

Fisher (*Martes pennanti*) Use of a Managed Forest in Coastal Northwest California¹

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A sooted track plate survey was conducted for two seasons during winter, spring and summer of 1994 and 1995 to investigate fisher distribution across a managed landscape in Humboldt and Del Norte Counties, California. Forty survey segments were established throughout the region with each segment consisting of six sooted track plates (stations) at one-km intervals. Habitat characteristics were measured at 238 track-plate stations and in the stands where they were placed. Habitat attributes associated with fisher detection sites were compared to non-detection sites at both the station and stand level. Vegetation type was the only variable to be selected by the logistic procedure to predict fisher occurrence at the stand level. Fishers were detected more often in stands dominated by Douglas-fir (*Pseudotsuga menziesii*) or a mixture of Douglas-fir and coast redwood (*Sequoia sempervirens*) than in stands dominated only by redwood. We found no relationship between fisher detections and stand age, canopy cover, or topographic position. A forward stepwise logistic procedure indicated that presence of fishers at the station level was best predicted by increasing elevation, greater volume of logs, less basal area of conifer 52 to 90 cm, more moderate slopes and greater distance to the coast.

During 1996 to 1997 a telemetry project was conducted to specifically look at vegetation and structural characteristics of fisher den and rest sites. Twenty-four individuals (10 male, 14 female) were captured during the study. Twelve individuals (six male, six female) were fitted with radio collars and followed to determine resting and denning sites. A total of nine dens were found for five of six females outfitted with radio transmitters. These consisted of four natal and five maternal dens. The dens were located in four "highly decadent" live hardwoods, one "sound" hardwood and four conifer snags. Natal dens were all in cavities. Two were located in tanoaks (*Lithocarpus densiflorus*), one chinquapin (*Chrysolepis chrysophylla*) and one Douglas-fir snag. Mean diameter at breast height (dbh) was 76.5 cm (SD = 15.6, range 62.5 to 95.3 cm). Maternal dens were also all in cavities. Three of the cavities appeared to be created by pileated woodpeckers (*Dryocopos pileatus*) and two appeared to have been created by old fire scars. The cavities were in two tanoaks, two Douglas fir snags and one western red cedar (*Thuja plicata*) snag, with a mean dbh of 112.0 cm (sd = 45.8, range 62.5 to 184.4). A total of 35 rest sites were located in seven different tree species, however, 3 species accounted for over 80 percent of all rest sites. These were western hemlock (*Tsuga heterophylla*), western red cedar and Douglas-fir. The most common structures used as rest sites were platforms formed by mistletoe deformities, debris accumulations and lateral branches. These comprised

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roughly 65 percent of all rest sites. Cavities were used for resting approximately 20 percent of the time. The mean dbh of trees containing rest sites was 84.6 cm with a range from 22.4 to 175.0 cm.

Beginning in 2002 a mark-sight study, using remote cameras to identify uniquely marked individuals, was initiated to estimate the density of fisher on two 100 km² study sites located in Humboldt County, northwestern California. Both study sites were located in the Douglas-fir/redwood transition zone. Fieldwork for this project has been completed but only preliminary summary data are presented here. Thirty-six fishers were captured on the two study sites (19 females, 17 males) over the two year period. Twenty-nine of 36 fishers captured were adults. Fourteen of 17 adult females appeared to be reproductive, with 11 lactating at the time of capture and three which were not lactating but later located at dens. The status of the remaining three adult females was not determined due to difficulties with transmitters and the inability to successfully locate them on the ground. During the resighting portion of the study, a grid with 1.6 km spacing between points was overlaid on each study site, creating 44 camera stations in each area. Twenty-two cameras were deployed in each study area (every other station) and checked once weekly for a two week period. Cameras were then moved to the adjacent stations and checked for another two week period, thereby sampling all 44 stations every four weeks. This was considered one “sighting period”. During the 2002 season, cameras were monitored for three sighting periods from June through August, with fishers detected on 148 occasions. In 2003, cameras were monitored for 4 sighting periods from May-August, with fisher detections on 224 occasions. Ratios of marked to unmarked individuals were 1:2.1 and 1:1.6 during 2002 for the Bald Hills and NF Mad River sites respectively. In 2003, ratios were 1:0.52 and 1:0.38 for the Bald Hills and NF Mad River sites respectively. Crude population estimates, based only on the ratio of marked:unmarked fisher sightings, resulted in estimates of 22 fishers on the Bald Hills site in 2002 and 18 fishers in 2003. Estimates for the NF Mad River site were 21 fishers in 2002 and 11 fishers in 2003. In combination with the previous two studies mentioned above, it appears that fishers are relatively abundant and well distributed throughout the managed forests of extreme northwestern California.