

**Fragmenta Theriologica**

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## ANOMALIES IN THE WEAR OF INCISORS IN THE EUROPEAN BEAVER

## ANOMALIE W ŚCIERANIU ZĘBÓW SIECZNYCH U BOBRA EUROPEJSKIEGO

A description is given of anomalies in incisor wear in the European beaver, *Castor fiber* Linnaeus, 1758, observed in captive animals on a beaver farm. Cases were found of hypertrophy of the incisors, or hypertrophy combined with curvature of the teeth into the interior of the mouth, and also oblique wear of the incisors. When the incisors are filed once this produces lasting effects only in certain cases of incisor hypertrophy, but usually gives merely temporary results. Systematic monthly filing of the teeth in a young individual resulted in permanent elimination of the oblique wear of the incisors.

The greatly protruding incisors in the beaver (Fig. 1) perform a variety of functions, as a working tool, as an organ enabling the animal to obtain ligneous food and also for defensive and offensive purposes. The animal's capacity to close the mouth with the folds of skin in the region of the diasteme permit the animal to work with its incisors under water and also to carry food or building material under water. In order that these teeth may properly perform the various tasks for which they are required they must be kept normally worn throughout the animal's life.

In the experimental beaver breeding farm at Popielno cases were observed of abnormal wear of the incisors, reducing their powers of performance and even causing the animal's death. It was found that the incisors of old animals, or of animals ill for a considerably time and consequently unable to consume ligneous food, grew fairly rapidly and most often covered the lower incisors. The growing incisors limited the movements of the jaws, causing the latter to gape so that the folds of skin could not close the animal's mouth, and as a result when diving these animals choked and drowned. Anomalies of this kind were observed in beavers nos. 7, 37, 62 and 73. Beavers no. 7 and 37 (Fig. 2) drowned as the result of excessive growth of the incisors. In the female no. 62 intensive growth of the upper incisors resulted in complete loss of the lower ones. In female no. 73 the excessive growth of the lower incisors took place after a long bout of indisposition of the alimentary tract, and when they were filed only once the cause of this defect was removed.

This defective bite is often encountered in both free-living and captive beavers (R o m a s h o v, 1969). Both lower and upper incisors are capable of excessive growth, and as a rule the loss of one of the incisors causes



Fig. 1. Correct positioning and wear of the incisors in the European beaver. Male no. 12, caught at Oliwa in 1959, died Jan. 21, 1963 on the farm at Popielno.

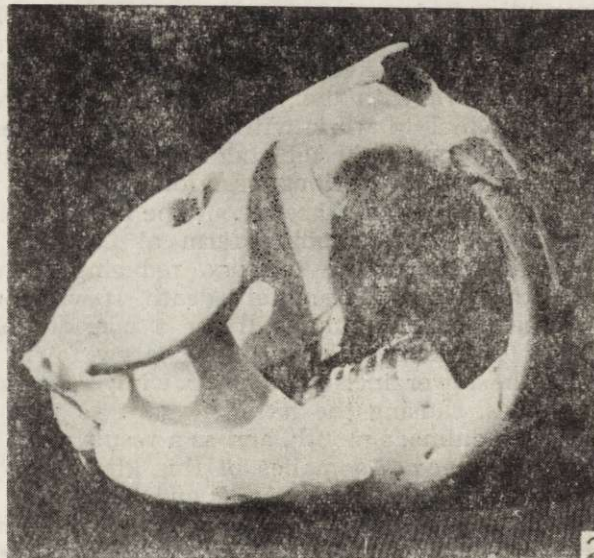


Fig. 2. Excessive growth of the lower incisors. Female no. 37, born on the farm at Popielno May 5, 1964, drowned March 22, 1969.



excessive growth of that opposite it. Under free-living conditions this defect inevitably causes the animal's death, but in the case of captive animals the fatal effects can be avoided by filing the incisors once or several times as required.

In addition to the cases already described, we also encountered cases of excessive growth and deformation of the incisors among animals on the farm. In female no. 22, which was ill for a long time, the hypertrophy of the upper incisors was combined with their curving to a marked degree into the mouth (Fig. 3), and filing produced only a temporary improvement.

Among the anomalies in incisor wear frequently encountered in captive animals is the oblique bite (Fig. 4). This defect was observed in beavers nos. 55, 89, 91, and 143. The crooked bite appeared while the animals were still young and became permanent with age, taking on very acute forms, leading to injury to the gums, difficulty in using the incisors and even death. Periodical (once or twice a year) filling of the incisors in adult beavers produced only temporary relief but not the elimination

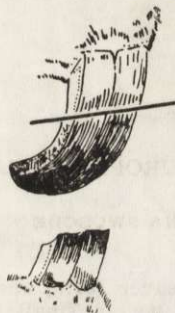


Fig. 3.

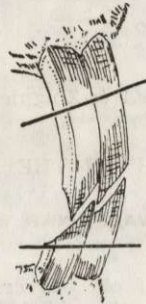


Fig. 4.

Fig. 3. Excessive growth of upper incisors, combined with curvature into the interior of the mouth. Female no. 22, born on the farm at Popielno May 7, 1961. Lines indicate the line to which teeth were filed.

Fig. 4. Oblique wear of incisors. Male no. 143, born on the farm at Popielno May 5, 1971.

of this defect. In animals nos. 55, 89, and 91 this defect was observed to result in lasting curvature of the bones of the jaw.

Crooked bite of the incisors was observed in an 8-month old male no. 143 in 1971 (Fig. 4), and therefore the incisors were cut fairly short and even every month, carrying out this operation systematically from December 1971 to December 1972. As no defect in tooth wear was found during the last few times these operations were ceased, and no recurrence of defective tooth wear was found in this male up to September 1973.

At the same time the incisors of an adult female no. 22 were constantly examined and filed, liquidating in this way any tendency to hypertrophy and curvature of the incisors into the interior of the mouth. A correct bite was maintained in this animal without repeating the filing of the

incisors for several months, but in September 1973 slightly oblique wear of the incisors was again found.

It would appear that care of the teeth carried out systematically for a considerable time on young animals may lead to complete elimination of the defect, not only by correcting the bite, but by gradually straightening the position of the jaws. Defective wear of the incisors in adult animals, on the other hand, with the exception of certain cases of excessive growth of the incisors, is of a permanent character and periodical inspection and operation must be continued in the case of captive animals.

#### REFERENCE

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#### OBSERVATIONS ON THE RELEASING OF THE EUROPEAN BEAVER

##### OBSERWACJE NAD WYPUSZCZANIEM BOBRÓW NA SWOBODĘ

Two pairs of old beavers were released from a beaver farm, one in 1965 and the other in 1968. The new environment was a small and shallow lake, surrounded by a birch and pine forest. To prevent the pair separating — a frequent occurrence when beaver are released — a special arrangement was prepared: an artificial beaver lodge and a wooden palisade as a temporary hindrance to leaving the new place. The first experiment was rather unsuccessful. In the second experiment a second artificial lodge was prepared on the lake side and the animals were released not in August as in the first case, but in November. The second experiment was more successful, as the pair lived together during the winter and produced young in the spring.

The economic and ecological value of beavers depends on many factors and is difficult to evaluate (Yeager & Hill, 1954). In many countries the artificial introduction of beavers has been carried out on a large scale and with great success (Curry-Lindahl, 1967; Zharkov, 1969; Lahti & Helminen, 1969), but has sometimes not been very successful (Myrberget, 1967).

The beaver farm, situated near the large lake Śniardwy, at Popielno, on the Experimental Station of the Polish Academy of Sciences, was founded in 1958. Pairs of beavers have escaped from the farm three times up to the present. In each case it was observed that the pair separated in the new environment and the animals went off in different directions.