Marsh Rabbit

Sylvilagus palustris (Bachman, 1837)

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CONTENT AND TAXONOMIC COMMENTS

Three subspecies of marsh rabbit (*Sylvilagus palustris*) are recognized: *S. p. palustris, S. p. paludicola*, and *S. p. hefneri* (Lazell 1984). Literature on the marsh rabbit is reviewed by Chapman and Willner (1981) and Chapman et al. (1982).

DISTINGUISHING CHARACTERISTICS

The marsh rabbit is a moderate-sized cottontail. Measurements are: total length, 400–450 mm; tail, 30–40 mm; hind foot, 85–100 mm; ear, 45–55 mm; weight, 1.0–2.2 kg. The dorsal parts of head and body may vary from chestnut brown to rusty red, but all specimens have a dark cinnamon nape. The middle of abdomen is white and the remainder of belly is pale brown to buff. The feet are slender and reddish to buffy. The ventral surface of the tail, unlike other *Sylvilagus*, is dingy gray. The basilar length of the skull of *S. palustris* is usually less than 63 mm. The anterior portion of the supraorbital process is typically absent and the posterior portion of the supraorbital process is fused to the skull. The dental formula is: I 2/1, C 0/0, P 3/2, M 3/3 = 28 (Figure 1). Marsh rabbits may be confused with swamp rabbits (*S. aquaticus*) and eastern cottontails (*S. floridanus*). Marsh rabbits usually are distinguishable from both species due to a larger body size and a gray tail. Marsh rabbits also possess a black spot between the ears, which is absent in the eastern cottontail.

CONSERVATION STATUS

The marsh rabbit has a global rank of Secure (NatureServe 2007). The species is considered Secure in Georgia and North Carolina, and Vulnerable in Alabama and Virginia. It is unranked in Florida and South Carolina. The U. S. Fish and Wildlife Service (U. S. Department of the Interior 1993, 2007) lists the Lower Keys marsh rabbit (*S. p. hefneri*) as Endangered.

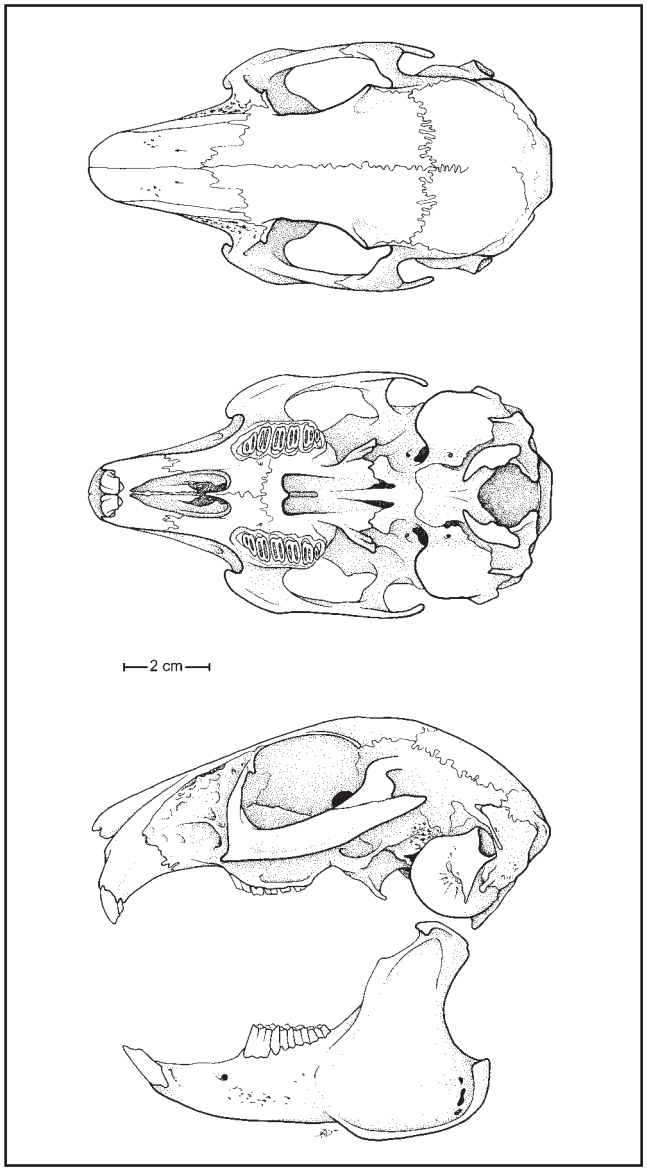

Figure 1. Dorsal, ventral, and lateral view of cranium and lateral view of mandible of *Sylvilagus palustris* from Palm Beach County, Florida (USNM 349493, male).

DISTRIBUTION

The marsh rabbit is restricted to the Coastal Plain of the southeastern Atlantic and Gulf Coasts (Figure 2). Its northern limit is in extreme southeastern Virginia (Payne 1975, Hall 1981, Webster et al. 1985, Fishel and McCravy 1988, Padgett 1989, Fies 1991, Linzey 1998), but Handley (1991) noted no recent sightings from the Eastern Shore. It is distributed throughout the Coastal Plain and barrier islands of North Carolina (Lee et al. 1982, Webster 1988, Markham and Webster 1993), South Carolina (Golley 1966, Sanders 1978, Schacher and Pelton 1979, Cothran et al. 1991), and Georgia (Harper 1927, Tompkins 1935, 1955; Lowe 1958, Golley 1962, Caldwell 1966, Neuhauser and

Baker 1974, Wharton et al. 1981, Laerm et al. 1982). It occurs throughout Florida (Blair 1936, Hamilton 1941, Rand and Host 1942, Moore 1946, Pournelle 1950, Schwartz 1952, Layne 1974, Holler and Conaway 1979, Lazell 1984, 1989; Wolfe 1992, Forys and Humphrey 1996, 1997) and west to Mobile Bay, Alabama (Holliman 1963, Linzey 1970, Lazell 1984, French 1986). *Sylvilagus p. hefneri* is restricted to the Lower Keys of Florida from Big Pine Key to Key West (Lazell 1984, 1989; Howe 1988, Wolfe 1992, Forys and Humphrey 1996, 1997; Cox and Kautz 2000). *Sylvilagus p. paludicola* occurs throughout the peninsular and southern Florida Panhandle (Lazell 1984, Wolfe 1992).

ABUNDANCE STATUS

Little is known of the population density in the South, but the marsh rabbit is thought to be quite abundant in appropriate habitat (Whitaker and Hamilton 1998). It is considered rare in southeastern Virginia (Fies 1991) and Alabama (French 1986). The current population of the endangered Lower Keys marsh rabbit is 150–400 individuals (Cox and Kautz 2000), which is considered to be in decline (U. S. Department of Interior 1998).

PRIMARY HABITATS

The marsh rabbit inhabits freshwater and brackish marsh habitat (Tomkins 1935, Blair 1936, Chapman and Willner 1981, Chapman et al. 1982). The species is often found in raised hummocks in marshes of southern magnolia (*Magnolia grandiflora*), water tupelo (*Nyssa aquatica*), sweetgum (*Liquidambar styraciflua*), and blackberry (*Rubus* spp.) shrubs. It occurs in freshwater swamps (Harper 1927), floodplains, tributaries, and estuaries of rivers and streams from coastal areas to the upper limits of the Coastal Plain (Chapman et al. 1982). In coastal areas and islands, the marsh rabbit may inhabit sand dunes, salt and freshwater pond margins, road edges, and open fields adjacent to marshes and dunes (Schacher and Pelton 1979, Fies 1991). The species also is associated with sugarcane (*Saccharum officinarum*) plantations in southern Florida (Holler and Conaway 1979), where it is considered a pest (Whitaker and Hamilton 1998). The endangered Lower Keys subspecies occupies transitional salt marsh habitat dominated by thick grasses and shrubs (Cox and Kautz 2000). Forys et al. (1996) estimate that 320 ha of habitat exist in the Lower Keys. Two locations have substantial areas of potential habitat: Key Deer National Wildlife Refuge and Key West Naval Air Station. The latter is estimated to contain approximately half the remaining population and one third of the remaining habitat.

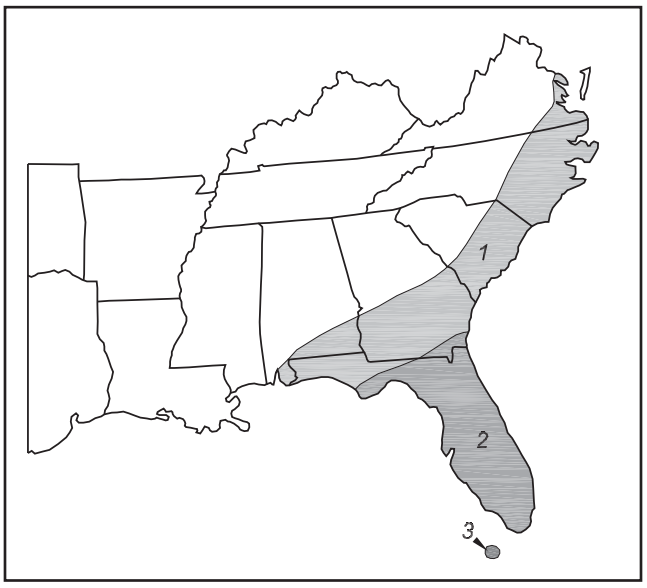

Figure 2. Distribution of *Sylvilagus palustris* in the South: (1) *S. p. palustris*; (2) *S. p. paludicola*; (3) *S. p. hefneri*.

REPRODUCTION

Marsh rabbits breed year-round (Holler and Conaway 1979) and produce approximately 6 litters/year (Chapman et al. 1982). The gestation period is estimated between 30–37 days (Holler and Conaway 1979). The female constructs a nest that is about 20 cm deep and lined with soft grass and fur (Tomkins 1935). The litter size may vary from 3–5 (Harper 1927). The Lower Keys marsh rabbit is sexually mature at 9 months of age. Similar to other subspecies of marsh rabbit, the species is polygamous and also breeds year around (U. S. Department of Interior 1998). There is no apparent seasonal breeding pattern, however. The highest proportion of females with litters occurs in March and September.

FOOD HABITS

Marsh rabbits feed on a variety of seeds, fruits, leaves, and twigs of numerous trees, shrubs, woody vines, and cultivated plants (Chapman and Willner 1981, Wolfe 1992, Markham and Webster 1993). In captivity, they prefer herbaceous plants such as centella (*Centella* spp.), marsh pennywort (*Hydrocotyle* spp.), cattail (*Typha* spp.), rush (*Juncus* spp.), water hyacinth (*Eichhornia crassipes*), and the bulbs of several plants (Blair 1936). The endangered marsh rabbit consumes bushy seaside oxeye (*Borrichia frutescens*), an important food that is common in the saltmarsh areas. Other foods include dropseed grass (*Sporobolus virginicus*), glasswort (*Salicornia virginica*), and cordgrass (*Spartina spartinae*; U. S. Department of Interior 1998).

ASSOCIATED SPECIES

The geographical range of the marsh rabbit overlaps that of the swamp rabbit. The marsh rabbit also associates with other wetland forest and marshland mammals such as the southern short-tailed shrew (*Blarina carolinensis*), marsh rice rat (*Oryzomys palustris*), and cotton mouse (*Peromyscus gossypinus*). The Lower Keys marsh rabbit occupies habitat that overlaps with the endangered Key deer (*Odocoileus virginianus clavium*) and the silver rice rat (*Oryzomys argentatus*). Predators of the marsh rabbit include the great horned owl (*Bubo virginianus*), barred owl (*Strix varia*), northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo borealis*), bobcat (*Lynx rufus*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), weasel (*Mustela* spp.), mink (*M. vison*), and American alligator (*Alligator mississippiensis*). The cottonmouth (*Agkistrodon piscivorus*) and eastern diamondback rattlesnake (*Crotalus adamanteus*) are known to prey on the young (Whitaker and Hamilton 1998).

VULNERABILITY AND THREATS

The species is considered rare at the limit of its range in Alabama (French 1986) and Virginia (Handley 1991). Whitaker and Hamilton (1998) consider habitat fragmentation to be the major environmental problem for this species, since it results in the loss of available suitable habitat and may adversely affect dispersal and genetic diversity. The species prefers relatively undisturbed marshes, which are rapidly disappearing throughout the South as human populations expand (Trani 2002). The loss of suitable habitat stems from land conversion and degradation through dredge and fill operations.

The endangered subspecies in the Lower Keys is vulnerable to habitat destruction associated with residential and commercial construction activities, contaminants, vehicular traffic, feral cat (*Felis catus*) predation, and red imported fire ants (*Solonopsis invicta*; U. S. Department of Interior 1998). Land development in transitional wetlands is regulated by federal, state, and local governments; permits that result in habitat losses continue to be issued (Cox and Kautz 2000). One-third of the habitat of the species is held in private ownership.

MANAGEMENT SUGGESTIONS

Maintenance of high quality escape cover and abundant food sources are essential for viable populations of the marsh rabbit. Forest management that results in dense secondary growth near a water source is beneficial, whereas activities that reduce cover near water are detrimental. In those states where known populations are classified as Vulnerable (Alabama and Virginia), habitat should be protected and maintained. Four major recovery objectives have been identified for the Lower Keys marsh rabbit. These include the acquisition of suitable habitat with an upland buffer, control of predation by feral and domestic cats, monitoring of existing rabbit populations, and reintroduction of rabbits into unoccupied suitable habitat (U. S. Department of Interior 1998).

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