RADIOTELEMETRY IN INVESTIGATION OF BEAVER POPULATION SPATIAL STRUCTURE

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The external placing of radiotransmitters on the body of the inhabiting water ecosystem mammals (beaver, muskrat, otter) is leading to the additional risks of the equipment loss while the animals touch the reservoir bottom, fall-down trees, etc. For this reason, the abdominal transmitters are more effective. In our case, to study the beaver population spatial structure we used IMP/400. Radius of this device detection is 2 km in average and according to manufacturer it is possible to use them during 665 days (we used more than 1000 days). Such transmitters give the signals during 12 hours a day. For signal detection we used receiver TR-4, which was programmed for 100 canals in the range 142-220 MHz. The power source is two 9 volt batteries. The set of equipment included the RA-14K Rubber Ducky “H” antenna with elastic “whiskers”.

The radiotelimetry was realized in the following way. We switched on the receiver in the regime “wide search” in the areas of supposed location of beavers with implanted transmitters. When the signal was detected, we determined by its intensity the direction of the following search of the animal. When the “labelled” beaver was closer to us, we switched on the receiver in the regime “narrow search” and as the result we determined the beaver location with accuracy of 2-3 meters.

The radiotransmitter implantation into peritoneal space consists of four stagers – preparation of transmitters for implanting, preparation of beaver for surgery, transmitter implantation, rehabilitation of animals after surgery.

During the study on the territory of Volzhsko-Kamsky Nature Biosphere Reserve, more than 300 locations were documented. With the help of radiotelemetry we determined the beaver’s migration activity within the area of release. The distance that beavers moved from the point of release to the place where they settled varied from 2 to 16 km. At the same time we determined home ranges areas. In summer they were approximately 7 ha, in winter – 0,25 ha.

Keywords: beaver, spatial structure, radiotelemetry, abdominal transmitters.

Фотографии: Радиопередатчик, Приемник, Антенна, Радиопеленгация, Имплантация.