Mammalian Species  No. 608, pp. 1–9, 3 figs.

Mustela vison.  By Serge Larivière

Published 5 May 1999 by the American Society of Mammalogists

Mustela Linnaeus, 1758

Mustela Linnaeus, 1758:45. Type species Mustela erminea Linnaeus.

Arctogale Kaup, 1829:30. Type species Mustela erminea Linnaeus.

Ictis Kaup, 1829:30. Type species Mustela vulgaris Erxleben [= Mustela nivalis Linnaeus].

Gale Wagner, 1841:234. Type species Mustela vulgaris Erxleben [= Mustela nivalis Linnaeus].

Neogale Gray, 1865:114. Type species Mustela frenata Lichtenstein.

Mustelina Bogdanov, 1871:167. Type species Mustela erminea Linnaeus and M. vulgaris Erxleben [= Mustela nivalis Linnaeus].


1. Species present in at least parts of North America .......................... 2

2. Species absent in North America ............................................. 6

3. Length of upper tooth-rows <20 mm in males and <17.8 mm in females; pelage white in winter ........................................... 3

4. Length of upper tooth-rows >20 mm in males and >17.8 mm in females; pelage coloration constant throughout the year ........................................... 5

5. Postgonaloid length of skull <47% of condylobasal length ................ 4

6. Postgonaloid length of skull <47% of condylobasal length .... Mustela frenata

7. Total length <210 mm; tail <40 mm, without black pencil or with few black hairs at extreme tip; skull length <33 mm; mastoid breadth usually exceeds breadth of brain case ........................................... 4

8. Total length >210 mm; tail >40 mm, and with black pencil; skull >33 mm; mastoid breadth smaller than breadth of brain case in females ................................ Mustela erminea

9. Abdomen white; face with blackish mask; m1 lacking trace of metacoonid ........................................... M. nigripes

10. Abdomen dark brown; face uniformly brown without blackish mask; m1 with incipient metacoonid; Mustela vison

11. Species present from eastern European Russia to eastern Siberia and Thailand, Japan and Taiwan Mustela eversmannii

12. Species absent from Japan or Taiwan .......................................... 12

13. Species with underparts deep yellow Mustela kathiah

14. Species with underparts not deep yellow .................................. 13

15. Species with narrow white stripe centrally on back and venter Mustela streigdora

16. Species without narrow white stripe centrally on back and venter Mustela alaica

Distributed in southern Siberia to the Himalayan region and Korea ........................................... 14

Distributed in Korea or Siberia ........................................... 15

Distributed in Malay Peninsula, Sumatra, and Borneo; head much paler than rest of body; tail >200 mm Mustela nudipes

Distributed in southern Sumatra and Java; absence of masks or other facial markings; tail <200 mm Mustela lutreolena

Mustela vison Schreber, 1777

American Mink

Mustela vison Schreber, 1777:pl. 127B. Type locality “Eastern Canada” (= Quebec). (M. nigrescens Audubon and Bachman and M. winingus Baird are synonyms.)

Putorius (Lutreola) lutrensis Bangs, 1898:229. Type locality “salt marsh opposite Matanuska Inlet, [St. Johns County,] Florida.”

Mustela mink Peale and Paliot de Beauvois, 1796:39. Type locality “Maryland” (M. lutreopcephala Harlan, M. rufa Hamilton-Smith, and M. minx Turton are synonyms.)

Putorius (Lutreola) vulginus Bangs, 1895:539. Type locality “Burbidge, [Plaquemines Parish,] Louisiana.”

CONTEXT AND CONTENT. Subgenus Vison. The extinct sea mink (M. macrodon) is here considered as a separate species (Hall, 1981; Novak, 1991), although it is considered by many as a subspecies of M. vison (Wozencraft, 1993). Fifteen subspecies of M. vison currently are recognized (Hall, 1981).

M. v. aestivalis Grinnell, 1916:213. Type locality “Grizzly Island, Solano County, California.”

M. v. alaskensis Burns, 1964:1073. Type locality “vicinity of Aniak, along the Salmon River,” Alaska.

M. v. egregiumus (Bangs), 1896:5. Type locality “Sumas, British Columbia,” Canada.

Fig. 1. Adult Mustela vison. Photograph courtesy of H. Thomas.
M. v. eragor Hall, 1932:418. Type locality “Little Qualicum River [eight to nine miles west of Parksville], Vancouver Island, British Columbia,” Canada.

M. v. esergladens Hamilton, 1948:139. Type locality “Tanaimi Trail (U.S. Route 94), 5 miles SE Royal Palm Hammock, Collier County, Florida.”

M. v. inaeus (Osgood), 1900:42. Type locality “Fort Yukon, Alaska.”

M. v. lacustris (Preble), 1902:66. Type locality “Echinaminish River (near Painted Stone), Kewatin [Manitoba], Canada.”

M. v. letiffii Holliaster, 1913:475. Type locality “Elk River, Sherburne County, Minnesota.”

M. v. lowii Anderson, 1945:57. Type locality “Mistassini Post, Mistassini Lake, Mistassini District, Quebec,” Canada.

M. v. lutensis (Bangs), 1896:229. See above.

M. v. melanopus Elliot, 1903:170. Type locality “Kenai Peninsula, Alaska.”

M. v. pinet Peale and Palsot de Beavoirs, 1796:39. See above.

M. v. nesoletes (Heller), 1909:259. Type locality “Windfall Harbor, Admiralty Island, Alaska.”

M. v. vison Schreber, 1777:pl. 1278. See above. (Lutreola v. borealis Bras is a synonym.)

M. v. valensius (Bangs), 1895:339. See above.

**DIAGNOSIS.** In the New World, the American mink is the largest member of the genus Mustela. It is longer (body length >300 mm), heavier (>1,000 g), darker, and has a bushier and darker tail than the weasels *M. nivalis*, *M. erminea*, and *M. frenata* (Jackson, 1961). The skull of adult *M. vison* is always >54 mm in length and >29 mm in width, whereas the skulls of all weasels measure much less (Jackson, 1961). The North American river otter (*Lontra canadensis*) is similar in color but is much larger (>5 kg), has a tail tapering at the base, a grayish throat, and no white markings (Levrince and Walton, 1998).

In the Old World, the American mink may be confused with the European mink (*M. lutreola*). However, *M. vison* typically is 20–60% larger than *M. lutreola* (Maran and Henttonen, 1993; Youngman, 1982), and can be distinguished by the small size or absence of the white patch typically present on the upper lip of *M. lutreola*. In some areas, skull measurements may be necessary to distinguish *M. vison*, *M. lutreola*, and *M. putorius* (Linn and Birk, 1989; Ladé, 1995).

**GENERAL CHARACTERS.** The American mink (Fig. 1) has a long tubular body and short ears which scarcely project above the fur. The tail is 33% of body length. The feet are fully furred except for the pads and the tip of the toes, and the toes are only webbed at their base (Jackson, 1961). Females have two abdominal and four inguinal mammarys (Peterson, 1966).

The pelage is uniformly dark brown, becoming nearly black at the tip of the tail. The chin is usually white, and white markings also occur on the throat, chest and belly. Coloration does not change with season or age, but old animals may be grizzled with white hairs (Jackson, 1961). Albino, dun, or blond pelts occur infrequently (Lowery, 1974). By selective breeding, mink farmers have produced many colors that do not occur in the wild (e.g., ambergold and gunmetal—Jackson, 1961).

There is slight sexual dimorphism, with females 10% smaller in size and 95% lighter in mass (Hall, 1981). Averages and ranges (in parentheses) of external measurements (in mm) of *M. vison* in Louisiana (Lowery, 1974) for 29 males and 5 females, respectively, are as follows: total length, 568 (504–680), 517 (458–580); length of tail, 164 (167–200), 122 (152–185); length of hind foot, 68 (60–79), 52 (50–57); length of ear, 23 (19–27), 23 (21–25). Body mass (g) of *M. vison* averages (range), for males and females, respectively: 1,091.0 (905–1,392) and 671.8 (455–840) in northern United Kingdom (Scotland—Hewson, 1971); 1,153 (850–1,805) and 619 (450–810) in southern United Kingdom (England—Chanin, 1983); 1,225 and 852 (ranges unknown) in North Dakota (Eagle et al., 1984), Bacula of 126 males from North Dakota averaged 48.0 mm in length (range, 41.2–52.5 mm; Burt, 1960). Additional body measurements are available (Dunstone, 1993; Fairley, 1980; Hewson, 1971).

The skull (Fig. 2) is somewhat flattened with a short, broad rostrum and evenly spreading zygomatic arches. The lambda ridge is well developed in adults and extends posteriorly as far as the posterior border of the condyle. Auditory bullae are moderately inflated, about 1.5 times longer than wide. The bony palate extends posteriorly to the back molars (Jackson, 1961). Skulls of males and females are sexually dimorphic in size, but not in shape (Wigg, 1986). Average cranial measurements (in mm) in parentheses for 54 males and 35 females from Canada (Youngman, 1982), respectively, are as follows: condylobasal length, 70.8 (65.3–76.3), 63.7 (58.7–68.9); mastoid breadth, 36.5 (32.8–40.1), 31.8 (28.6–36.0); zygomatic breadth, 41.1 (35.9–47.1), 36.8 (33.6–40.6); palatal length, 32.4 (29.9–35.2), 28.7 (26.4–31.0); and cranial height, 24.7 (22.4–27.8), 22.5 (20.6–23.8). Skulls of mink raised on ranches are larger and have a relatively shorter palate and a relatively narrower postorbital constriction compared with those of wild mink (Lynch and Hayden, 1995). The dental formula is i 3/3, c 1/1, p 3/3, m 1/2, total 34. Deciduous teeth erupt 16–49 days after birth and permanent teeth erupt at 44–71 days (Ausreih and Swindle, 1960).

**DISTRIBUTION.** The American mink is found throughout Canada and most of the United States except Arizona and the dry parts of California, Nevada, Utah, New Mexico, and western Texas (Fig. 3). Mink were first brought to Newfoundland, Canada, in 1934 for fur farming operations. Subsequent escapes led to the estab-
FORM AND FUNCTION. The long, tubular body shape of the American mink makes it vulnerable to extreme temperatures (Brown and Lasiewski, 1972; Segal, 1972), and thermoregulation is achieved through behavior instead of morphology (Segal, 1972). Values for heart rate (ca. 265/min) and basal metabolic rate (B = 84.6 W/m²) for American mink are higher than predicted from energetic equations, likely as a consequence of the fusiform shape (Gilbert and Golton, 1982a; Iversen, 1972). Nevertheless, the streamlined body shape of the mink helps to reduce drag in the water while swimming (Williams, 1968) and enables access to the burrows of prey such as muskrats (Ondatra zibethicus) and rabbits (Oryctolagus, Sylvilagus, and Lepus).

The thick underfur and the oily guard hairs render the fur water-resistant (Lowery, 1974). The mean density of guard hairs from the mid-back section (780/cm²) and the length of guard hairs (24 mm) have an intermediate value between those of the more aquatic otters (Lutra and Lontra) and strictly terrestrial ferrets (Mustela putorius); this suggests that American mink possess incomplete adaptations to aquatic life (Dunstone, 1979). Molting occurs twice a year, during spring and autumn (Chanin, 1983). The spring molt begins in March–April, and the shorter summer fur is acquired by May. Pelage cycles are controlled by photoperiod (Duby and Travis, 1972; Rust et al., 1965).

Vision of the American mink is clearer in air than underwater (Sinclair et al., 1974). The peripheral olfactory structures of the mink are slightly regressed, and olfactory membranes cover only 14 cm²; reduction in the amount of olfactory membrane is likely the result of the semiaquatic lifestyle (Ferron, 1973). The American mink is able to hear ultrasonic vocalizations in the range emitted by rodents (Powell and Zielinski, 1989).

Mustela vison undergoes rapid bradycardia during submersion, and heart rate is lower during diving than during any other behavior (Gilbert and Golton, 1982b). Rapid onset of bradycardia is likely an adaptation to the conservation of oxygen during the short periods of apnea experienced by this unspecialized diver (Stephenson et al., 1968; West and van Yaer, 1986).

Mustela vison has two anal glands, which are used for territorial marking when excreting feces or by deliberate rubbing of the anal region on the ground. Anal gland secretions are composed of 2,2-dimethylthiethane (main component), 2-ethylthiethane, cyclic disulfide, 3,3-dimethyl-1,2-dihydroxypentane, and indole (Brinck et al., 1983). Mink are able to empty gland contents when under stress (Brinck et al., 1978), and the sulfur-containing compounds suggest that the secretions have a function for defense (Brinck et al., 1978).

Feces have a strong odor which originates from the proctodeal glands which open into the rectum. Feces are deposited in prominent places, likely to enhance the active range of the scent for territorial marking (Brinck et al., 1978).

REPRODUCTION. Mating season ranges from February to April (Hansson, 1947; Sidorovich, 1993), but most matings occur in March (Chanin, 1983; Venge, 1959). In Alaska, mating occurs in late April or early May, and parturition occurs in late June or early July, which is likely to coincide with the high availability of carasses of spawning Pacific salmon (Ben-David, 1997). Ovulation is induced by the presence of males or by attempted or successful copulation (Adams, 1981; Hanson, 1947; Venge, 1959). Duration of copulation averages 64 min but ranges from 10 min to 3–4 h (Hansson, 1947; Venge, 1959). Ovulation follows copulation by 36–48 h (Enders, 1952; Hansson, 1947). In one study of captive mink, 84% of eggs released were implanted, whereas as few as 50% of eggs released resulted in young (Hansson, 1947).

Mustela vison exhibits facultative delayed implantation (Hansson, 1947). Gestation averages 51 days, but may vary from 40 to 75 days, typically decreasing with increased temperature (Enders, 1952; Hansson, 1947). Actual embryonic development is 30–32 days (Enders, 1952). Onset of mating and gestation is controlled by photoperiod (Duby and Travis, 1972; Hammar, 1953).

Litter size averages four (range, 2–8; Mitchell, 1961; Sidorovich, 1993) and increases with female age (Sidorovich, 1993). Parturition occurs from April to June (Hansson, 1947; Sidorovich, 1993). At birth, the young are blind, possess a fine coat of short, white–gray–white hairs, and weigh ca. 6 g (Stiwall, 1981). Eyes open at 25 days, and weaning occurs after 6 weeks. Juveniles begin hunting at 8 weeks of age but remain with the mother until autumn (Peterson, 1966; Poole and Dunstone, 1976).

ECOLOGY. Musca domestica usually is associated with water, although the species can be found in xeric habitats if food is abundant (Arnold and Fritzsche, 1990; Gerell, 1967a). In prairie environments, flies are most frequently intercepted in wetlands with circular shorelines and large areas of open water (Arnold and Fritzsche, 1990). In Florida, mink abundance is lowest in freshwater marshes, intermediate in saltwater marshes, and highest in swamp forests; M. vison will move from seasonal to permanent wetlands as the dry season progresses (Humphrey and Zinn, 1982).

In marine environments, American mink select shallow vegetated and tidal slopes and sites protected from waves. Beaches with small rocks are avoided because of the low abundance of prey (Ben-David et al., 1996).

The mink's diet is strictly carnivorous, and its diet reflects the local prey base (Ben-David et al., 1997). Typically, the diet is comprised mostly of fish, amphibians (mostly frogs), crustaceans (crayfish and crabs), muskrats, and small mammals (Birks and Dunstone, 1965; Bueno, 1987, 1999; Chantin and Linn, 1980; Cuthbert, 1979; Day and Linn, 1972; Errington, 1984, Proulx et al., 1987; Ward et al., 1986). Opportunistically, M. vison also consumes lagonomorphs, scuridurs, birds and their eggs, reptiles, aquatic insects, earthworms, and snails (Akande, 1972; Arnold and Fritzsche, 1987b; Hamilton, 1939). Bats (Myotis), carrion, small carnivores, and large (>20 cm) or fast swimming fish (e.g., salmonids) rarely are consumed (Burgess and Bider, 1980; Dunstone and Birks, 1987; Gerell, 1968; Goodpaster and Hoffmeister, 1950).

The American mink is an important predator of waterfowl and their eggs (Eberhardt and Sargeant, 1977). Adult mink may kill incubating ducks on their nests (Arnold and Fritzsche, 1969), and in Manitoba, Canada, it was estimated that a male mink consumed 3–7 adult ducks, 15–25 one-week-old ducklings, and 18–30 duck eggs during a single waterfowl breeding season (Arnold and Fritzsche, 1967b). Within a season, predation on waterfowl increases when the birds have limited mobility such as during incubation, brood rearing, or molting (Arnold and Fritzsche, 1987b; Sargeant et al., 1973). Mink predation and disturbance also may cause mortality among young of colonial nesting birds (Bumsen and Morris, 1993; Craik, 1987).

Adults have larger home ranges than juveniles, and males have larger home ranges than females (Gerell, 1970). Linear home ranges of adult male and female mink average (n, range), respectively: 2.5 km (3, 1.9–2.9) and 2.2 km (2, 1.5–2.9) in England (Birks and Linn, 1982); 5.3 (1) and 4.2 (1) in Finland (Niemi, 1995); 2.6 (4, 1.8–5.0) and 1.9 (2, 1.0–2.5) in Sweden (Gerell, 1970). In Tennessee, home range of three males averaged 7.5 km (SE = 1.8; Stevens et al., 1997a). Comparative home range length (km) for male and female M. vison in England was 2.53 and 2.16 in riverine habitats, 1.90 and 1.46 in lacustrine environments, and 1.12 and 0.72 in coastal habitat (Dunstone and Birks, 1985). In the Canadian Prairie Pothole Region, summer home ranges of males averaged 7.7 km² (Arnold and Fritzsche, 1987a). In archipelagos, home ranges of M. vison may include several islands often separated by >500 m (Niemi, 1995).

In riverine and lacustrine habitats, home ranges of American mink exhibit low intersexual overlap and no intra-sexual overlap (Dunstone and Birks, 1985). In marine environments, intersexual overlap is higher, but intra-sexual overlap remains low (Dunstone and Birks, 1985). Greater densities in coastal habitats may be explained by smaller home ranges and greater intersexual overlap (Dunstone and Birks, 1985).

Densities of adults vary from 0.1–0.7/km² (Halliwell and MacDonald, 1996). In England, American mink were most numerous at sites which had high availability of den sites and low emergent vegetation cover (Halliwell and MacDonald, 1996). Near lakes, mink density decreases with increased cottage development (Racey and Euler, 1983). It has been suggested that some populations of M. vison may follow a 10-year cycle synchronous with the cycle of the snowshoe hare (Lepus americanus—Keith and Cary, 1991).

The litter ratio (M:F) of 32 juveniles was 1.3:1 (Mitchell, 1961). Sex ratios favoring males have been reported in numerous locations (Errington, 1936; Mitchell, 1961) but often result from trapping bias (Buskirk and Lindstedt, 1989). During population decreases, the sex ratio of litters favors females (Sidorovich, 1984).

Movements of M. vison are either small-scale foraging movements or extensive travel between dens or foraging areas (Birks and Linn, 1982). In the Canadian prairies, nightly movements ranged from 0 to 12 km (Arnold and Fritzsche, 1987a) whereas in Tennessee, daily movements were <4.3 km (Stevens et al., 1997a). Largest movements are performed by juveniles during dispersal (<45 km from natal areas), and by males during the mating season (Gerell, 1970).

In freshwater environments of North America, American mink and North American river otters show niche separation through resource partitioning (Ben-David et al., 1996). M. vison typically occupies drier sites and consumes a lower proportion of fish and invertebrates and a higher proportion of mammals and birds, compared to L. canadenesis (Gilbert and Nancekivell, 1982; Humphrey and Zinn, 1982). In marine environments, M. vison and L. canadenesis show high dietary overlap (ca. 80%), but they exhibit niche separation through differential habitat preferences (Ben-David et al., 1996). The American mink prefers sites with low-to-medium wave exposure whereas river otters prefer sites with heavy wave exposure and good overstory cover (Ben-David et al., 1996).

In South America, introduced M. vison has a sympatric distribution with the southern river otter (L. provancheri). However, M. vison consumes mostly crustaceans and rodents whereas L. provancheri consumes mostly crustaceans and fish (Medina, 1997). Finally, habitat overlap is low (5–22%), and there is little evidence for competition between the two species (Medina, 1997).

In Europe, introduced American mink competes with the European otter (Lutra lutra). The diet of both species overlap greatly (ca. 60–70% of species consumed—Erline, 1969), but M. vison consumes smaller prey, less fish, and a higher proportion of mammals and arthropods than L. lutra (Bueno, 1996; Chantin, 1981; Jenkins and Harper, 1975). M. vison also makes use of L. lutra habitat (Akande, 1972; Chantin and Linn, 1980; Day and Linn, 1972; Erline, 1969; Gerell, 1967a; Wise et al., 1981). Competition between M. vison and L. lutra is most intense in winter, and high densities of otters may prevent mink from occupying otherwise prime habitats (Erline, 1972).

The American mink also competes with the European mink. In some areas, the spread of American mink may have contributed to the decline of European mink, especially from marginal habitats (Maran and Henttonen, 1995). Non-ferile crossing between male American mink and female European mink may also prevent European mink from successfully reproducing (Maran and Henttonen, 1995). There is no evidence of competition between M. putorius (polecats) and M. vison (Gerell, 1967a). The polecats is strictly terrestrial, and although it is sympatric with the American mink, polecats typically consume more rodents and amphibians, whereas minks consume more fish and birds (Löd, 1993).

In North America, adult mink may be killed by great-horned owls (Bubo virginianus), hawks (Buteo), coyotes (Canis latrans), red foxes (Vulpes vulpes), bobcats (Lynx rufus), lynx (Lynx), alligators (Alligator mississippiensis), minks (M. vison), and mink-eating ferrets (Mustela erminea). Common diseases include Aleutian disease, amyloidosis, botulism, distemper, hemorrhagic pneumonia, mink virus enteritis, feline panleukopenia, urate nephritis, and canine parvovirus (Nieto et al., 1995; Tomson, 1967). Endoparasites include the protozoan Sarcozystis; the nematode Baylascaris deversis; Capillaria mucronata; Eupyreophyllum melis; Filarioidea martis; Skrjabingyulus nasica, and Spioridota erinacei (Dunstone and Dunstone, 1983; Hansson, 1967; Ramos-Vara et al., 1997; Sidorovich and Savenkov, 1992); and the cestode Diphyllobothrium renne (Wren et al., 1986). Ectoparasites include the ticks (Dermacentor and Argas Centropusflatus, Megabothris, Malurus, Nosopsyllus, Paleopompy, Tiphlocroes (Chantin, 1983; Fairley, 1980; Page and Langton, 1996).

Most mortality occurs through trapping by humans. Accidental mortality may occur through roadkills (Eagle and Whitman, 1967) or by captures in fish cages or gill nets (Gerell, 1971). Minks can live up to 8 years in captivity (Dunstone, 1993), but in the wild a complete turnover of the mink population occurs every 3 years (Mitchell, 1961).

American mink, because of their position in the food chain, act as bio-indicators of pollution in aquatic environments (Aulicher and Ringer, 1979; Halbrook et al., 1996; Smits et al., 1996a, 1996b; Stevens et al., 1997b). The American mink tolerates low levels (<1.0 × 10⁻⁴ mg) of mercury intoxication (Wobeser et al., 1976); however, at higher levels of contamination (>1.8 ppm), severe lesions or death occur (Wobeser et al., 1976). A moderate level of heavy mercury intoxication include anoxia, loss of weight, incoordination, tremors, and convulsions (Aulicher et al., 1974). Pollution from heavy metals also produces an increased incidence of
When swimming at the surface, only the forelimbs are used, occasionally aided by a power stroke from the hind limbs for turning or diving (Dunstone, 1978), with a mean speed of 59 cm/s for surface and underwater swimming, respectively (Dunstone, 1979). Swimming is energetically costly, as both water resistance and oxygen consumption increase curvilinearly with speed (Williams, 1983). The lack of specialization for swimming contributes to high energetic costs but enables the mink to effectively forage in both aquatic and terrestrial environments (Williams, 1983).

**Mustela vison** does not stalk or ambush, but instead simply rushes upon its prey (Poole and Dunstone, 1976). Surplus killing may occur, and **M. vison** may cache food during periods of abundance (Burness and Morris, 1993; Gerell, 1968; Sargeant et al., 1973).

Aquatic prey are located from above the water surface (Poole and Dunstone, 1976). When water reflection is a problem, mink may locate prey by immersing their head underwater and scanning for prey (Poole and Dunstone, 1976). Occasionally, mink search for and capture prey underwater (Dunstone and Clements, 1979; Sinclair et al., 1974). Because mink possess few adaptations for underwater foraging, they compensate by focusing on prey refuges (Dunstone, 1978; Dunstone and O'Connor, 1979a; Poole and Dunstone, 1976).

Mink can dive to depths of 3–6 m and swim underwater for up to 30–35 m (Peterson, 1966). Captive mink spend 5–20 s underwater when fishing (Poole and Dunstone, 1976). Dive length and duration are positively correlated with water depth (Eagles and Thomson, 1978). Open water is unsuitable for a hunting mink because the species lacks the underwater endurance necessary for effectively pursuing prey (Dunstone and O'Connor, 1979a).

Daily consumption of dry matter (per kg of body mass) averages 40 g for male mink and 55 g for females, respectively (Blevins and Auferich, 1981). Mean passage time of food averages 187 min for males and females (Blevins and Auferich, 1981). A 1 kg mink requires 152 ± 11 calories of digestible energy per day for maintenance. In comparison, a female nursing 5 young requires ca. 3 times that amount for 3 wk postpartum (Cowen et al., 1957).

American mink rarely excavate their own burrows (Birks and Linn, 1982), and in North America, the most common den types used are abandoned muskrat burrows (Arnold and Fritzel, 1989; Marshall, 1935; Sargeant et al., 1973; Schladowreier and Storm, 1969). Other den sites include ground squirrel (Spermophilus) burrows, rabbit burrows, cavities under water-side trees, rockpiles, brushpiles, culverts, or bridge foundations (Birks and Linn, 1982; Dunstone and Birks, 1985). Most dens have 2–5 entrances (Schladowreier and Storm, 1969) and are located close (<2 m) to water (Birks and Linn, 1982). Dense stands of emergent vegetation also may be used by resting mink (Arnold and Fritzel, 1989; Birks and Linn, 1982; Sargeant et al., 1973).

The American mink emits defensive screams, warning squeaks, and hissing (Gilbert, 1969; Larivière, 1966). In addition, chuffking may be audible during the reproductive season and is associated with sexual stimulation (Gilbert, 1969). When stressed, **M. vison** will raise its fur, arch its back, bare its teeth, and run back and forth rapidly. Defensive behavior is accompanied by high pitched squeals, hissing, and emptying of anal glands (Brinck et al., 1983). During the arched-back position, the tail is lifted and moved from side to side, possibly to disperse the strong odor of the anal gland secretions (Brinck et al., 1978).

**GENETICS.** The American mink has 2n = 30 chromosomes (Fredga, 1961; Lande, 1957). Both sex chromosomes are submetacentrics, 2 autosomes are acrocentrics, and 26 are either metacentrics, submetacentrics or subtelocentrics (Hau and Beninsehowe, 1968). Rarely, diploid-triploid chimerism may produce viable hermaphrodites (Nes, 1966). Crossing between **M. vison** and **M. furoca** leads to resorption of hybrid embryos (Ternovskii, 1977).

**CONSERVATION STATUS.** The American mink is generally abundant throughout its distribution. Only one subspecies, **M. v. everglandensis** (present only in southern Florida), is rare and may be threatened by human alteration of waterways (Nowak, 1991).

**REMARKS.** The generic name Mustela is Latin for weasel. The specific name vison is of doubtful origin, but likely comes from the Swedish word visen which means “a kind of weasel” (Lowery, 1974). Other vernacular names for the American mink include...
minx, vison (French), and water weasel (Jackson, 1961). Other literature reviews are provided by Linzmeier et al. (1982), Eagle and Whitman (1987), and Dunstone (1993). N. Dion and B. R. Patterson reviewed earlier drafts of this manuscript. D. Dyck and M. Mierau helped with the map. H. Thomas provided animal and skull photographs.

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SARGEANT, A. B., G. A. SWANSON, and H. A. DOTY. 1972. Selective


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