

## **Ecology, Protection and Prospect of Utilization of the Brown Bear in the Estonian S.S.R.**

MATI KAAL  
*Estonian S.S.R.*

The brown bear (*Ursus arctos*) is indigenous to Estonian forests. According to the paleo-zoological studies of K. Paaver (1965), this animal inhabited the present area of the Estonian Soviet Republic as far back as the beginning of the Holocene Epoch. Until the end of the 18th century bears could be found in large numbers over much of the natural landscape (Fig. 1) even reaching the West Estonian islands. Since that period, the number and range of bears has dwindled due to the intensification of hunting (Fig. 2).

On the eve of the First World War approximately ten bears were known to exist in Estonia, living in the forests and swamps of Alutaguse in the north-eastern part of the country. As there was very little interference from people (also thanks to migration from the east), the number of bears doubled by the end of the war, remaining at approximately the same level up to 1934; at this time new hunting regulations were established in Estonia. The new law gave more-or-less full protection to the bears and they spread rapidly and increased in numbers immediately. After the reestablishment of Soviet power in 1940, the hunting law remained in force. The bears continued to increase and reached their peak in the mid 1960s when a decline was noted; however, in the 1970s their numbers have again increased.

Approximately 150 bears now exist in Estonia and make up two separate populations, essentially the north-eastern and south-western populations. Apart from these there are a few scattered individuals (Fig. 3).

The north-eastern population constitutes about 90 percent of the total number of bears. They are in contact with the bear population of the Leningrad region, where, according to Novikov *et al.* (1970), there are about 500 to 600 bears.

The center of the brown bears' habitat is steadily moving westward and south-westward because of extensive industrial development in the northeast of the republic. The further growth of the oil-shale industry may eventually separate the Estonian population from the bear population of the Leningrad region, a result of which may be the danger of inbreeding.

The south-western population lives in the southern part of the midland strip of forests and swamps and is considerably more unstable. The bears of this region are unusually prone to vagrancy, with a low rate of reproduction. It seems clear that this population is doomed to extinction since the whole district is already too densely settled to afford the bears a natural habitat.

The brown bear in Estonia feeds mainly on plants, which vary according to the season. Accordingly, bears can be found in different types of forest at different times of the year. In autumn and early spring the carcasses of dead animals form a substantial part of the bears' diet; at this time the killing of large ungulates occurs, but the damage to the game economy is negligible. The supply of plant food when compared with the number of bears living in the forest areas and the settlements in the vicinity could support a much larger number of

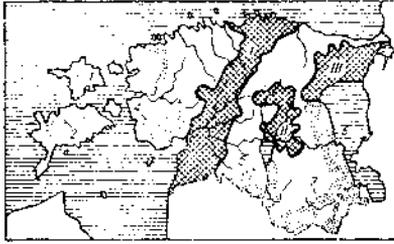


Fig. 1. Natural Landscape of Estonia, S.S.R.

- I - The midland belt of forests and swamps
- II - Jõetaguse forest and swamp area
- III - Alutaguse forest and swamp area
- 1-8- Other forest areas

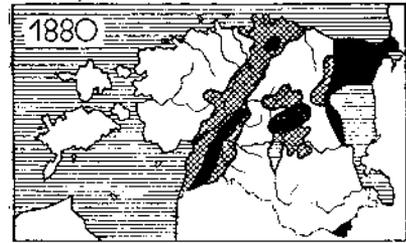
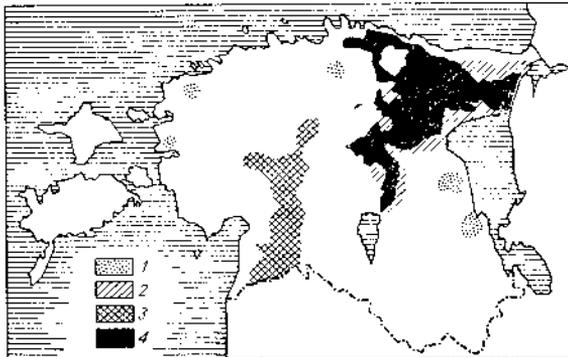
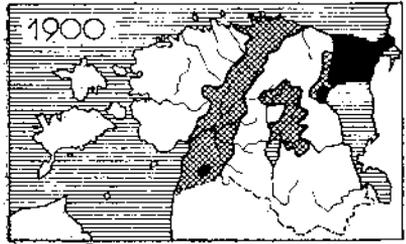


Fig. 2. Changes in distribution of bears in Estonia, 1860-1900

- Fig. 3. (1) Areas inhabited by single bears  
 (2) Areas where bears have only been sighted in spring.  
 (3) Habitat of the south-western population  
 (4) Habitat of the north-eastern population



bears. It is evident that the spread and reproduction of bears are restricted by such negative environmental factors as the increasing activities of people in the forests.

During the past few years there has been a marked increase in the number of ungulates in Estonia. In our small republic we have at present about 12,000 elk, of which the annual harvest quota is 5,000. With this comparatively large quota and under the existing conditions of game management, it is inevitable that a number of wounded animals are not retrieved. This explains the above-mentioned rise in the bear population at the present time, for the bears can feed unmolested. On the whole, the hunting season coincides with the time when people from towns and villages go *en masse* to pick berries and gather mushrooms in the forests and swamps. Consequently, bears have been sighted in places which they formerly never inhabited. For example, a relatively stable, small population of bears has now become established in the forests on the western shores of Lake Peipsi; in former times only a few migrant bears ever roamed in this area.

The large number of ungulates exceeds the carrying capacity of this area of our republic and the welfare of our forests suffers. The permissible number of elk should be limited to 6,000 to 6,600 individuals. Eventually this lower level will be reached, which means that the present food supply for the bear population is only temporary. Thus it is time to consider seriously, the welfare of the bears. At the present time bears enjoy full protection by the law and poachers are fined 1,000 roubles per head.

The Tudu State Hunting Base harboring approximately 30 bears is situated in the center of the area inhabited by the main bear population of the Estonian S.S.R. This Base was made into a sanctuary for the brown bear in 1973. The



Fig. 4. Den Site of a European Brown Bear in Estonian S.S.R.

felling of timber and the presence of people in this area is strictly controlled; this appears to be especially important during the period of hibernation.

The bears of Estonia hibernate from November till March or April; however, this may vary from year to year according to meteorological conditions. The structure of a bear's winter den is extremely variable; these may vary from a simple bed in the open to a carefully prepared cave which sometimes contains two beds (Fig. 4). In most cases the bears hibernate in a clump of young fir trees, in the debris of wind-thrown trees, or under stumps in water-logged districts.

At the Tudu Hunting Base certain management practices are being undertaken; for example, carcasses of animals are left in the forest, oats are sown especially for the bears, etc. In the future if our bears should be cut off from the bear population of the Leningrad region, bears from there can be brought to the Reservation.

The management program on the Reservation is not yet complete and will most likely change considerably as time goes on. With the help of all these measures it is hoped that we shall be able to preserve the bear as a worthy representative of our ancient native fauna; at the same time the bear may in the future also become a game animal. The present rate of reproduction prohibits this, but by employing various management practices, we hope to raise the number of our bear population to the level that has been achieved in Czechoslovakia, where it is reported (Randik 1971) that 5 percent of their bear population is made legitimate quarry for hunters, the more aggressive animals being chosen for this purpose. The fees for hunting licences would be used as funds for projects to help conserve the bears.

The habitat of the Estonian brown bear lies on the western border of the basic area inhabited by the brown bear. Therefore, the preservation of our small population is not only important for the republic alone but is all-important for the preservation of this diminishing species over the rest of the world.

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