

American Mink

Mustela vison (Schreber, 1777)

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CONTENT AND TAXONOMIC COMMENTS

The American mink (*Mustela vison*) has 15 recognized subspecies (Hall 1981). Six subspecies occur in the South: *M. v. evergladensis*, occurring in the Everglades and Big Cypress Swamp of southern Florida; *M. v. halilimnetes*, inhabiting coastal areas along the Gulf coast of northwestern Florida from Pasco County north to Ochlockonee Bay, Franklin County; *M. v. vison*, occurring in the Appalachian Mountains and northwards to Quebec; *M. v. mink*, the most widespread subspecies in the region; *M. v. lutensis*, found along the Atlantic coastal zone of extreme northeastern Florida, Georgia, and southern South Carolina; and *M. v. vulgivaga*, found in western Mississippi, Louisiana and central Arkansas. There is disagreement, however, on the taxonomy of these six subspecies. Humphrey and Setzer (1989) consider *M. v. evergladensis* as a disjunct population of *M. v. mink*, and suggest that the distribution of the latter contracted since the 1930s by the loss of the northern Everglades. The Florida Fish and Wildlife Conservation Commission follows this convention (Cox and Kautz 2000). In contrast, Whitaker and Hamilton (1998) and Wilson and Ruff (1999) recognize *M. v. evergladensis* as a separate subspecies. *M. v. halilimnetes* was described as a new subspecies by Humphrey and Setzer (1989) and is recognized by state Natural Heritage agencies (NatureServe 2007) and Whitaker and Hamilton (1998). However, Wilson and Ruff (1999) and Cox and Kautz (2000) do not recognize *M. v. halilimnetes*; the latter considers this as a disjunct population of *M. v. lutensis*. Linscombe et al. (1982), Eagle and Whitman (1987), and Lariviere (1999) describe the life history of the mink. A Habitat Suitability Index Model for the species was developed by Allen (1984) and tested by Loukmas and Halbrook (2001).

DISTINGUISHING CHARACTERISTICS

The American mink is a small, elongate mammal with short legs. Measurements are: total length, 510–580 mm; tail, 135–210 mm; hind foot, 50–75 mm; ear, 19–27 mm; weight, 0.7–1.6 kg. Males average 10% larger than females. The pelage is soft, lustrous, and composed of thick underfur with long, shiny guard hairs. The color varies from dark brown to almost black, but the ventral surface may be paler. Some animals have white patches on the chin, chest,

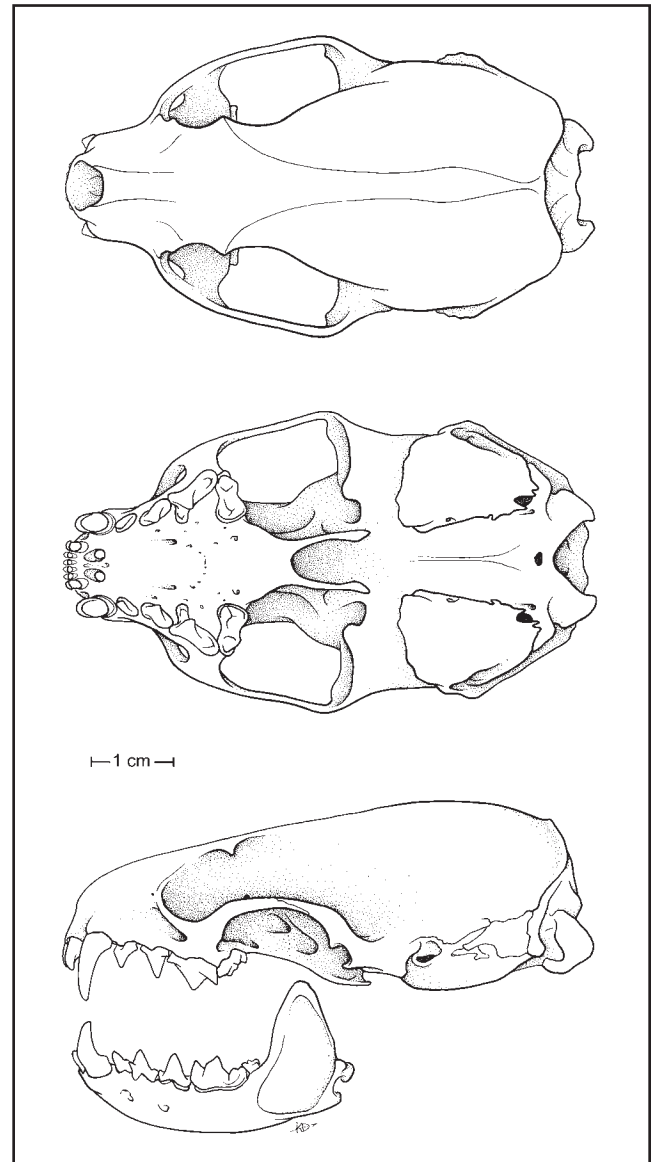


Figure 1. Dorsal, ventral, and lateral view of cranium and lateral view of mandible of *Mustela vison* from, Godbout, Quebec, Canada (USNM 188249, female).

and abdomen. The thickly furred tail is darker toward the tip. The feet are fully furred except for the pads, and the toes are semi-webbed. The skull is narrow with a long braincase and a short rostrum. The American mink skull can be distinguished from other mustelids on the basis of size. The mink skull exceeds 55 mm in length whereas the skull of the long-tailed

weasel (*M. frenata*) and the least weasel (*M. nivalis*) are less than 55 mm long. The dental formula is: I 3/3, C 1/1, P 3/3, M 1/2 = 34 (Figure 1). See keys for details.

CONSERVATION STATUS

The American mink has a global rank of Secure (NatureServe 2007). It is also considered Secure in Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, Tennessee, and Virginia. It is Apparently Secure in Arkansas, North Carolina, Oklahoma, and Texas. It is unranked in South Carolina. Two subspecies, *M. v. evergladensis* and *M. v. lutensis*, are of special concern in Florida.

DISTRIBUTION

Mustela vison is found throughout northern North America except for the extreme northern part of central Canada. The southern limits of its range are in the southwestern United States from northern California to the central Texas coast (Hall 1981, Choate et al. 1994). The distribution of the mink in the South is depicted in Figure 2. The species occurs throughout Virginia (Bailey 1946, Handley and Patton 1947, Webster et al. 1985, Handley 1992, Linzey 1998), North Carolina (Conaway and Howell 1953, Lee et al. 1982, Clark et al. 1985, Webster et al. 1985, Linzey 1995), and Georgia (Golley 1962, Laerm et al. 1981). The mink inhabits most of South Carolina (Penny 1950, Golley 1966, Cothran et al. 1991); however, recent survey data indicate mink are essentially absent in the northern coastal marshes (South Carolina Department of Natural Resources 2005). The species occurs in the coastal zones of northern peninsular Florida as well as the Everglades and Big Cypress Swamp (Allen and Neill 1952, Humphrey and Zinn 1982, Humphrey 1992, Cox and Kautz 2000). A sighting along the Suwannee River in Levy County suggests the mink may occur inland, but Humphrey (1992) and Cox and Kautz (2000) note a general absence of the species from the wetlands of interior Florida. The mink occurs throughout Alabama (Howell 1921, Holliman 1963), Mississippi (Wolfe 1971, Kennedy et al. 1974, Jones and Carter 1989), Louisiana (Svilha 1931, Lowery 1974, Leopold and Chamberlain 2001), eastern Texas (Schmidly 1983, Davis and Schmidly 1994), eastern Oklahoma (Caire et al. 1989), Arkansas (Smith and McDaniel 1982, Sealander and Heidt 1990), Tennessee (Goodpaster and Hoffmeister 1952, Conaway and Howell 1953, Smith et al. 1974, Kennedy 1991, Linzey 1995), and Kentucky (Barbour 1951, Barbour and Davis 1974).



Figure 2. Distribution of *Mustela vison* in the South: (1) *M. v. evergladensis*; (2) *M. v. halilimnetes*; (3) *M. v. lutensis*; (4) *M. v. mink*; (5) *M. v. vison*; (6) *M. v. vulgivaga*.

ABUNDANCE STATUS

Densities of the American mink throughout the South are poorly understood; their secretive habits contribute to the paucity of population data. Population densities vary with the permanence of aquatic habitat, climate, and intraspecific interaction (Linscombe et al. 1982). Trapping returns often provide indices to relative abundance. The greatest mink harvests occur in Louisiana and Arkansas. Leopold and Chamberlain (2001) report that during the 1991–1992 trapping season, these states comprised 37% and 21% respectively, of the total mink harvest in the region. In Louisiana, reported mink densities (1 mink/2–4 ha) were highest in swamps whereas freshwater marshes had lower mink densities (Leopold and Chamberlain 2001). Linscombe et al. (1982) reported 1 mink/10–12 ha in cypress (*Taxodium* spp.) and tupelo (*Nyssa* spp.) swamps. For several states including Florida (Cox and Kautz 2000), there are no estimates for the density of mink populations. Female home ranges average 8 ha (Layne 1978), while male home ranges can exceed 769 ha (Schwartz and Schwartz 1981). In Tennessee, male mink ranged from 6–11 km along streams in the winter (Stevens et al. 1997).

PRIMARY HABITATS

The American mink requires wetland habitats such as bottomland swamps, riverbanks, and streams. The species is also found near riparian areas, lakeside

zones, and coastal marshes (Eagle and Whitman 1987). Habitat use varies by geographic area and season. In the Everglades, the mink retreats from drying marshlands to long hydroperiod swamp forests as the dry season progresses (Cox and Kautz 2000). During wet seasons, salt marshes found between mangroves and freshwater habitats are used. Permanence of water and emergent shoreline vegetation are important factors for evaluating wetland habitat suitability for mink (Allen 1984). Racey and Euler (1983) determined that mink activity decreased along a shoreline in Ontario after trees and emergent vegetation were removed. Cypress-tupelo swamps provide quality habitat in Louisiana (Linscombe et al. 1982). The mink often dens in streambank burrows constructed by common muskrats (*Ondatra zibethicus*) and other animals (Yeager 1943, Errington 1961, Schladweiler and Storm 1969). The species also uses tree cavities, brush piles, and abandoned American beaver (*Castor canadensis*) lodges as den sites (Grinnell et al. 1937, Eagle and Whitman 1987).

REPRODUCTION

Onset of the breeding season is related to photoperiod (Hammond 1951, Duby and Travis 1972). Breeding begins in late January in Louisiana and may continue through March in the South (Svilha 1931, Enders 1952, Sealander and Heidt 1990). The breeding season lasts 3 weeks in most localities; females are receptive at 7–10 day intervals during that period (Enders 1952). Ovulation is induced by mating and occurs within 33–72 hours after copulation (Venge 1959). Delayed implantation may occur early in the breeding season, but does not occur in females that are fertilized late in the season (Mead 1981). Consequently, the average period from mating to birth is 51 days, with a range of 40–79 days (Enders 1952, Mead 1981). The gestation period (after implantation of the embryo) may last 28–30 days (Enders 1952). Births occur from April to May (Svilha 1931). The litter size varies from 1–8 young (Hansson 1947, Enders 1952). The young are born naked and blind, and grow rapidly and reach adult weight by autumn. Females reach sexual maturity the following spring and may reproduce once a year in successive years (Enders 1952).

FOOD HABITS

Mink characteristically have diets in which animal material exceeds 95 percent. Muskrats (*O. zibethicus* and *Neofiber alleni*), mice (*Peromyscus* spp.), and lagomorphs (*Sylvilagus* spp.) are preferred prey (Goodpaster and Hoffmeister 1950, Smith and McDaniel 1982). Hispid cotton rats (*Sigmodon hispidus*), often are prey of the mink in the South (Leopold and

Chamberlain 2001). The mink diet also includes ground-nesting birds, frogs, reptiles, crayfish, fish, and mollusks (Hamilton 1936, Sealander 1943, Korschgen 1958, Gerell 1967, Cowan and Reilly 1973). During winter, fewer birds and more fish are taken (Sealander 1943, Gerell 1967, Smith and McDaniel 1982, Casson and Klimstra 1983). Caching of prey is common during all seasons (Svilha 1931, Yeager 1943). The amount of consumed insects, fruits, and seeds varies with seasonal availability.

ASSOCIATED SPECIES

The American mink is distributed widely in the region and may be found in association with several wetland mammals. It is often found in association with the American beaver, common muskrat, nutria (*Myocastor coypus*), and northern river otter (*Lontra canadensis*). The interaction between the mink and other terrestrial carnivores is minimal because of the aquatic nature of the species (Leopold and Chamberlain 2001). The mink and river otter are not competitors for resources (mink are primarily non-piscivorous and otter are primarily piscivorous). They are preyed upon by the coyote (*Canis latrans*), bobcat (*Lynx rufus*), and great-horned owl (*Bubo virginianus*). Linscombe et al. (1982) indicate the mink may occasionally fall victim to fisher (*Martes pennanti*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), and alligator (*Alligator mississippiensis*).

VULNERABILITY AND THREATS

Wetland loss is of special concern, because these areas provide important habitat for the mink. In the last two centuries, substantial wetland losses have occurred along the southern Coastal Plain and along the lower reaches of the Mississippi River (Trani 2002a). Florida alone has lost 46 percent (3.6 million hectares) of its wetlands (Stein et al. 2000). The mink is sensitive to hydrologic manipulation; the increased demand on surface water resources to support a growing human population is a concern. Industrial and residential water pollution can render habitat unsuitable, as the species is vulnerable to environmental contaminants (e.g., mercury and pesticide residues) concentrated in prey foods. In Florida, the conversion of privately owned portions of the Big Cypress Swamp to citrus production has the potential to result in loss of habitat (elimination of potential denning areas) and pollution of surface waters with excess fertilizer nitrates (Humphrey 1992). Roadkills may be a significant cause of mortality where roads cross wetlands.

MANAGEMENT SUGGESTIONS

Successful management of the American mink requires a combination of population and habitat management. Harvest levels are regulated by state wildlife management agencies. The maintenance of wetland habitat is critical for viable mink populations (Dickson 2001) and is important to other species of wildlife. Stream channelization, and the removal of aquatic shoreline vegetation and woody debris, should be avoided as it reduces prey availability (e.g., crayfish and fish). The prevention of high levels of environmental contaminants also is needed to maintain habitat quality for this species (Trani 2002b). Additional management centers on maintaining vegetative cover adjacent to wetlands, providing aquatic structural diversity (e.g., downfall, log jams), increasing pool to riffle ratios, and ensuring water permanence (Allen 1987). Finally, the ecology of the mink in the South is poorly understood; further research is warranted.

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