

## Status of the Last Brown Bears of the Alps in the Trentino, Italy

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### ABSTRACT ONLY

Less than 1,000 years ago, brown bears, *Ursus arctos* L., were found throughout most of continental Europe, but today only remnant populations occur in small and isolated areas. Although mountainous regions typically form a last stronghold for the bears, they were exterminated from the greater part of the Alps during the 1800s. Only two small populations survived by 1900, one in the French Alps and one in the Italian Alps. Those of the French Alps disappeared before World War II, whereas, in Italy, one small group still remains in the Alpine province of Trentino. These bears are extremely shy and nocturnal, so to obtain information on their status and biology we used indirect methods such as measuring tracks, counting scats and interviewing local people.

In order to obtain an adequate coverage of the 1640 km<sup>2</sup> study area which includes the entire bear range, interviews for mapping purposes were based on a stratified sampling plan using the Communities—which also conform to hunting management units in the Trentino—as spatial strata. A frequency was used of one interview per 10 km<sup>2</sup> community area.

All personal observations of bears or their signs (tracks, scats) were located on a map by persons interviewed, mostly hunters. We tried to use objective mathematical-geometrical procedures to convert the resulting 'point-maps' into 'area-maps' showing areas of different bear-use intensities. Two maps for the periods of 1913-1966 and 1967-1970 were prepared on the basis of 654 observations.

These maps suggest total bear range (outermost observations connected) had decreased a relatively unimportant 20 percent, but that heavily used bear-range had decreased a substantial 75 to 90 percent. These maps and other data (calculated population indices based on sighting frequencies for sub-areas) suggest that bears actively concentrated in the northeastern corner of the Trentino bear area (Val di Non) during the 1960s.

Tracks and direct observations provided a minimum population estimate of eight bears for 1969, including a female with two yearlings (or two-year-olds), a female with a single yearling, a female with at least one cub, and a minimum of one single bear. A figure of about two additional single bears, which makes a total of ten animals, is probably a more realistic estimate. Additional data from Daldoss (1973 and pers. comm., Sept. 1974) suggest a stable population since 1969.

These bears have adapted remarkably well to this densely populated region. They make extensive use of the partly abandoned orchards along the lower edge of the mountain forests during fall. I have found tracks and scats as close as 50 m to an occupied farmhouse, but only very rarely are they discovered further than 25 m from the forest edge. The local people are often unaware of these night visitors.

Our information indicates that poaching is the primary factor causing a decline in the bear population of the Trentino. Using the Petersen-Lincoln index as a procedure, and a list of illegal bear killings compiled independently by Marti (1969), we estimated an average of 2.2 bears killed annually from 1939, when the species was fully protected, to 1970.

In the Cantabrian Mountains of Spain a similar situation prevailed after World War II. Poaching was slowly exterminating a small brown bear population. After the establishment of a special bear reservation of 879 km<sup>2</sup> and extensive patrols by 12 game wardens, the bears increased to about 70 (Notario 1964). It seems that similar action is necessary to save the bears of the Italian Alps.

#### REFERENCES

- DALDOSS, G. 1973. *Rilievi sulla presenza dell'orso bruno nel Trentino nel quinquennio 1967-1971*. Rome: World Wildlife Fund, Via Micheli 50. 25 pp.
- MARTI, B. 1969. Ueber das Vorkommen des Braunbären in den Alpen. *Schweizer Naturschutz* 35(4): 91-95.
- NOTARIO, R. 1964. *El oso pardo en España*. Madrid: Servicio Nacional de Pesca Fluvial y Caza. 130 pp.