

JOB FINAL REPORT

78.14

Gould '78

State: California  
Project Number: W-54-R-10 Project Title: Nongame Wildlife Investigation  
Job Number: II - 1.5 Job Title: Furbearer Study, Sierra County, California  
Period Covered: July 1, 1977-June 30, 1978 Job Type: Survey and Inventory

SUMMARY:

The presence of eight species of furbearers was documented in the Webber Lake area of Sierra County from November 1977 through March 1978. Baited hair snags collected 32 hair samples from marten (24) and fisher (8) and confirmed the presence of these species. Ermine, raccoon, bear, coyote, bobcat and muskrat were identified in the area through direct sightings and observation of sign. This study did not verify the presence of wolverine in the study area nor did it provide any density or home range data on those furbearers present. However, marten, fisher and coyote sightings and hair samples came from numerous and widespread locations.

BACKGROUND:

At present a large degree of uncertainty exists when the status of furbearer populations in a particular area are discussed. These animals are secretive and rarely seen except when trapped. This is particularly true in high elevation forests of red fir (Abies magnifica) and lodgepole pine (Pinus contorta) which are known to provide habitat for a wide variety of furbearers including the rarer mustelids, marten (Martes americana), fisher (Martes pennanti), and wolverine (Gulo luscus). This same forest habitat type is subjected to widespread logging and, more recently, to large-scale recreational developments.

The furbearer species present in the Sierra County area were undocumented. The Webber Lake area (Figure 1), chosen for this study, may be subjected to the aforementioned habitat disturbances and is typical of habitat present in much of the northern Sierra Nevadas. During the winter of 1977-78 a survey of the furbearers in the vicinity of Webber Lake was conducted using direct observation, observation of sign and baited hair snags to document the presence of furbearer species.

OBJECTIVES:

1. Determine the presence of rarer mustelid species in the Webber Lake area.
2. Document the existence of other furbearers using red fir-lodgepole pine habitat in Sierra County.

PROCEDURES:

Mr. Doug Garton, caretaker of the Webber Lake Resort and year-round resident of the area, was contracted to perform the field work and maintain a journal

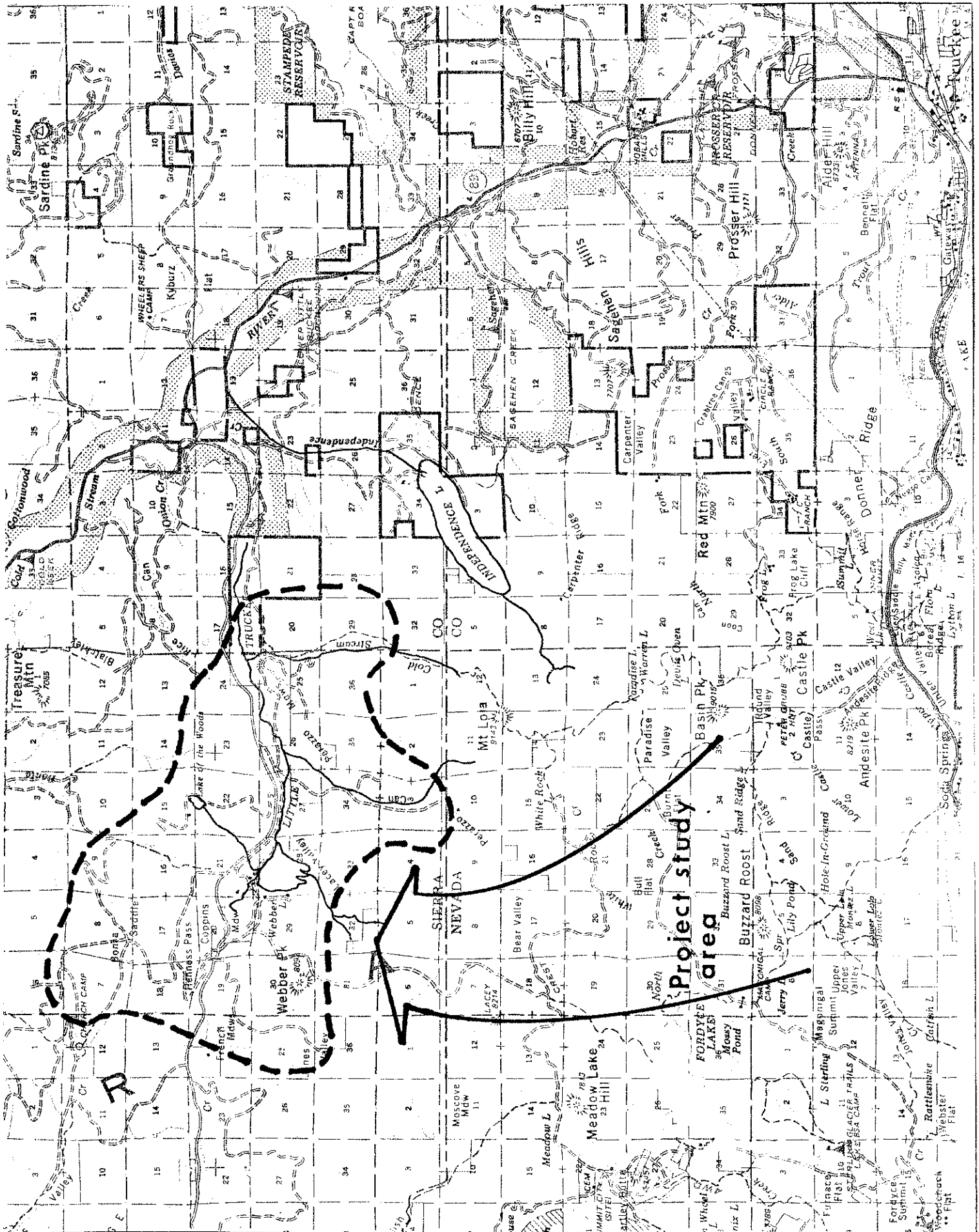


Figure 1. Project study area within Sierra County where the furbearer study was conducted.

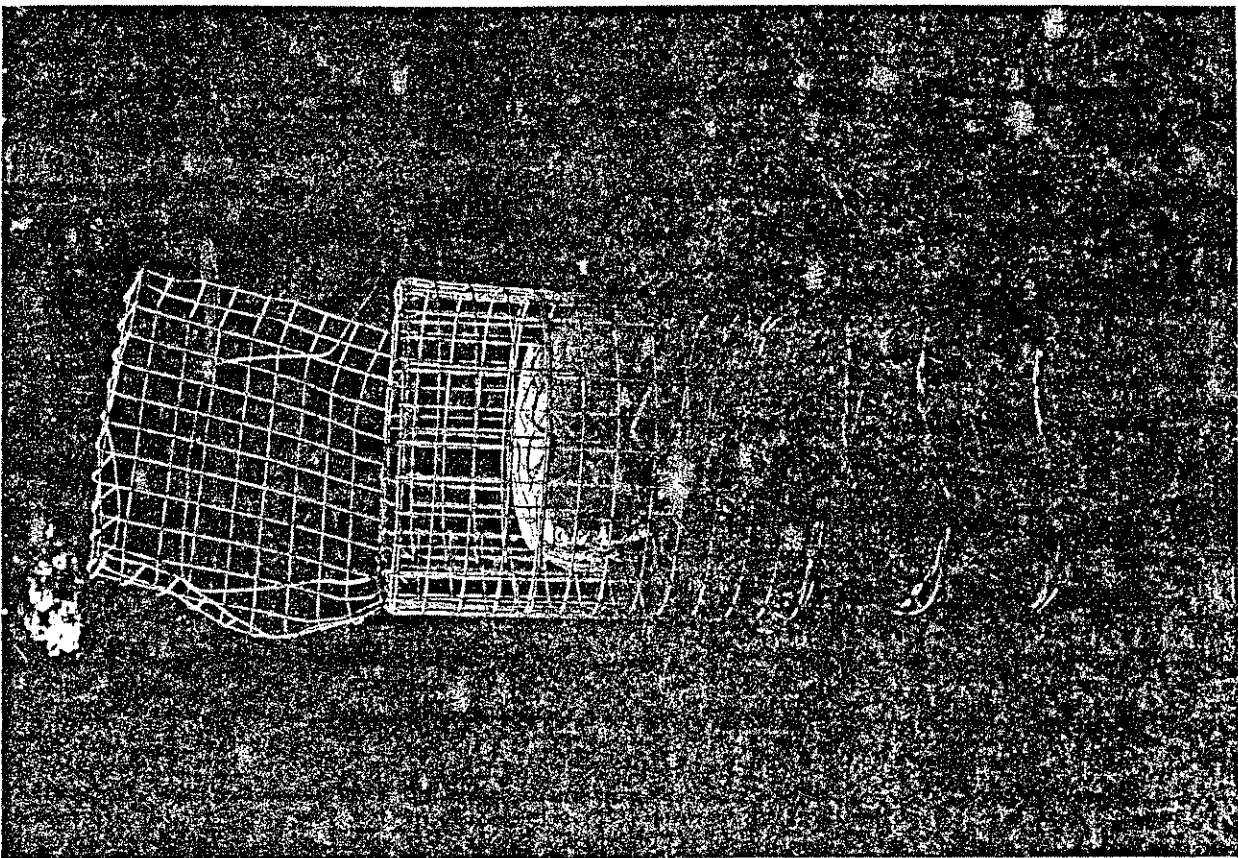


Figure 2. Type of bait station used in the study. The bunched cloth in the upper part simulates the bait and indicates the position inside the container.



Figure 3. Bait station on lodgepole pine tree in November.

of his activities and observations. Mr. John E. Hummel was the Department's program coordinator and operated from the Region 2 office.

Ten cylindrical hair snags, using salmon and trout for bait, were constructed of welded wire mesh and lined with barbed wire (Figure 2). These hair snags were attached to trees or snags at a height of eight to ten feet above the ground (Figure 3). This placement allowed the hair snag to be above the snow surface when snow depth reached five to eight feet during the study (Figure 4).

The hair snags were checked for hair samples four times during the first ten weeks, November 12, 1977 to January 21, 1978, and six times during the second ten weeks, January 22 to March 30, 1978. The location of nine of the ten snags was changed half way through the study to provide greater coverage of the study area. The visitation schedule to collect hair samples from the hair snags and maintain the station varied with weather conditions. Therefore, there was no set interval between collections of hair samples. All hair samples collected during the study were forwarded to the Department's Field Station for identification.

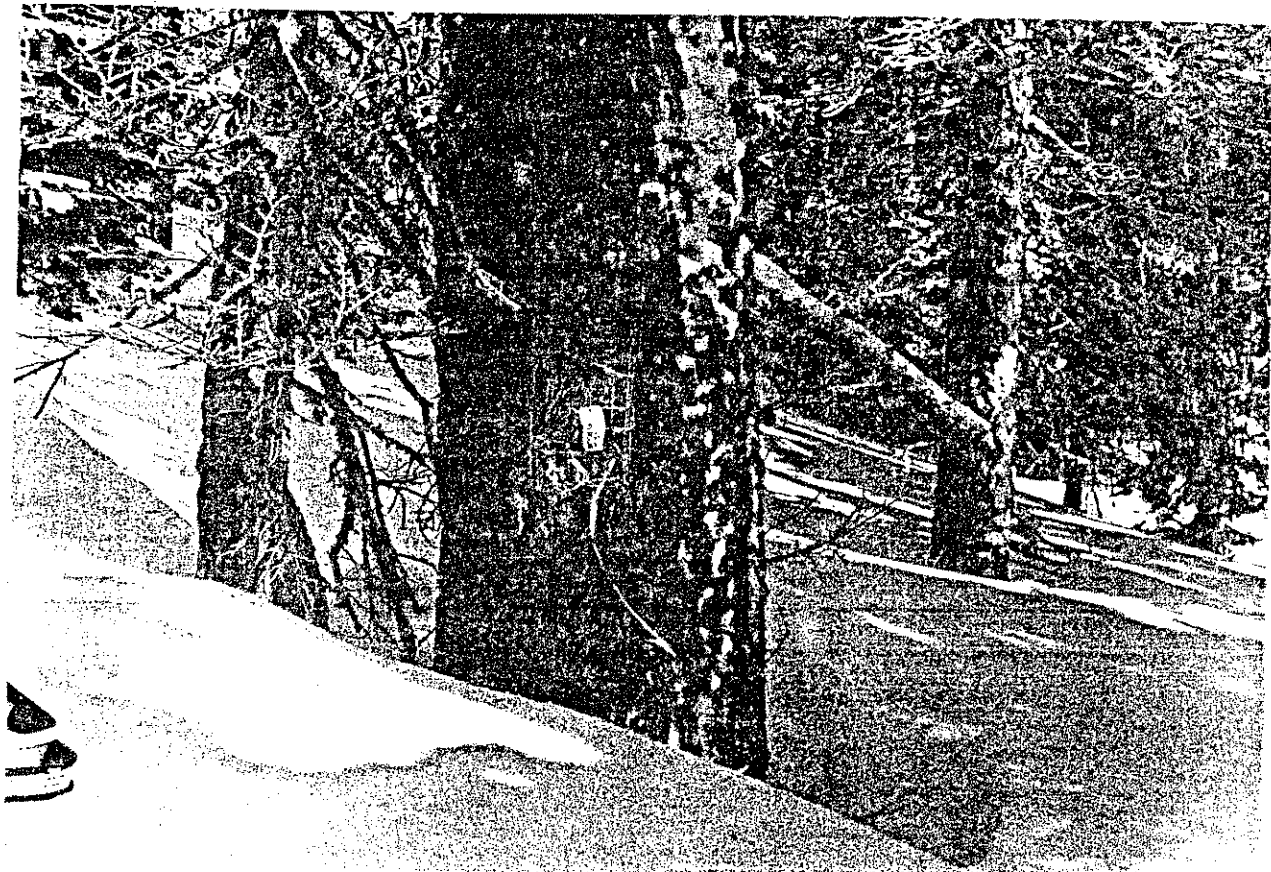


Figure 4. Bait stations were placed from eight to ten feet above ground level in November to prevent them from being buried by the deep snow during the winter.

## FINDINGS:

During the 20 week study 32 hair samples were collected from the hair snags (Table 1). Analysis indicated that 24 of the hair samples were from marten and eight were from fisher. No other species left hair in the hair snags.

Only five hair samples were obtained during the first half of the study and four of these five were from fisher. After relocating the hair snags 27 samples were obtained, of which the vast majority, 23, were from marten. This resulted in equal visitation of the baited hair snags by fisher during both halves of the study period, but a great increase in visitation by marten.

Hair samples from marten and fisher were obtained from hair snags at 15 of the 19 different locations where the hair snags were set (Figure 5). The four nonproducing sites were all set during the first half of the study. All eight fisher records came from different sites, but marten records were as widely distributed. Marten hair was identified from all ten sites used during the second half of the study with three records each from four different stations.

Marten and fisher also were observed in the study area. Marten were seen on five occasions and their tracks alone were identified twice while only a single sighting of a fisher was made (Figure 6). Most of the sightings were made in the vicinity of the lodge at Webber Lake.

Additionally, six other species of furbearer were observed in the study area (Figure 6). The coyote (Canis latrans) was probably the most common furbearer in the area, the object of 22 widespread observations, many of which were of two or more individuals. Raccoons (Procyon lotor) were observed on five occasions, all near the lodge. Two sighting observations and one of tracks of ermine (Mustela erminea) were made adjacent to Webber Lake. A single sighting, made in November, of three muskrats (Ondatra zibethicus) documented this species presence at Webber Lake. Bobcat (Felis rufus) and black bear (Ursus americanus) tracks were both noted once in the Webber Lake area.

## ANALYSIS:

The red fir-lodgepole pine forest and meadow habitat typical of the Webber Lake area provides habitat for eight species of furbearers including the rare mustelids, marten and fisher. Both marten and fisher appear to be widespread in the area, as evidenced by the distribution of baited hair snags providing hair samples from individuals of these species. Likewise, the sightings of coyotes or their sign were widespread throughout the study area.

The presence of wolverine in the study area was not verified. However, a recent sighting of a wolverine near Bonta Saddle in 1972 may indicate this species visits this area during its normal peregrinations. Three questionable hair samples which may have been wolverine were identified as fisher because there is great similarity between the hair of these species unless the whole hair strand is obtained and because fisher were observed in the study area.

Table 1. Hair snag locations, elevations, habitat types and hair samples obtained during winter 1977-78, Webber Lake, Sierra County, California.

Station Number	Location	November 12, 1977 to January 21, 1978		Habitat Type	Hair Samples Obtained
		Elev. Feet			
1	T19N, R14E, S $\frac{1}{2}$ , S.18	7480		Red fir forest	None
3	T19N, R14E, NW $\frac{1}{4}$ , S.20	6840		Subalpine meadow	1-fisher
4	T19N, R14E, NE $\frac{1}{4}$ , S.20	6820		Subalpine meadow	None
6	T19N, R14E, NE $\frac{1}{4}$ , S.22	7450		Red fir forest	None
9	T19N, R14E, NE $\frac{1}{4}$ , S.29	6800		Lodgepole pine forest	1-fisher
10	T19N, R14E, SE $\frac{1}{4}$ , S.28	6800		Lodgepole pine forest	1-fisher
13	T18N, R14E, SE $\frac{1}{4}$ , S.3	6920		Riparian woodland	None
14	T18N, R14E, NE $\frac{1}{4}$ , S.3	7040		Riparian woodland	1-fisher
15	T19N, R14E, NE $\frac{1}{4}$ , S.25	6720		Red fir forest	None
16	T19N, R15E, SW $\frac{1}{4}$ , S.20	7040		Red fir forest	1-marten
January 22, 1978 to March 30, 1978					
1	T19N, R14E, S $\frac{1}{2}$ , S.18	7480		Red fir forest	3-marten; 1-fisher
2	T19N, R14E, NE $\frac{1}{4}$ , S.7	7800		Red fir forest	3-marten
5	T19N, R14E, SW $\frac{1}{4}$ , S.15	7550		Red fir forest	2-marten
7	T19N, R13E, SW $\frac{1}{4}$ , S.25	7200		Red fir forest	3-marten; 1-fisher
8	T19N, R13E, SE $\frac{1}{4}$ , S.25	7200		Red fir forest	3-marten
11	T18N, R14E, SE $\frac{1}{4}$ , S.4	7360		Lodgepole pine forest	1-marten; 1-fisher
12	T18N, R14E, NW $\frac{1}{4}$ , S.3	7040		Lodgepole pine forest	2-marten
17	T19N, R15E, NE $\frac{1}{4}$ , S.20	6640		Lodgepole pine forest	2-marten
18	T19N, R15E, NE $\frac{1}{4}$ , S.29	7180		Red fir forest	2-marten
19	T19N, R15E, SE $\frac{1}{4}$ , S.29	7760		Red fir forest	2-marten; 1-fisher



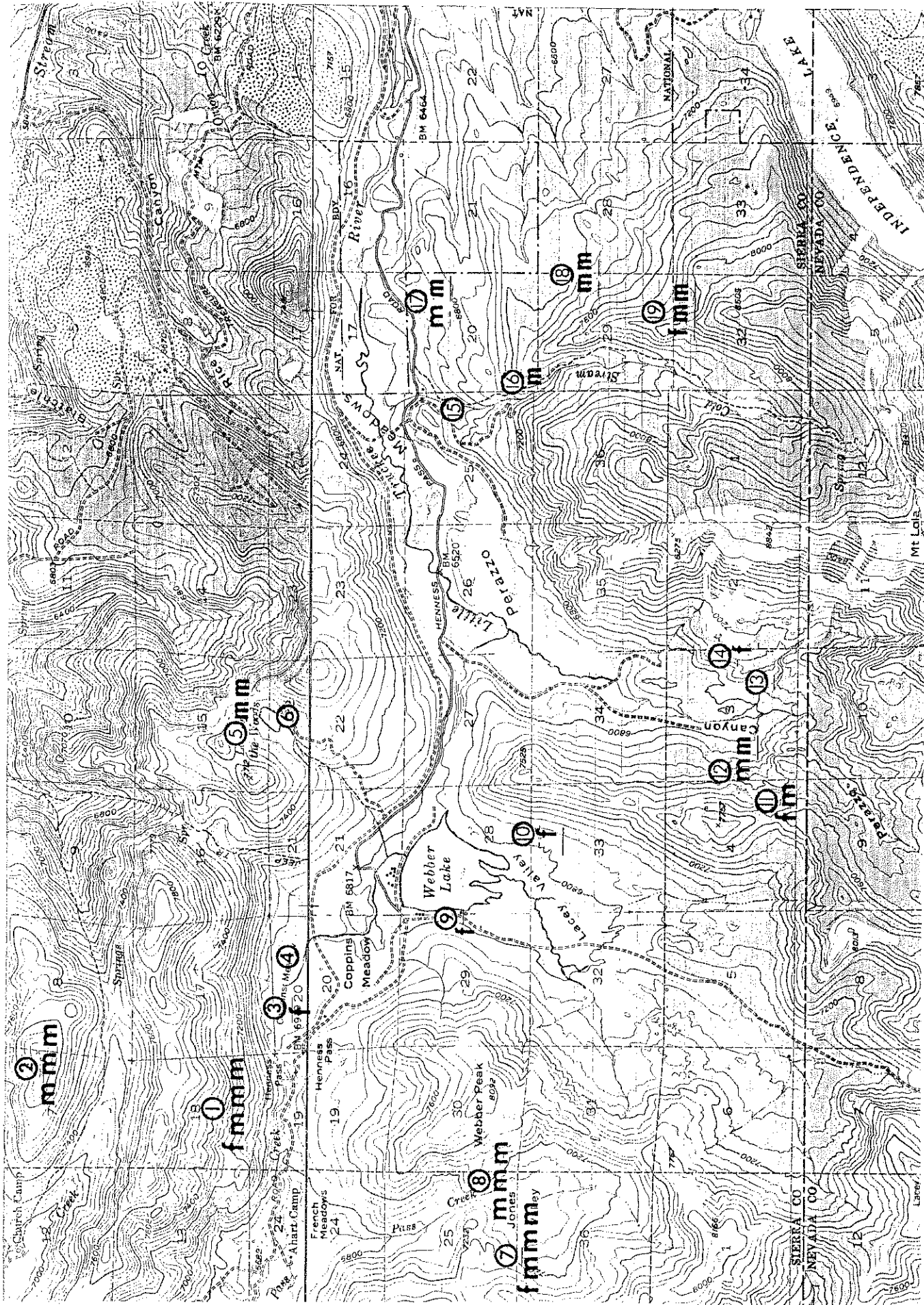


Figure 5. Locations of baited hair snags (numbered) and hair samples obtained at each station (m=marten; f=fisher) during furbearer study, Sierra County, California - winter 1977-78.

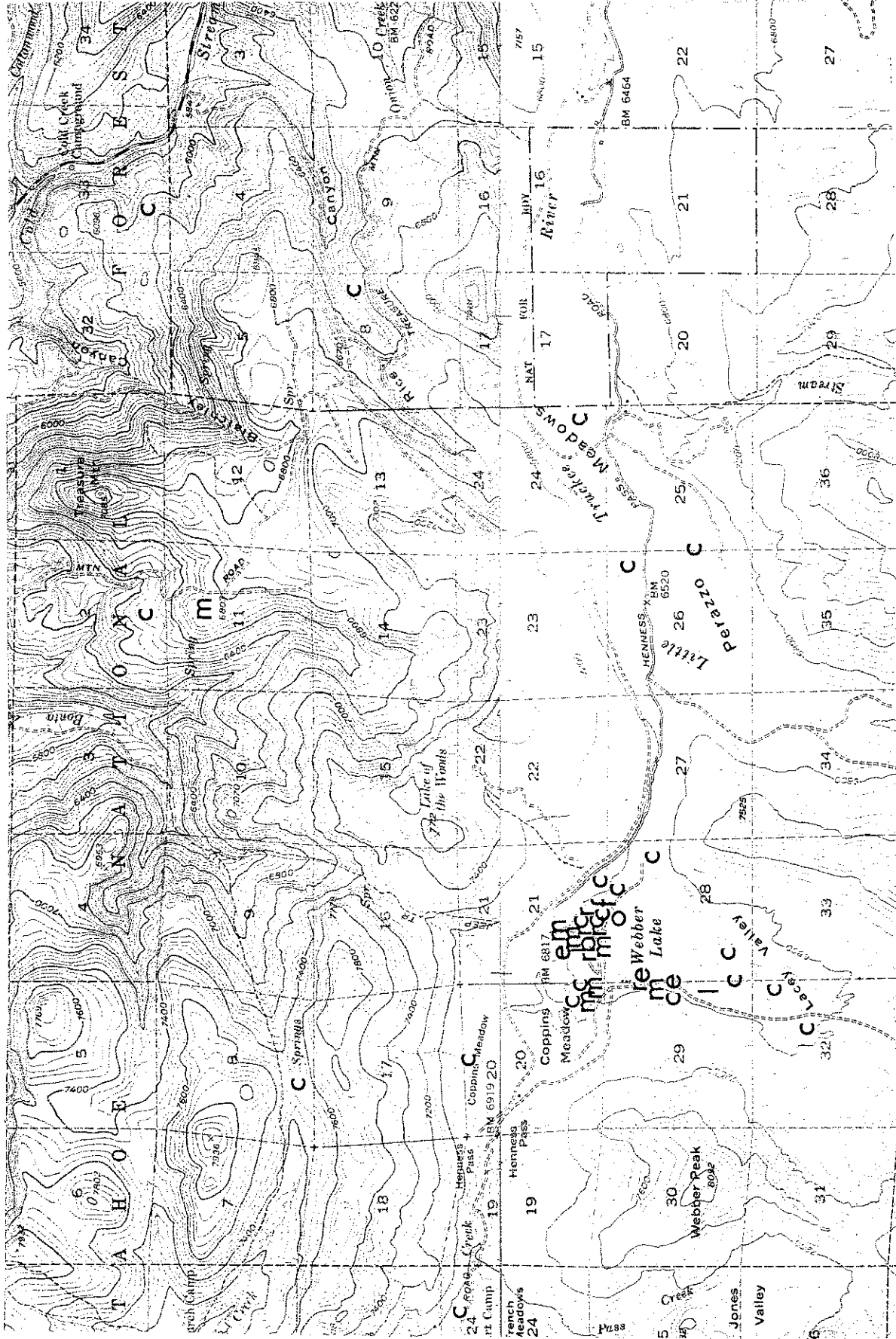


Figure 6. Locations of observations (visual and sign) of furbearers during furbearer study, Sierra County, California - winter 1977-78. Key: b=black bear; e=ermine; f=fisher; l=bobcat; m-marten; o=muskrat; r=raccoon.



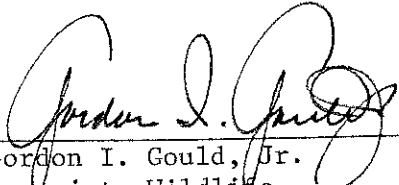
Care must be taken not to draw conclusions as to the abundance of these furbearers from the data gathered. The large number of observations of coyotes compared with other species would indicate coyotes are the most numerous furbearer in the study area. Using the same criteria, perhaps marten are the next most abundant. Likewise, marten would be three to seven times as abundant as fisher if the ratio of observations or hair samples were valid indicators. The fact that the observations are widespread indicate a lack of "addiction" to any one baited hair snag. This is not known for sure since a hair sample at any one station may be composed of hair from more than one individual of the same species or from more than one visit by a single individual. The larger home ranges of coyotes and fisher also must be considered in making inferences on the relative densities of the different species from these data.

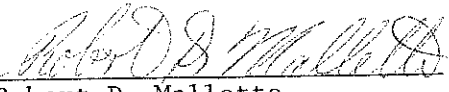
Therefore, accurate data on density, home range and actual habitat utilization were not realized from this study. This could only be determined by either a trap-mark-observe and recapture program or by fitting a radio-transmitter collar to captured individuals and following their movements.


Variations in the number of marten hair samples collected between the first and second halves of the study period can not be explained other than by speculative reasoning. Normal winter activity patterns of marten may have been modified by the heavy snow storms during the first half, which in turn reduced the amount of time spent and the distance traveled while hunting. Also, bait may have been unacceptable to martens early in the winter when other food was available; but as food became scarcer the bait became more attractive.

#### RECOMMENDATIONS:

1. Utilize the methodology perfected in this study to document distribution throughout the historical range of marten, fisher and wolverine.
2. Investigate the home range and density of these mustelids to determine habitat utilization and the spacing of hair snags to be used in documenting distribution.
3. Develop winter transect routes to monitor furbearer populations including marten, fisher and wolverine.

Prepared by:   
Gordon I. Gould, Jr.  
Associate Wildlife  
Manager-Biologist

Approved by:   
Robert D. Mallette  
Nongame Wildlife Coordinator

Approved by:   
Eldridge G. Hunt, Chief  
Wildlife Management Branch

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