

Report on Zoological Expedition Work on Iturup Island, 2011

During the period of August 25, 2011 to September 15, 2011, an integrated zoological expedition worked on Iturup Island.

Members of the Expedition:

I.L. Tumanov, Doctor of Biology, Leading Research Fellow of the Western Affiliate Branch of B.M. Zhitkov All-Russian Hunting and Animal Breeding Research Institute (VNIIOZ), Saint Petersburg;

A.V. Abramov, Candidate of Biological Sciences, Senior Research Fellow of Theriology Laboratory at the Russian Academy of Sciences Zoological Institute, Saint Petersburg;

V.V. Platonov, Senior Custodian of Theriology Laboratory at the Russian Academy of Sciences Zoological Institute, Saint Petersburg;

M.V. Nazarkin, Candidate of Biological Sciences, Senior Research Fellow at the Russian Academy of Sciences Zoological Institute's Museum, Saint Petersburg.

Commercial Mammals (by I.L. Tumanov)

One of the expedition's tasks was to perform a preliminary assessment of the status of commercial animal populations, and give recommendations to control their numbers.

The work comprised of the following activities: field studies in various spawning rivers of Iturup Island, collection of the required data on numbers and behavior of animals from Kurilskoye forestry staff and commercial fishermen, hunters, and cameral processing of materials.

As per the data available, commercial land mammals of Iturup Island includes 5 species: brown bear, regular fox, sable, European mink, and mountain hare.

European mink, which is the most interesting species of Russian fauna, was released here in 1986–1989. As early as the beginning of the 20th century it was widely spread across Europe, from Western Spain to the Urals territory. Since that time, it had started to disappear for some reason, across the whole habitat. Today, 1,000 of these animals are preserved in Western Europe (Spain, France and Romania) and 20,000 in the Northeast European part of Russia. A number of experimental studies have revealed that this species may turn out to be extremely helpful for the development of in-cage animal breeding, as it is capable of breeding twice a year in captivity, unlike the widely spread American mink. Copious cross-breeds of various colors may also be highly valuable if brimmed with Russian, European and white polecat. During the first two years of work aimed at mink acclimatization (1986-1987), 114 animals had been disseminated across the south part of the island—along Bolshoy (or Bystriy) spring of the Tikhaya River, and in Golubaya River. In 1988–1989, 140 mink had been acclimatized in the coastal area under investigation north of Okhotskoye, and in Slavnaya and Sofjya Rivers. By now, there is no information on what has become of the descendants of released animals.

The members of the integrated zoological expedition happened to visit the indicated areas (except for Golubaya River) and interviewed fishermen and hunters. Unfortunately, they did not find any evidence of those animals in the rivers (no traces on soft soil, no brood or remains of yield). Commercial hunters had also failed to encounter that species in the last 10–15 years. It appears that European mink did not thrive in this area, possibly due to both uncontrolled commercialization of the species and repeated high floods on rivers which have a negative impact on newborn, young and weak animals.

The status of the sable population on Iturup Island is satisfactory. Unfortunately, due to the lack of demand for its pelts and a shortage of state-approved fur purchasing points, the hunting for this

species is under developed, although the plentiful supply of food for this animal allows for the annual harvesting of 30 to 35 percent of the total amount of animals from this species.

The regular fox should also be regarded as a major representative of ground predators. Its traces are always present both on the sea littoral shelf and along river banks where it actively gathers various food sources such as dead fish and sea waste, and hunts gray-sided voles and brown rats that are now well represented here. There is virtually no commercial hunting for this predator within its usual habitats, which may entail some negative consequences, such as exposure to a number of contagious and invasive diseases (acariasis, rabies etc.). In addition, the abundant numbers of foxes in the lands may be a single reason for the dramatic decrease in the number of blue hares, since they are also an important food object for a fox. Today the blue hare is much less widespread than the fox, so the issue of shooting licenses for hare (and those for waterfowl that are also rarely seen here) shall be restricted after December 31st. Such a measure would both facilitate the growth of blue hare numbers and restrict the presence of armed people in the area who can shoot bears or marine animals under cover of hunting for a hare.

A brown bear is often met across Iturup Island. Judging by the found traces of adult females with underyearlings and the data presented by experienced hunters (n=9), this year an average bear reproductive rate in the area is the same as in other parts of the habitat: from 1 to 3, and most often—2 animals.

The analysis of the data based on a forepaw width (palmar callosity) of bears inhabiting various spawning rivers of the island (n=80) makes it possible to imagine a population structure, which is as follows on Iturup Island:

1. Underyearlings, and 12-18 month old cubs (Lonchaks)
(size of trace from 6 to 12 cm) made up 32.5 percent of the total number of animals met.
2. Weaned cubs and adults (size of trace from 12.5 to 16.5 cm): 52.5 percent.
3. Old animals (size of trace from 17 to 19 cm): 15 percent.

Taking into account that in Northwestern regions of Russia a bear is often encountered; and licensed hunting for a bear is widespread, an average annual portion of old animals ranges between 6 and 11 percent. In this case, the fact that they are much more plentiful on Iturup Island may be indicative of a lack of commercial hunting for this population.

The numbers of brown bear in 2011 in the area under investigation, turned out to be comparatively high. Suffice it to say that according to an expert estimation consistent with the data from Kuril forestry received from foresters M.A. Meshcheryakov and A.N. Korablev, in the spawning rivers and creeks where the zoological expedition had carried out its activities, the numbers of brown bear were estimated as follows:

I Northern Iturup. Reservoirs of streams.

1. Slavnaya River, coastal area of Slavnoye Lake, Glush River, Lovushka River, and Aktivniy, Dalniy and Sedoy Creeks: from 100 to 120 animals;
2. Sofjya Bay, Sofjya and Chistaya Rivers, Skaljnyi and Senokosniy Creeks, coastal area of Senokosnoye Lake: from 35 to 40 animals.

II Middle part of Island. Reservoirs of streams:

1. Kitovaya, Kurilka and Rybatskaya Rivers, Kitoviy, Kurilskiy and Lorka Creeks: from 30 to 40 animals;
2. Creeks along Okhotskoye coast from Rybatskaya River to Zolotaya River, and Kuibyshevka River with its estuaries: from 25 to 30 animals.

III Southern part of the Island:

Okhotskoye coast, National Forestry. Coastal area around Dolgoye Lake; Tikhaya, Gorbusha, Golubaya, Bolshaya (Bystraya), etc Rivers: from 80 to 100 animals.

Thus, as per preliminary assessment of the territory researched, the numbers of brown bear are at least 300 animals, while the estimated figure for the whole Island territory is 500–600 animals. The great number of predators that eat fish calls for the necessity of increasing salmon bypass to spawning areas by 10 percent as compared to the norms during salmon runs. In addition, according to the preliminary data, there is no perceptible difference between the density in predatory populations in streams with hatcheries than in streams located far from hatcheries.

In the fall, salmonids make up the basis of a bears' intake in the Sakhalin Region during pre-hibernation period. In 2011, because of a lack of fish in the river spawning areas, the bears' intake was unsatisfactory, and the number of predators was comparatively high. This makes it possible to suggest that 12 % of the overall commercial number as the norm for this population, which equals to 60–72 animals. According to information from officers of Kurilskiy Forestry, from 25 to 30 bears are killed by poachers on Iturup Island annually, which is explained by the short-staffed security teams on the Island. The main goal of poachers is selling, to their advantage, bears' hide and bile. With this in mind, it makes sense to restrict licensed shooting to 30–40 animal units.

Small Mammals (by A.V. Abramov and V.V. Platonov)

The small mammal fauna of Iturup Island is fairly poor. Many species characteristic of other Kuril Islands and Sakhalin Island are absent here. All in all, the Island's fauna comprises of four species of rodents, three of which (black rat *Rattus rattus*, brown, or sewer rat *Rattus norvegicus* and house mouse *Mus musculus*) have inhabited the Island together with humans. The only aboriginal species of rats is the gray-sided vole *Clethrionomys rufocanus*. As for the black rat and house mouse, they lead an exceptionally synanthropic way of life on Iturup Island and are found only in some inhabited localities (Voronov, 1983; Kostenko et al, 2004).

The brown rat is widely spread. In many regions, this species lives beside humans. In Primorye, on Sakhalin Island and on the South Kurils a brown rat, which belongs to a separate subspecies *Rattus norvegicus caraco* Pallas, 1778, makes up a stable and constant wild population far from human habitation areas. On the South of the Russian Far East and on Sakhalin Island the sewer rat density is much higher than in other areas of its habitat.

A gray-sided vole is widely spread in various types of forests from Scandinavia to Kamchatka and Southeast China. On the vast territories of Siberia and the Russian Far East it is one of the most numerous species of rodents.

The food intake is centered on the green parts of plants, branches and sprouts of berry bushes and some hardwoods. The gray-sided vole is one of the main foods for predators (fox, sable) on Iturup Island. Gray-sided voles of Sakhalin, South Kurils and Hokkaido belong to the Eastern subspecies *Clethrionomys rufocanus smithii* Thomas, 1905, characterized by their large size and relatively long tail.

In 2011, during field work on Iturup Island, the capture and preliminary registration of small mammals was performed in four localities:

- surroundings of Kurilsk, middle flow of Kurilka River (August, 25 – August, 30);
- Slavnaya River estuary (August, 30 – September, 01);
- Sofjya River estuary (September, 01 – September, 06);
- Northern part of Odessky Bay (September, 09 – September, 13).

For the capture of small mammals, traditional mashers (traps) were used. In all, 650 trap-days were used. Various biotopes, including greenwood, grassy wood, and various bush and periaquatic stations were studied. Two mammal species were noted (brown rat and gray-sided vole). Materials for further morphological and molecular-genetic analysis were gathered.

The number of gray-sided voles turned out to be approximately the same both in the Northern localities on the Island and in its Central and Southern parts: 20 and 22 units per 100 trap-days on Slavnaya River and Sofjya River, respectively; 20.8 units per 100 trap-days around Kurilsk and 22 units per 100 trap-days in Odessky Bay. Registered numbers of a brown rat varied in the range between 4 and 6 units per 100 trap-days on Kurilka and Slavnaya Rivers and in Odessky Bay. It was only around Sofjya River that the number was higher (15.6 units per 100 trap-days) because of a higher portion of juveniles in catches.