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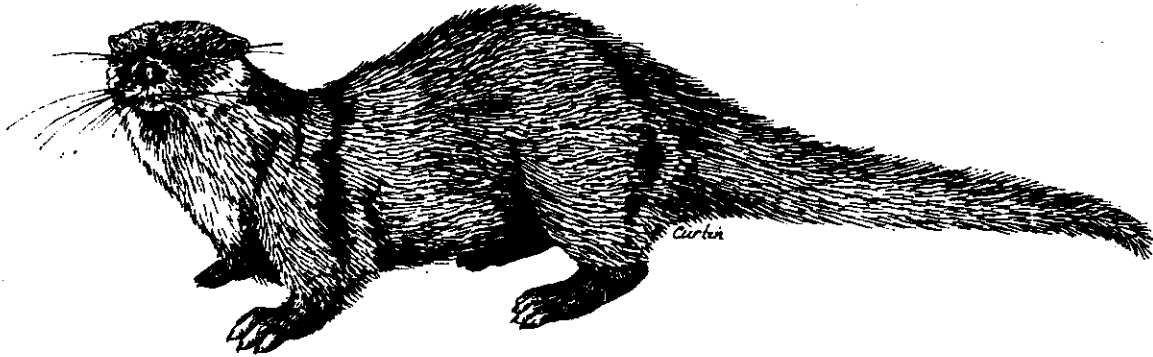
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RIVER OTTER (*Lutra canadensis*)

Description

The river otter is an intriguing animal which easily captures the attention of all who see it. The most aquatic member of the weasel family (Mustelidae), the river otter has a broad, flattened head, small eyes, and small, rounded ears. Its long, sensory vibrissae (whiskers) are prominent on either side of the snout, and below the chin. This mammal's body is long, almost cylindrical, with a stout neck nearly the same diameter as the head; its legs are short and powerful, and its tail heavy and flattened on the underside, tapering toward the tip. It is the only member of the weasel family possessing webbed feet and a heavily muscled tail. The river otter has a pair of anal scent glands similar to the weasel, mink, and skunk, but less well-developed than these other mustelids. Feet consist of a palm with five clawed toes on each foot. Except for the pads on the toes and soles, the undersurfaces of the feet are furred, and the nails are nonretractable.

The river otter has a coat of dense, lustrous fur consisting of a close, waterproof undercoat and an outer coat of stiffer, longer guard hairs. Insulating it further for its aquatic existence is a layer of fat under this rich pelage. The otter's color varies from a dark brown (which appears nearly black when wet) on its back and upper sides to a light brown to silver gray on the underside and around the lips, cheeks, chin, and throat. Coat density and color varies with climate. Adult river otters



measure 900-1346 mm (35.5-53 in) in length with the tail accounting for at least one-third of the total length. The hind leg measures approximately 100 mm (4 in). Weight ranges from 4.5-13 kg (9.9-28.6 lbs). Females are about 5% lighter than males. The river otter lives both on land and in water, but is particularly well adapted to its aquatic existence. Its streamlined body, webbed feet, and long tapering tail are obvious external adaptations to underwater locomotion. The dorsal position of the otter's eyes enable it to see above water while swimming nearly submerged. Otters are nearsighted, an adaptation for underwater vision, but apparently can detect movement at considerable distances.

River otters are expert swimmers and divers. They reach an average speed of 11.2 km/hr (7 mph) during swimming and when diving can stay under for up to 2 minutes. Unlike the muskrat or beaver, the otter hardly causes either a ripple when swimming or a splash when diving. During a dive they close their ears and valvular nostrils, making themselves watertight. Otters rely heavily on tactile sense underwater to find and catch prey. Their stout facial whiskers are extremely sensitive and moving prey can be detected through sensations received by the vibrissae. This is especially useful in turbid water, such as the otter creates as it searches for food on the muddy bottoms of lakes and streams. The otter's dexterity has been demonstrated in many ways; for example, while underwater, they are capable of releasing a pebble and retrieving it before the pebble reaches the bottom.

Other common names for the river otter include northern river otter, Canadian otter (for the country where the first specimen was collected and technically named, canadensis), land otter, and fish otter.

Distribution and Abundance

Historically, the river otter was found over much of the North American continent, excluding the driest parts of the southwest. It was not until the 18th century that the otter population experienced extirpation or extreme population reductions in much of the United States due to settlement and consequent alteration of otter habitat, together with overharvesting in some areas. Presently, river otters are still relatively abundant along the coasts of the Atlantic Ocean and the Gulf of Mexico, throughout the Pacific Northwest and Great Lakes states, and across most of Canada and Alaska.

Population density and abundance estimates are difficult to obtain. Densities of river otters in a given area are usually low because of the large territories held by individual males. Currently the New York State Department of Environmental Conservation (DEC) is compiling river otter data collected from trappers' harvests over an 8 year span. These figures indicate survival rates for juvenile (< 1 year old) otters to be 50-60% with no significant difference between sexes. The male adult otter's survival rate is 56-61% and female adults have a slightly higher survival rate of 60-72%.

Life History

The breeding period for river otters in New York occurs in March and April. Female otters do not reach sexual maturity until 2 years of age, and although males become sexually mature at that time, they often do not become successful breeders until 5-7 years old. The estrous period of a female may last from 42-46 days if breeding does not take place. Copulation may occur on land, but most often occurs underwater. Otters are polygynous; a male usually will mate with several females within its territory.

The length of gestation in otters may vary from 9 to 12 months. This variation is due to a process called delayed implantation and is common to most members of the weasel family. It involves the arrest in development of the fertilized egg at the blastula stage. The egg remains dormant and free floating in the uterus for a variable period of time before it implants into the uterine wall and resumes development. Mechanisms for this complex phenomenon are not known, although experiments with other mustelids indicate that it may be associated with photoperiod.

Female otters give birth between January and May. Two or three cubs or kits are usually born per litter, with extremes of 1-5. After the birth of the young the female curls tightly around them in a "doughnut" shape and may put her head over the "hole" above them. At birth the cubs are blind and toothless, but fully-furred. The eyes open at about 5 weeks of age, at 40 days old cubs are active and playful, and at 75 days they forage with the female. Weaning occurs between 4-5 months of age. A river otter mother is attentive and protective, whereas the male usually does not assist in rearing the young and is in fact normally solitary except during breeding season.

Mother otters introduce their cubs to water when they are between 2-3 months of age. Young otters are not natural swimmers, and have even been described as being "top-heavy", their heads bobbing under, while their rear ends come up. The female will take her kits on her back at the edge of the water, and will repeatedly dive and return to support them until they learn to swim unassisted. Young otters may leave the female as early as the fall, but will usually stay with her through the winter, leaving in spring when she prepares to give birth again.

Sex ratios of otters in New York are thought to be about 1:1, although the number of males in most samples (usually trapper caught) is generally greater than the number of females. This was observed in a study conducted by the DEC in 1976 in which New York trappers contributed 216 male and 155 female carcasses. This observation of sex differences in harvest is thought to be due to the male otter's greater vulnerability to trapping because they range more widely than females.

Little is known of the home range or extent of movements of river otters. The degree of movement of these animals depends greatly on whether

the animals are mature with an established territory, or juveniles searching for a permanent homesite. A large yearly home range may include 80-160 kilometers (50-100 miles) of shoreline and overland range varies greatly according to the surrounding topography. About one-third of the otters in an area are territorial, one-third are yearlings, and one-third are temporary residents. A home range has many areas of intense use, including dens, rolling areas, feeding places, sprainting areas (defecation sites and/or sites of excretion of scent from anal scent glands), haul-outs, and runways. Otters are diurnal but are most active during the twilight hours. Contact between otters in a territory is low because they will avoid areas marked by another's scent. Though capable fighters, known to be victorious over dogs of comparable size, aggression between otters has only rarely been observed.

River otters are active and extremely curious animals. In captivity they have been taught to retrieve objects from land or water, to capture and retrieve fish, and to hunt other animals. They demonstrate an extremely good memory; in one instance an otter that had learned to operate a feeding device in its cage was able to repeat the behavior when the device was reintroduced after having been removed for 2 years.

River otters have been clocked "running" at 24.3-28.8 km/hr (15-18 mph) on land. They achieve this speed on snow, ice, or dry land by alternating 2-4 loping gaits with a series of 1.5- to 4.5-meter (5- to 15-foot) slides, gliding as much as 7.5 meters (25 feet) on ice. They slide by quickly pushing off with all four legs, and folding them backwards. The slide may terminate with a tumble into a snowdrift or a splash into a pool of water. It has been suggested that this "playlike" behavior is not as common in wild otters as it is in captive ones. A radio telemetry study of otter behavior in Idaho reported that playlike behavior occupied only 6% of the otter's daily activity.

The nature of communication among river otters is mainly olfactory, as demonstrated by the use of territorial scent markings. Adults seldom vocalize, but when they do it is through a vocabulary of chirps, chuckles, grunts, whistles, and screams.

River otters are carnivores. They are opportunistic feeders, taking advantage of the food, mostly animal, that is most abundant and easiest to catch. Fish is the primary food in an otter's diet and they catch these by either chasing or ambushing. Otters do occasionally feed on trout, but the slower-moving fish such as suckers, chubs, and bullheads are the fish eaten most frequently. Other components of the otter's diet are crayfish, frogs, small invertebrates, snakes, and occasionally mammals and birds (the latter usually in the form of carrion). Otters have been reported to stalk and eat animals such as voles, rabbits and ruffed grouse. Often, when the otter usurps muskrat dens, the muskrat will be killed and eaten. A variety of food items seems to be important nutritionally, because otters in captivity have been shown to do poorly on a diet of only fish.

Otters typically forage by diving and chasing fish, or by digging in the substrate of ponds and streams. Although otters are expert divers, foraging is not always successful. One study found that the success rate of foraging dives was less than 20%. When successful, otters will eat their prey head first, and in the case of fish, will discard the fins. After eating, they will clean their face and whiskers by rubbing them on grass or snow.

Adult river otters are subject to few natural predators, perhaps the major danger being to cubs when they venture overland. Parasitism and disease are not known to have severe impacts on otter populations; however, 3 ticks have been collected from this animal, Ixode banski, I. hexagonus,



and I. uriae. Internally, 2 trematodes (flukes) and 4 nematodes (roundworms) have been found to afflict the river otter. Otters are apparently susceptible to canine distemper, hepatitis, human tuberculosis, and perhaps feline panleucopenia. Malnourishment is probably not a limiting factor, except in icebound areas of the far north.

Habitat

River otter habitat is primarily aquatic although it includes land bordering and between waterways. They prefer deep bodies of water, but rivers, lakes, beaver flows, and small brooks, and the shores and banks thereof, may support otter populations. Otter populations are extremely sensitive to changes in habitat. They have been extirpated from nine states and one Canadian province in recent times and without exception the primary cause of decline was habitat destruction. Otters tend to avoid polluted or disturbed waterways; the disappearance of otters from West Virginia and parts of Tennessee and Kentucky was attributed to increased acidity of ground water due to mining operations. Other causes of habitat destruction include pollution of waterways with industrial effluents (i.e., mercury), development of waterways for recreational or industrial uses, alteration of riparian lands for homesites or farmland, and decline in water quality resulting from siltation or the presence of pesticides. It is not yet clear what the effects of acid rain are on the state's primary otter range in northern New York.

River otters do not excavate their own dens but will occupy dens previously made by beavers, muskrats, or woodchucks. Occasionally, beaver and otter are found cohabitating in a single lodge. They will also den in natural shelters, such as beneath rocky ledges or fallen trees or inside log jams, drift piles, loose rock, and even abandoned boat houses and duck blinds. Occasionally, they will build a nestlike structure in aquatic vegetation.

Dens will have openings above water in summer, but in winter these are closed and the only entrance is below water. The entrance opens up to a large nest chamber which may have a bare floor or a slight accumulation of leaves or grass.

Economic and Social Values

River otter fur is the most durable fur native to North America, and has been used as a standard against which to price other fur. Consequently, it has been in demand ever since Europeans came to this continent. Pelts of river otters and sea otters were the favorite fur of Russian nobility and Chinese mandarins. Today hundreds of river otter pelts are exported annually to European furriers. Within the last decade, prices for prime otter pelts in New York have ranged from \$20 to \$60. Annual U.S. revenue from pelts reached a high of \$3,000,000 in the 1976-77 season. While the monetary value of this animal can be estimated, its significant contribution to the wilderness ranges it inhabits and to our enjoyment of them is immeasurable.

Management

Management of the otter in New York State began with their total protection between 1936-45. Prior to closing the season in 1936 there had been no regulation of harvest in New York. After nine years of complete protection, the otter population increase was so marked that the Legislature gave the DEC authority to open a limited season in specific sections of the state. Additional regulations have involved catch limits and careful monitoring of the population via report-tagging procedures. Perhaps the most essential form of management in maintaining a viable population of this valuable renewable resource lies in the protection of the remaining undeveloped habitats which support the river otter.

-- C.W. Coulter
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(Illustrations drawn by Donna Curtin.)

Selected References

- Anderson, K.L. and P.F. Scanlon. 1981. Reproduction and population characteristics of river otters in Virginia. Va. J. Sci. 32(3):87.
- Baker, R. 1983. Michigan Mammals. Michigan St. Univ. Press, Detroit, MI. 642 pp.

- Chapman, J.A. and G.A. Feldhamer (eds). 1982. Wild Mammals of North America. The Johns Hopkins Univ. Press, Baltimore, London. 1147 pp.
- Field, R.J. 1970. Winter Habits of the River Otter (Lutra canadensis) in Michigan. Mich. Acad. 3(1):49-58.
- Hamilton, W.J., Jr. and W.R. Eadie. 1964. Reproduction in the otter (Lutra canadensis). J. Mamm. 45(2):242-252.
- Hamilton, W.J., Jr. and J.O. Whitaker, Jr. 1979. Mammals of the Eastern United States (2nd ed.). Cornell Univ. Press, Ithaca, NY. 346 pp.
- Jackson, H.T. 1961. Mammals of Wisconsin. Univ. of Wisc. Press, Madison, WI. 504 pp.
- Jones, M.C. 1979. Longevity of Mammals in captivity. Internat. Zoo. News 26(3):16-26.
- Liers, E.E. 1951. Notes on the river otter (Lutra canadensis). J. Mamm. 32(1):1-9.
- Melquist, W.E. and M.G. Hornocker. 1983. Ecology of River Otters in West Central Idaho. Wildlife Monograph 83:1-60.
- NYS DEC. 1977. The otter in New York State. FW-P88 Division of Fish and Wildlife brochure.
- Peterson, R.L. 1966. The Mammals of Eastern Canada. Oxford Univ. Press, Toronto. 465 pp.
- Schwartz, C.W. and E.R. Schwartz. 1981. The Wild Mammals of Missouri. Univ. of Missouri Press, Columbia, MO. 356 pp.
- Trimm, W. 1977. Otter. The Conservationist 31(6):23.
- Will, G. and M. Brown. 1981. Adirondack Furbearers. The Conservationist 35(4):32-37.