

# THE BROWN BEAR IN CARINTHIA: HISTORY AND STATUS IN SOUTHERN AUSTRIA

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**Abstract:** Places that are named after bears are spread over the whole of Carinthia and the rest of Austria. Although not all of these names derive directly from a former presence of brown bears (*Ursus arctos*), other historical data such as hunting statistics and bone collections confirm that there were bears living in all areas of Austria, including Carinthia. The brown bear in Carinthia has not been extirpated and continues to survive. Bears continue to travel to Carinthia along a 300-km corridor from the bear range of Slovenia and Croatia. Presently there are an estimated 12 bears in Carinthia and the surrounding area. They do not seem to depend on domestic livestock or beehives, but prefer natural foods. The amount of damage caused by bears is not high, averaging approximately \$5,000/year during 1990–95. Reproduction was observed 3 times from 1989 to 1995 (2 cubs in 1989, 1 in 1990, 1 in 1995). If these bears are not cut off from the source population in Slovenia and Croatia and if negative public attitude present in other Austrian bear areas (2 bears were shot in 1994) does not spread to Carinthia, there is a realistic chance for the survival of this small bear population. There is an urgent need for a bear management plan for all areas of Austrian bear range.

*Ursus* 10:75–79

**Key words:** Austria, Carinthia, European brown bear, history, status, *Ursus arctos*.

The brown bear in middle Europe and especially in alpine regions, like Carinthia, has become almost extirpated as a result of hunting rather than habitat destruction. Successful recolonization by bears will depend more on the attitudes of the people living in these areas than on restoration of habitat. However, due to the habitat fragmentation and high human density, especially when compared to Asian and North American bear range, there are conflicts with farmers and hunters throughout most of the bear range in Austria. Many Austrians are only prepared to accept shy, unseen bears, but it is usually the more courageous and active bears that are able to reach the densely settled country from Slovenia and Croatia.

Since 1950 the bear has been present in Carinthia; 4 bears, all male have been shot during this time (1 shot in 1950, 2 in 1965, 1 in 1971). Since 1971 the bear has been protected in Carinthia. The Carinthian Hunting Association has collected bear observations and has played a considerable role in their protection. The Association compensates people for bear damage and promotes conservation among their members by not hunting bears. Detailed information on population size, reproduction, habitat, and food habits of Carinthian brown bears is not available. Therefore, the World Wide Fund for Nature (WWF) Austria started a project to study the distribution, status, and population trend of brown bears in Carinthia beginning in late 1991. In this paper I summarize the results of this study for 1992–95.

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## STUDY AREA

Carinthia is the southernmost state of Austria, bordering on Italy and Slovenia in the Eastern Alps. It ranges from 12°40'E to 15°03'E longitude and from 46°23'N to 47°08'N latitude. Carinthia is 9,533 km<sup>2</sup>, an average of 180 km wide in a east–west direction and 60 km wide in a north–south direction. The human population of about 550,000 is concentrated in the lowlands and the valley bottoms (about 30% of Carinthia). About 70% of Carinthia is mountainous, and elevations range from 348 m to 3,797 m. The climate is south-alpine with an average temperature in the bear range of 16.6 C in July and -3.8 C in January; the region averages 9 days >25 C/year (measured at Weißensee-Gatschach at 941 m in 1993). Most precipitation occurs between June and October with a yearly average of 80–250 cm (Neureiter 1994).

Bears normally use mountainous areas ranging from 800 to 2,000 m in elevation. Dominant tree species are Norway spruce (*Picea abies*), pine (*Pinus sylvestris*), and European larch (*Larix decidua*). Fructifying leaf trees like European beech (*Fagus sylvatica*) or oak (*Quercus petraea*, *Quercus robur*) are only of local importance. Myrtle whortle berry (*Vaccinium myrtillus*) is widespread and can be found from 350 to 2,300 m.

## METHODS

I analyzed local newspaper articles, information collected by the Carinthian State Museum, and data compiled by the Carinthian Hunting Association to describe historical bear distribution. To obtain the precise number of places with bear-related names, I systematically reviewed 213 Austrian geographical maps (1:50,000)

(Breitfeld 1992, Gutleb 1994a). Each observation was described by the map number, type of place (village, mountain, etc.), elevation, latitude, and longitude and entered into a computer file.

Field work included general monitoring and damage evaluations. In each of the 4 years (1992–95), I spent between 72 and 77 days in the forest and walked between 1,500 and 1,700 km (yearly average 75 days and 1,600 km) in all parts of Carinthia and its surrounding areas to look for bear sign, including tracks, scats, hair, scratch marks on trees, dug-up ant hills, and overturned rocks. Scats were analyzed in the field by visually determining the presence of plants, animal remains, insects, fruits, or berries. Only the frequency of contents was recorded. In addition to monitoring it became important to carry out educational work to stabilize the public attitude toward bears (Gutleb 1992a,b,c, 1993a, 1994b,c, 1995; Knauer et al. 1995).

## RESULTS

### Historical Distribution

Until the 18th century brown bears were very common and widespread throughout Carinthia. Between 1710 and 1724, 27 bears were shot or captured in 1 west Carinthian hunting area (Forstner 1982). Bears were shot in Carinthia in 1860, 1884, 1950, 1965, and 1971 and were observed in all decades of this century (Berdl 1923; Puschnig 1928, 1930, 1935; Gress 1930). Following the increase of the bear population in Slovenia after 1950, bears were more often observed in Carinthia (Krže 1988). In 1971 the brown bear was given complete protection and the hunting season was closed. The next major period of the recolonization took place after Slovenians stopped hunting bears in 1992 in the corridor between the core population from Croatia and Slovenia and Austria and the border areas. Most Carinthian bears migrate through this 300-km northwest corridor (Fig. 1; Gutleb 1993b, Adamic 1994). A second eastern corridor, abandoned by bears since 1960, has been reused infrequently since 1993 (Fig. 1; M. Adamic, Carinthian Hunting Assoc., Ljubljana, Slovenia, pers. commun., 1995).

### Bear Place-Names

I found 1,003 bear place-names on the 213 geographical maps (1:50,000) of Austria. The word Bär (bear) was in 378 of these place-names, and the rest contained an old or linguistically altered name for bear. The density of names was 15.5/1,000 km<sup>2</sup> in the mountainous

parts of Austria (total 50,400 km<sup>2</sup>) and 6.6/1,000 km<sup>2</sup> in the lowlands (total 33,455 km<sup>2</sup>).

### Food Habits

There are 259 different types of potential food sources in Carinthia, including 189 plants. In the 63 scats found between 1992–95, 71 food sources were observed. The most frequently observed foods were plant materials, which occurred in 47 of the 63 scats (75%; Table 1).

### Bear Damage

The amount of damage caused by bears is low (Fig. 2). A total of 361 incidents of damage were recorded between 1971–95. In winter (Dec–Feb) no damage was reported. Damage is most common in the spring (Mar–May; 43% of all damage reported). In summer (Jun–Aug) and fall (Sep–Nov) reported damage decreased to 27% and 30%, respectively. The annual average number of sheep killed was 8 (0–42; 203 in 25 years). From 1991 to 1995 the average was 13 (total 65). The yearly financial loss amounted to approximately \$5,000 during this 5-year period. This loss was recovered through an insurance policy of the Carinthian Hunting Association.

### Present Population Status

I estimated that about 12 bears reside in Carinthia and its surrounding areas. Reproduction was observed on 3 occasions in the last 6 years. Two cubs were seen in 1989, 1 in 1990, and 1 in 1995. The cubs of 1989 and 1990 were observed by hunters, and I confirmed the presence of a female with a cub in early spring 1992. Tracks of a female with a 1 year-old cub were found in the triangle of Carinthia, Austria–Friuli, Italy–Slovenia in spring 1995.

## DISCUSSION AND CONCLUSIONS

After contact with bears, including sightings, hunts, or other encounters, humans occasionally gave names containing the word bear (German, bär) to the location of the encounter. The older the name, the harder it is to find the connection to the word bear (Schnetz 1963). The Celtic word barr or barros was used for mountains, so not all place names which appear to be bear-related actually derive from the presence of bears (Resch-Rauter 1992). However, the high number of such bear place-names and other historical data confirms that bears did live throughout Carinthia, Austria, and Europe (Erdbrink 1953, Coutourier 1954, Curry-Lindahl 1972, Butzeck et al. 1988).

About 2,000 bears lived in the Dinaric mountain range before 1991, when the war in Croatia and Bosnia-

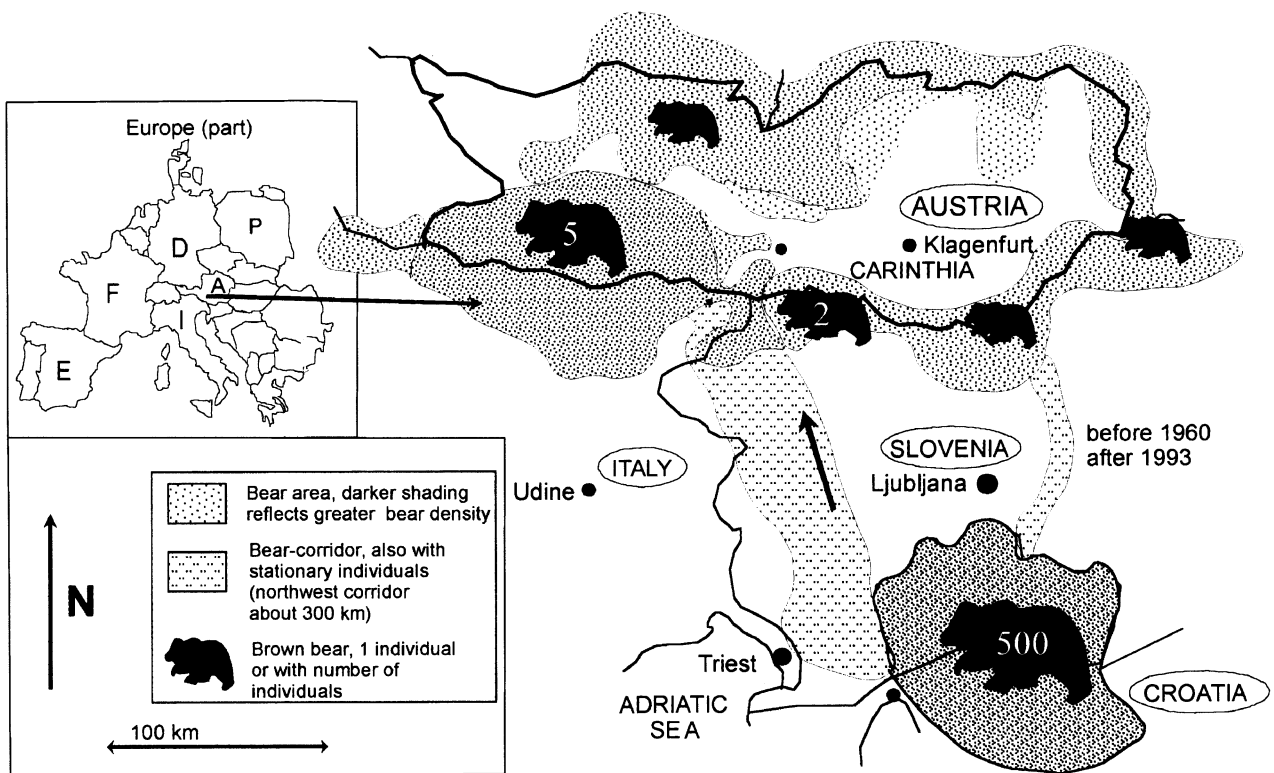


Fig. 1. Occupied brown bear range and bear corridors extending from Croatia and Slovenia to Carinthian bear range, Austria, 1995.

Herzegovina began (Verstrael 1988, Erome and Michelot 1990, Huber 1990). About 700 of them now live in Croatia and Slovenia (Svigelj 1973, Adamic 1987, Huber and Frkovic 1993) and form the source population for the Austrian bears. The main northwest corridor is still used by bears but is becoming increasingly compromised due to road construction and forestry. Nine emigrating bears were killed on the Ljubljana–Postojna highway over the last years in Slovenia (Kaczensky et al. In Press). It is very important to protect and even improve this corridor as it represents the only practical opportunity for natural recolonization of the Alps.

Table 1. Contents of brown bear scats ( $n = 63$ ) collected in Carinthia, 1992–95.

Food source	Number of scats containing food source (%)
fruits and berries	16 (25)
plant material	47 (75)
animal remains	38 (60)
insects	26 (41)

Usually, only young male bears leave their range of birth to look for new habitats (Buchalczyk 1980). Fortunately, 1 or possibly 2 females found their way into the study area.

Although the number of immigrating bears appears to be increasing and 1 reproducing female was found, the

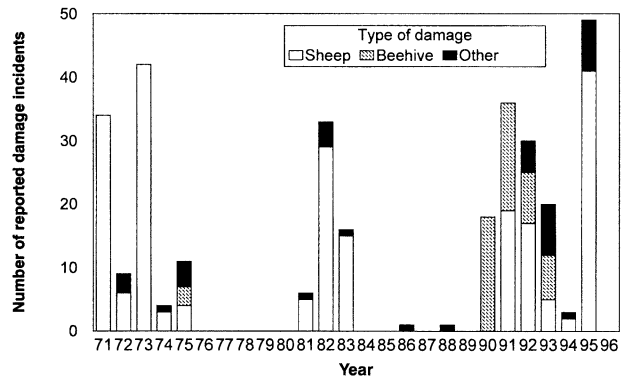


Fig. 2. Brown bear damage reports in Carinthia, Austria, 1971–96.

estimated number of bears in Carinthia has remained constant at about 10 since 1991 (Gutleb 1993b). In Carinthia and throughout Austria bears are spreading and recolonizing new areas (Gutleb 1994a; Fig. 3). Most of the bears live in remote mountainous regions, although they can be found in relatively densely settled areas and may approach towns (up to 1 km) or even cross through small villages by night. Until now there has been no aggressive behavior or attacks on humans, but some bears have occasionally displayed either ignorance or curiosity toward humans.

The amount of damage caused by bears differs greatly from year to year. Besides the many well known reasons for such fluctuations (food sources, weather, individual condition, presence of sheep, etc.), I found that much damage also occurs whenever a bear goes to a new area, a common occurrence due to the bears' mobility (Huber and Roth 1993, Rauer 1993). The bear may not always be able to find its natural food sources in the forest and may take sheep, which can be an easier option. In any case, the damage period never lasted more than 3 months because either the bear moved on or it learned to use the new habitat. Based on the food habits results, Carinthian bears do not seem to depend on livestock or beehives but prefer natural foods.

If Carinthian bears are not cut off from the source population in Slovenia and Croatia, there is a realistic chance for the survival of this subpopulation and possibly even a natural recolonization of additional portions of the Alps in the future. The protection and improvement of the

only existing corridor from the Dinaric mountain range to the Alps is essential. It is also important to encourage the positive attitude shown toward bears by the Carinthians to people in other parts of Austria, where 2 bears were shot in 1994. In 1996–97 a management plan for all Austrian bear areas will be written with financial support of the European Union to improve future chances of survival for the brown bear.

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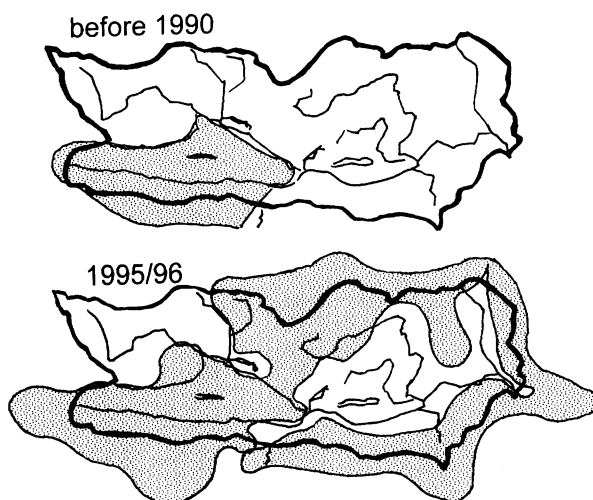


Fig. 3. Shaded areas indicate where bear sign (tracks, scats, damage) was found or observations were made before 1990 and during 1995–96.

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