

JOB FINAL REPORT

STATE: CaliforniaProject Number: W-54-R-12 Project Title: Nongame Wildlife InvestigationsJob Number: I-3 Job Title: Marten Habitat StudyPeriod Covered: July 1, 1979 - June 30, 1980 Job Type: Survey and InventorySUMMARY:

Live trapping and tagging, tracking in snow, collection of scats and radio-telemetry were methods used to study Marten (Martes americana) from September 1978 to December 1979 in the Webber Lake, Perazzo Canyon, and Cold Stream Drainages of Sierra and Nevada County.

Forty-five captures of eighteen Martens resulted in a sex ratio of 14 males to 4 females. The mean home range size was 297 ha (733 acres). Home range sizes (whose shapes were influenced by cover, topographical features, and the presence of other Martens) were similar but the distribution of telemetric fixes over various vegetation types indicated a difference in use intensity. Territorial behavior was found in both adult males and females.

Martens are opportunists, with insects and Douglas squirrels (Tamiasciurus douglasii) the most important food source for summer-fall and winter-spring seasons respectively. Martens orient to snags, dead and downed woody material, meadow-forest edges, and stream-side habitat. A population estimate of at least 2.8 adult martens per km² (1.1 per mi²) was obtained. (This summary section is a condensed version of the abstract from Terri Lee Simon's M.S. thesis, "An Ecological Study of the Marten in the Tahoe National Forest, California, 1980)."

BACKGROUND:

Information on the distribution and status of Marten populations in California is scarce. Marten are secretive and rarely seen except when trapped. This is particularly true in high elevation forests of Red Fir (Abies magnifica) and Lodgepole Pines (Pinus contorta) which are known to provide habitat for the Marten. This same forest habitat type is subjected to widespread logging and, more recently, to large-scale recreational developments.

In 1972 the California Carnivore Study Group was formed to update the landmark work on furbearers "Furbearing Mammals of California" by Grinnell, Dixon and Linsdale, and published in 1937. This Group, consisting of faculty from a number of universities in the state and agency biologists from the Department, U. S. Forest Service and National Park Service, has identified study needs and performed a number of studies.

During the winter of 1978-79, the Department studied the composition of furbearing animals in the vicinity of Webber Lake. Baited hair snags were used to attract animals and the hair samples obtained were identified as to

species and Marten's were the most common visitor. Because of the apparently good Marten population, variety of habitats and logging history, the Webber Lake area offered the opportunity to study Martens, their habitat utilization and the effects of timber harvesting.

OBJECTIVES:

1. Coordinate a study with U. S. Forest Service and California State University, Sacramento, on the use of habitat by Martens in Sierra County.
2. Provide recommendations based on the results of this study to land management agencies for habitat management which will benefit the Marten.

PROCEDURES:

The Department assisted in the development of a program to continue Marten study for one year. Also, the Department provided radiotelemetry equipment and the instruction of field personnel in monitoring procedures and use of equipment. Major funding for this study came from the U. S. Forest Service, Tahoe National Forest. The vast majority of the field work was done by Terri L. Simon, a graduate student at California State University, Sacramento. Information in this report came from her Master of Science thesis.

FINDINGS:

The Marten study carried out from September 1978 to December 1979 found a sex ratio of 14 males and 4 females from trapping. There was a marked sexual dimorphism between males and females. The average weight for females was 626 g and 992 g for males. The average total length for a female was 538 mm and 627 mm for males.

Martens are opportunistic feeders. The most common food item in summer and fall were insects and in winter and spring, squirrels (Tamiasciurus douglasii). Food items selected by Martens in different parts of the study area showed similarities; however, the importance of an item in the seasonal diet varied from area to area.

Mean home range size including meadows was about 285 ha (703 acres) for males and 308 ha (762 acres) for females. Shapes of home ranges in the study area show that Marten movements are influenced by cover, topographical features, and the presence of other Martens. Territorial behavior was found in both males and females.

Different vegetation types within a home range received a varied response in use intensity. There were one or more areas of concentrated use within each Marten's home range. Adult Martens regularly returned to familiar areas, usually a variety of forest types, for daytime resting. Each rest site seemed to be individual-specific.

Marten's highest activity in the Webber Lake area was associated with forest meadow edges. Movements throughout the year involved "travel corridors." Open areas, avoided by Martens in winter, may be used in the summer and fall seasons if adequate cover and food are available.

Marten distribution and abundance is in part determined by the availability of food and cover. Indirect influences, such as grazing, could affect the Marten's food supply by removal or destruction of forbs and grasses which furnish food and cover for small mammals. The effects of land management practices on the Marten's food chain also may apply to the food chains of other climax species.

ANALYSIS:

Time of trapping (i.e. season) had an apparent effect on the sex ratio of Martens taken. Males were more susceptible to trapping due to wide foraging habits, which increased their chances of finding traps. Also, more males were recaptured while females appeared to be more secretive and wary. The high ratio of male captures to female may indicate a greater trapability of males.

The relatively high percentage of success in trapping Martens in the Webber Lake area may be due to a dump-site nearby. Martens were observed dragging off refuse from the area. An increase of available prey (i.e. squirrels and mice) in the dump site area may be another reason for heavy use by several Martens. The cause of the extremely low success in trapping Martens in Perazzo Canyon is unknown.

Tracking Marten during the winter months depended upon weather conditions. Tracks indicated an avoidance of open areas by Martens, but the hunting of Chickarees occurred in their subnivean dens and not necessarily in the trees.

Food habits of the Marten, observed at Webber Lake, indicated a preference towards animal remains that were dragged from the dump site. Martens appeared to be scavengers that take advantage of a man-made food source. The flexibility and adjustment towards the relative availability of acceptable foods in Marten food habits, makes them opportunists. At times, hunting seems to be a higher priority than even escape for the Marten.

RECOMMENDATIONS:

1. Inform Department personnel dealing with the review of timber harvest plans of this information concerning the Marten and pass on the same information to agency and private timber company personnel planning timber sales in areas of Marten habitat.
2. Coordinate with forest land management agencies and companies to manage for suitable Marten habitat in ongoing operations.

3. Insist that forest land management agencies and companies holding land in suitable Marten habitat include the preservation and conservation of Martens into any land management plan.

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