. It is absent in many areas including most of Texas and California as well as the southeastern Atlantic Coast (Florida, coastal Georgia and South Carolina) although the habitat of these regions appears suitable

In New Jersey, the species occupies a number of estuarine habitats, including impounded and natural tidal and inland marshes and freshwater ponds, streams, and lakes. Muskrats are most successful in brackish marsh habitats. Although flexible in their habitat requirements, muskrat must have a source of slow-moving water and a protected site to rear young. Other habitat preferences are related to a stable water level, herbaceous cover, substrate type and water velocity. A 50:50 ratio of brackish water and dense vegetative cover makes for ideal habitat. Clay soils are particularly desirable and allow them to construct their burrows.

Muskrat have been negatively affected in recent years by habitat destruction, drought, and winter storms. Dredging, channelization, stream-bank protection, and oil spills are also detrimental to their populations. The most productive marsh areas in New Jersey appear to be brackish, threesquare bulrush tidal marshes. Tall saltmarsh cordgrass, cattail and tall cordgrass marshes are also considered valuable. Muskrat obtain their highest numbers in the brackish marshes of Salem, Gloucester, Cape May and Cumberland counties.

The muskrat is best described as a vole adapted to aquatic conditions. The muskrat is stocky with a broad head, small ears and small eyes. The tail is long, scaly, flattened and rudder-like. The short legs are modified for aquatic life with its hind feet partially webbed, while the front feet are unwebbed, smaller and used for skillful manipulation. The fur is soft and velvety, consisting of a thick waterproof underlayer and a coarser, longer glossy over-layer of guard hairs.

Adults tend to have a total length of 16 to 25.5 inches and weigh an average of 2.2 to 3 lbs. Muskrat weights vary geographically, but males are slightly heavier than females.

The animal's common name arises from the odor associated with the species during breeding season. Both sexes have musk glands located near the anus. A yellowish, musky smelling substance is secreted and deposited at stations along the routes of travel of muskrats, at defecating posts, and at bases of lodges and mud bars. The scent retains its properties long after its exposure to air and serves as an advertisement during the breeding season. The muskrat is polyestrous with an estrous cycle of about 30 days. Both sexes are promiscuous or loosely monogamous (some males help construct lodges and care for orphaned young).

In New Jersey, two to three litters are common. Young muskrat open their eyes at 14 to 16 days and are weaned at four weeks. At three weeks, young muskrat are able to dive and swim when disturbed at the lodge. Four-week-old muskrat are fairly independent but susceptible to exposure especially in rainy weather. Once weaned, the young may continue to use their natal nest or may move away. Sexual maturity is usually reached by one year.

Few movements of muskrats exceeded 150 meters, whereas almost all foraging took place within 5 to 10 meters of the lodge. Feeding sites of muskrats occur at burrow openings, undercut banks, stumps, logs and snags. Muskrats are primarily herbivorous, although foods and feeding habits vary with habitat, season, and availability. Habitat tends to be the major factor in determining what kinds of food a muskrat will eat. Muskrats in streams and canals eat a greater variety of foods, including animal matter, than muskrats in marshes. Consumption of animal matter is generally considered less important in the diet of muskrats, although consumption of aquatic invertebrates is highly beneficial during the winter months. The animal's diet can include fish, freshwater mussels, clams, insects, crayfish and snails. Plant material eaten by muskrats consists of the stems, leaves and rootstocks of marsh plants. Cattail and bulrush are always utilized when present and can constitute as much as 80 percent of the muskrat's diet.

High muskrat population density may result in the elimination of preferred food plants in an area, possible disease problems or an eventual decline in the muskrat population. These eat-outs may severely affect the peat layer and retard vegetative regeneration for several years. Once the available vegetation is eaten, muskrats dig into the peaty marsh floor as deep as 2 inches to consume the roots which help bind the marsh soil.