

Humboldt marten, *Martes americana humboldtensis*

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Description: The American marten is a small-to-medium (500-1,200 g) mustelid with rich, brown fur. TL varies from 465 to 650 mm; females are about one-third lighter and somewhat shorter than males. The bushy tail is about 150 mm long in both sexes (Strickland et al. 1982). Pelage is typically dark brown, with a pronounced orange or yellow throat patch, and darker on the legs. Winter pelage is usually darker than that of summer.

Taxonomic Remarks: Mustelids are characterized by the loss of the carnassial notch from the upper fourth premolar, a delicate zygomatic arch, five digits that contact the surface when walking, and enlarged anal scent glands (Buskirk 1994). There are seven species in the genus *Martes* (Mustelidae, Carnivora) (Buskirk 1994). The fisher (*M. pennanti*), the largest member of the genus, is endemic to North America. The American marten is the smallest of the four "boreal forest martens" (*M. martes*, *M. zibellina*, *M. melampus*) that occur from Ireland east across Eurasia to Newfoundland, in mature coniferous forests. Anderson (1994) calls this group plus the stone marten (*M. foina*), native to western and southern Europe eastward to Mongolia, a "superspecies." The stone marten also has established a feral population in southeast Wisconsin (Long 1995). The yellow-throated marten (*M. flavigula*) occurs in eastern and southern Asia (Anderson 1994). An extinct North American species, the noble marten (*M. nobilis*), is known from late Holocene deposits (Anderson 1994), although Youngman and Scheuler (1991) argue that *M. nobilis* is in reality *M. americana*. Hall (1981) recognized 14 subspecies of *M. americana*; Hagmeier (1956) distinguished six subspecies.

Distribution: Based on specimens of American martens taken at known localities in California, Grinnell et al. (1937:209) concluded that "two well-marked races occur within the State". The Humboldt marten (*M. a. humboldtensis*) occurred in the coastal redwood (*Sequoia sempervirens*) zone from the Oregon border south to Fort Ross, Sonoma County. The Sierra Nevada marten (*M. a. sierrae*) occurred from Trinity and Siskiyou counties east to Mount Shasta and south through the Sierra Nevada to Tulare County.

Trapping data indicate that martens were taken in at least 21 California counties, including Humboldt and Del Norte, until trapping was prohibited in 1953 (Calif. Dept. Fish and Game unpubl. data, Sacramento). Twining and Hensley (1947) expressed concern about the status of the Humboldt marten. Yocum (1974) presented locations of reported sightings of American martens in northern California between 1961 and 1973, and Schempf and White (1977) summarized existing information on marten distribution throughout the state. A more recent description of the distribution of American martens in North America (Gibilisco 1994), including California, was based on responses to a survey mailed to agency personnel in 1990-91. Kucera et al. (1995) presented empirical data on the distribution of American martens in California based on field surveys conducted between 1989 and 1995. They concluded that the Sierra Nevada marten, *M. a. sierrae*, occupies much of its historic range from northwestern Shasta County to the southern Sierra Nevada, and that the Humboldt marten, *M. a. humboldtensis*, in Humboldt and Del Norte counties, is extremely rare or extinct (Kucera et al. 1995). In 1996 and 1997, American martens were detected at two of 468 track plate stations placed within the range of the Humboldt marten in Del Norte County (Zielinski et al. 1998).

Life history: American martens live in or near coniferous forests (Buskirk and Ruggiero 1994), although their arboreal habits have been exaggerated (Buskirk 1994). They find much of their food on the ground or under snow. Microtine rodents are particularly common dietary items, with birds, squirrels, and vegetation also reported (Martin 1994). The association of American martens with

late-successional forests has been long and widely recognized (Buskirk and Powell 1994). The physical structure of such forests, rather than plant species composition or age, seems to be most important. Martens prefer forests with overhead cover and complex ground structure to allow access to subnivean spaces (Buskirk and Powell 1994). Dens occur both in hollow trees and on or under the ground in logs or rock piles.

Females typically breed at 15 months, and produce a first litter at 24 months of age. Litter size averages 2.85, and ranges from 1 to 5 (Strickland et al. 1982). Mating usually occurs in July or August, and gestation ranges from 220 to 265 days. Martens exhibit delayed implantation; parturition is most common in April, after an active pregnancy of about 27 days (Strickland et al. 1982). Young reach adult size in about three months.

Home-range sizes of adult males reported in the literature vary from less than one to more than 15 km², with those of females about half that of males (Buskirk and Ruggiero 1994). Both sexes exhibit intrasexual territoriality. Population densities are low, about one-tenth that expected on the basis of body size alone (Buskirk and Ruggiero 1994).

Habitat: American martens are associated with coniferous forests, typically more mesic than xeric (Buskirk and Powell 1994). In a study in the Sierra Nevada, martens selected riparian forests for foraging (Spencer et al. 1983). Physical structure of the forest, including large live and dead trees, coarse woody debris, and a relatively low and closed canopy, appears more important for American martens than species composition (Spencer et al. 1983, Hargis and McCullough 1984). This structure is produced by late-seral-stage forests. Although talus fields are occasionally used, martens usually avoid open areas. This preference for physical structure or overhead cover is thought to arise from a need for protection from predators and, in areas of deep snow, access to subnivean areas provided by complex structures on the ground such as logs and rocks. Little is known of the specific habitat ecology of *M. a. humboldtensis* from the north coast.

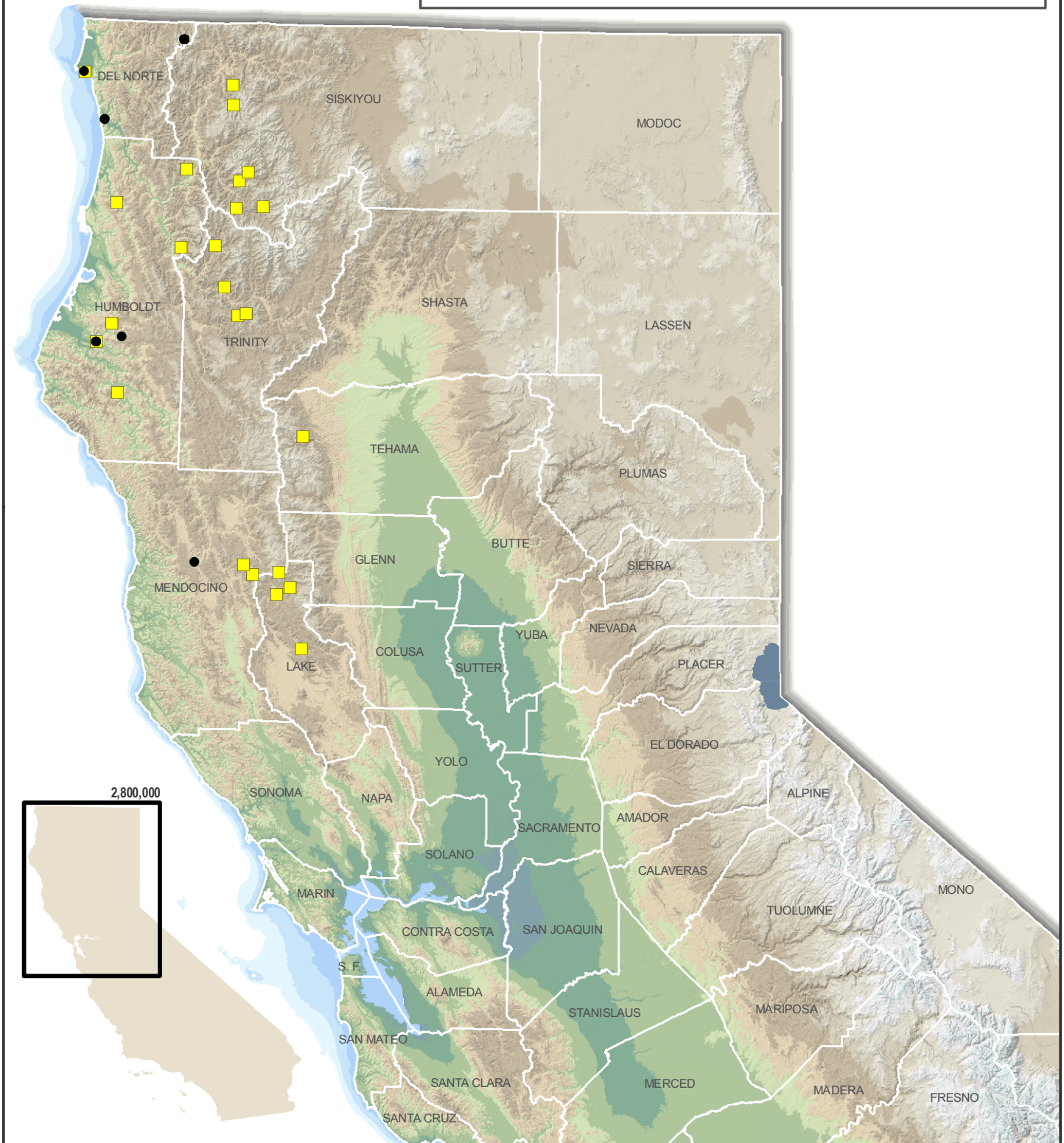
Status: Class I. *M. a. humboldtensis* appears to meet CESA criteria for listing as Endangered in its historic range of Del Norte, Humboldt, Mendocino, and Sonoma counties. The combination of historic trapping and more recent habitat loss by timber harvest has led to the severe reduction or extirpation of this taxon (Kucera et al. 1995). Extensive field surveys have failed to detect Humboldt martens in any but the most northern portion of their historic range.

M. a. sierrae is still widely distributed in its historic range (Kucera et al. 1995) and does not meet criteria for listing as Threatened species or a Species of Special Concern at this time. However, given the extremely low population densities of American martens, they should be considered when assessing the effects of habitat alterations such as timber harvest. We have therefore placed *M. a. sierrae* on the Watch List.

Management Recommendations: An intensive survey to document the existence and distribution of *M. a. humboldtensis* in areas that have not yet been examined should be conducted, using recently described, non-lethal methods that produce empirical, verifiable information on presence (Zielinski and Kucera 1995). Given its apparent rarity, the Humboldt marten should be included in ecosystem management and biodiversity planning efforts in the coastal redwood zone along with listed, forest-dwelling species such as the marbled murrelet (*Brachyramphus marmoratus*) and northern spotted owl (*Strix occidentalis*), and Species of Special Concern such as the Pacific fisher (*M. p. pacificus*). If Humboldt martens are extirpated on the North Coast, their reintroduction to areas of remaining habitat within their historic range, such as Redwood National Park and Humboldt Redwoods State Park, should be considered.

HUMBOLDT MARTEN

Martes americana humboldtensis



- Locations verified by authors (captures, observations, museum records)

■ CNDDDB 1978 and before