ECOSYSTEMS: ECOLOGY AND DYNAMICS, 2023, Vol. 7, No. 1, p. 162-204

DISTRIBUTION AND PROTECTION OF ECOSYSTEMS AND THEIR COMPONENTS

UDC 599; 502,743; 502,45

MAMMALS OF THE TOKINSKO-STANOVOY NATIONAL PARK

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Received January 18, 2023. Revised February 6, 2023. Accepted March 1, 2023.

The Tokinsko-Stanovoy National Park was established at the end of 2019 with its area of about 253 thousand hectares. It is located in the north of the Amur Region, namely, on its border with the Republic of Sakha and the Khabarovsk Krai. The first zoological survey of this territory was carried out by V.Ch. Dorogostaisky's expedition in 1914. In this article we provide basic information about the fauna and population of mammals, obtained over 7 summer-autumn seasons of 1992, 1993, 2009, 2018 and 2020-2022. Expeditions that took place in 2009, 2018 and 2020-2022 were organized and conducted by the Zeya State Nature Reserve, with the help of ecologists from the Water Problems Institute, Khingan State Nature Reserve, Amur Branch of Russian World Wide Fund for Nature, Moscow Zoo and M.V. Lomonosov Moscow State University.

In the vast territory of the park we have registered 27 species of mammals: Laxmann's shrew, Siberian large-toothed shrew, even-toothed shrew, Eurasian least shrew, eastern water bat, mountain hare, northern pika, Siberian flying squirrel, red squirrel, Siberian chipmunk, Korean field mouse, lemming vole, northern red-backed vole, grey red-backed vole, wood lemming, Gromov's vole, wolf, fox, brown bear, wolverine, sable, stoat, lynx, Siberian musk deer, moose, reindeer, Siberian bighorn sheep. Black-capped marmot and American mink were encountered near the boundaries of the specially protected natural areas, meaning that they are very likely to be found in the park as well. According to the literature sources and/or surveys, the following animals were noticed near the park boundaries: tundra vole, Amur lemming, common weasel, Siberian weasel, otter; it is also possible that the Siberian tiger visits the territory rarely. In total, the theriofauna of the Tokinsko-Stanovoy National Park includes 27-35 species from 6 orders and 14 families. This list can be expanded with *Chiroptera* and *Eulipotyphla* after further studies.

A system for zoological monitoring was created in the park and the adjacent territory, including 15 sites for recording the relative abundance of small mammals, and 5 sites for observing Siberian bighorn sheep and other large animals. This system helped to carry out a census of the local theriofauna and find out the abundance, as well as the biotopic, spatial and seasonal distributions of many mammal species. During the studies, the work of specially protected natural areas was assessed for the first time, and the most important directions for improved protection of the animal population and monitoring optimization were outlined. It was also proved that protective measures in the park area have already brought significant results. For example, the intensive and illegal hunting for bighorn sheep was banned in the central part of Toko-Stanovik, and the sex and age structure of the bighorn group began to stabilize. In order to increase the reliability of the regime of specially protected natural areas and to continue the studies of the animal population, it is necessary to create a buffer zone along the territory perimeter and expand the patrols and observations to the eastern part of

the national park.
Keywords: Toko-Stanovik Range, Tokinsko-Stanovoy National Park, mammals, fauna, animal population, animal number, population density, zoological monitoring, nature protection.
DOI: 10.24412/2542-2006-2023-1-162-204
EDN: HMGFQG

The Tokinsko-Stanovoy National Park was established on December 20, 2019 by Decree of the Government of the Russian Federation No. 1735, as part of the State program "Ecology". This federal specially protected natural area occupies about 253 thousand hectares in the north of the Amur Region, at its junction with the Republic of Sakha and Khabarovsk Krai. Its territory includes Toko-Stanovik, the highest section of the Stanovoy Range; it reaches from the upper basins of the Tok River in the west to the upper and middle reaches basin of the Ayumkan River in the east (Fig. 1). This area is uniquely preserved, as there are no permanent human settlements and agricultural activity except for traditional nature management, such as hunting and reindeer herding.

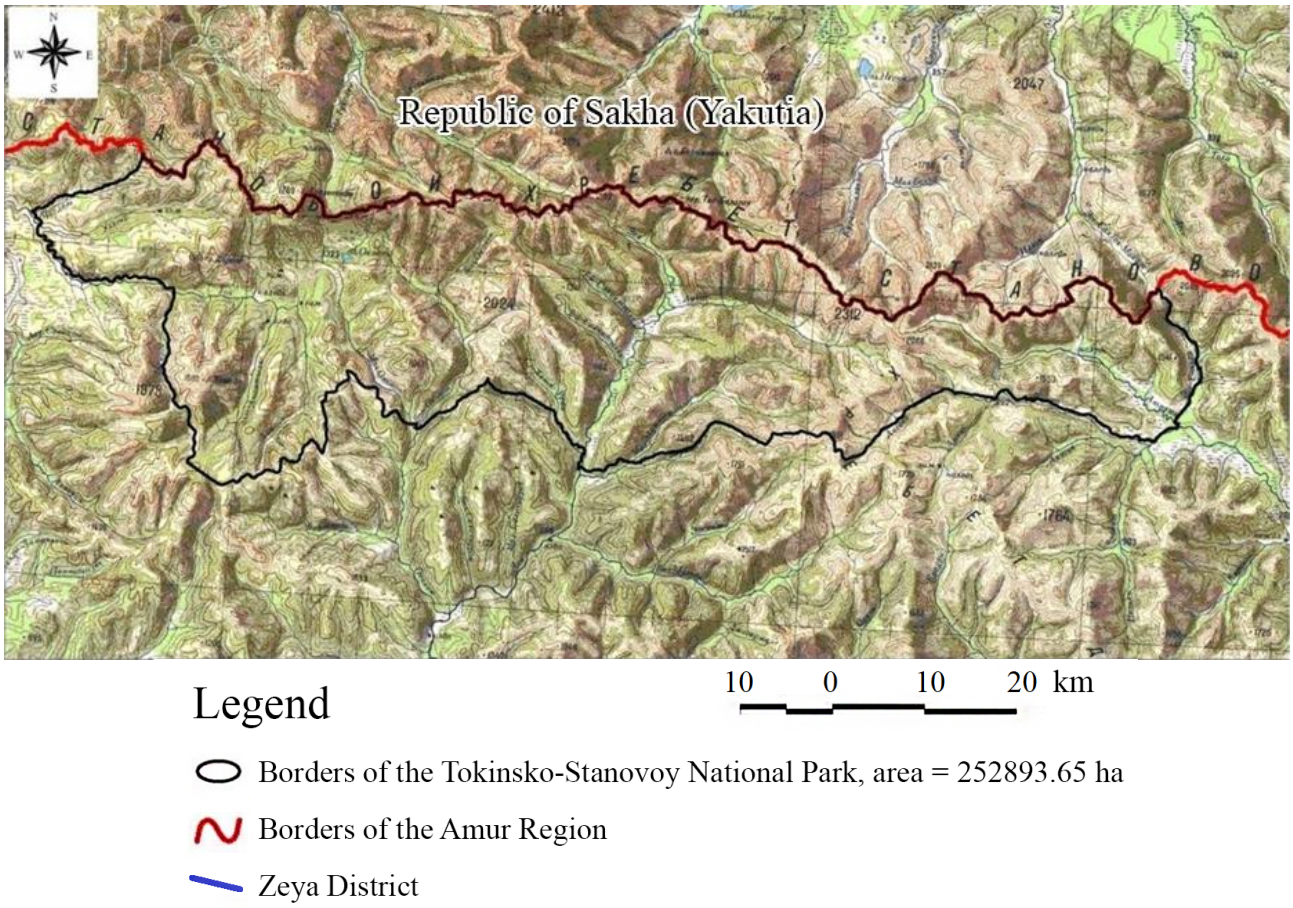

Fig. 1. Location of the Tokinsko-Stanovoy National Park.

According to the system of global zoogeographic zoning (Voronov, 1963), this territory is located within the European-Siberian subregion, in relative proximity to the junction of the northern borders of the Central Asian and Manchurian-Chinese subregions of the Holarctic faunistic region. According to the scheme of regional zoogeographic zoning (Kurentsov, 1965), it is part of the Upper Zeya District of the Zeya-Khingan Province and the high-mountainous province of the Stanovoy Ridge. There, three types of fauna mix: Okhotsk-Kamchatka (Siberian musk deer,

Siberian grouse), East Siberian (red squirrel, East Siberian moose subspecies) and high-mountainous (lemming vole, reindeer, Siberian bighorn sheep). In addition, the Amur fauna (Ussuri moose subspecies, Siberian weasel) can be occasionally found in the middle mountains and river valleys. The high-mountains of the park are extremely important for the conservation of one of the southernmost and viable populations of the Siberian bighorn sheep. The subspecies of the Toko-Stanovik is called the Allen's sheep and listed in the Red Data Books of the Amur Region (2020) and the Republic of Sakha (2019).

Zoological studies of the Toko-Stanovik Range are lacking. The first studies of its western part and the Tok-Tuksani Plateau were conduscted in 1914 by V.Ch. Dorogostayskiy's expedition (1915) for the Imperial Academy of Sciences. In 1982-1983 it was examined by the Yakutian hunters from the Novosibirsk design and survey expedition, which helped significantly to establish "Big Tokko" in 1984, a republican zoological reserve. In the 1990s and early 2000s the employees of the Institute for Biological Problems of Permafrost (Siberian Branch of the Russian Academy of Sciences) worked there under K.A. Voltovsky. Their results, including the study of the local animal world, were published in a collective monograph (Chevichelov et al., 2010).

In 1989-1990 the Amur Scientific Center of the Far Eastern Branch of the Russian Academy of Sciences together with the Amur Regional Committee for Environmental Protection developed the "Scheme for the Development of Specially Protected Natural Territories of the Amur Region" that was approved on April 25, 1991 by the decision of the VI Session of the Amur Regional Council of People's Deputies (Darman, 1995). Besides, the Ecological Fund funded two expeditions to justify the creation of specially protected federal natural areas on the Toko-Stanovik Range. In 1992 Yu.A. Darman, a zoologist, and V.M. Starchenko and I.I. Shapoval, the botanists, worked in the interfluve of the Zeya and Luchi Rivers near the Tas-Balagan Pass. In 1993 its eastern edge near the Ayumkan Summit was examined by V.I. Gotvansky and E.Yu. Likutov, the geomorphologists, V.M. Starchenko and I.I. Shapoval, the botanists, and S.A. Podolsky, a zoologist (Gotvansky, Podolsky, 2000).

A complex zoological survey of the territory where the national park is located was continued in the period from September 17 to October 5, 2009. S.A. Podolsky (head of the expedition, senior researcher at the Institute of Water Problems of the Russian Academy of Sciences and the Zeya State Natural Reserve), S.Yu. Ignatenko (Director of the Zeya Reserve), O.Ya. Kulikova (master's student of the Moscow State University, Faculty of Geography), V.M. Mankevich (employee of the Directorate for the Protection and Use of the Wildlife of Specially Protected Natural Territories of the Amur Region) and Yu.N. Aboimov (head of the tribal community "Taiga"). This expedition was organized by the Zeya State Nature Reserve and supported financially by the Amur branch of the World Wildlife Fund (WWF). We investigated the drainage basins of the Anachan, Chardat, Ulyagir, Nakit and Maly Okonon Rivers, the middle course of the Tok River, the territories around Okonon and Dugdui Lakes, and the mountain ranges along the border with Yakutia, from the sources of the Maly Okonon River to the sources of the Sredny Okonon River, covering about 180 km in total. In 2010, based on the results of field works that took place in 1993 and 2009, the regional state reserve Tokinsky named after G.A. Fedoseev was founded (Borisova et al., 2020).

The intensity of anthropogenic impact on the territories around the Tokinsky Reserve proceeded to increase rapidly. The Ulak–Elga railway and highway were constructed near its western borders; to the east, where the Ayumkan and Kun-Manye Rivers merge, a large-scale mining operation unfolded; the basin of the middle reaches of the Tok River became a place of continuous logging; cases of hunting bighorn sheep using helicopters were registered. In order to preserve the animal population, unique natural complexes and the traditional way of life of the indigenous people of the North, it was proposed to raise the status of this protected natural area to the federal level. In July-August 2018, thanks to the help of the All-Russian Research Institute "Ecology" and the financial

support of the Amur branch of WWF, the Zeya Reserve conducted an expedition to design the Tokinsko-Stanovoy National Park. The main members of the expedition were S.A. Podolsky (leader), V.A. Kastrikin (deputy director of the Khingan State Natural Reserve), S.V. Dudov (employee of Moscow State University), and T.A. Domanov (researcher of the Zeya Reserve). The caravan was also headed by reindeer-drivers of the Evenk tribal community "Yukte" (i.e. Rill): D. Kolesov, E. Trifonov and A. Krasikova. Once again, we examined the basins of the Anachan, Chardat, Ulyagir, Maly Okonon and Malye Tuksani Rivers, and, additionally, the watershed between the Bolshie Tuksani, Zeya and Sivaktylyak-1 river sources, as well as the sources of the Oyur River (left tributary of the B. Tuksani), the stretch along the Zeya River from the mouth of the Sivaktylyak-1 to the Zeya water reservoir. We acquired extra materials to upgrade the reserve to a national park (Podolsky et al., 2020), and preliminary data on the state of the Siberian bighorn sheep population (Podolsky et al., 2019).

After the establishment of the Tokinsky-Stanovoy National Park under the Zeya State Natural Reserve, summer zoological expeditions were traditionally carried out in its territory every following year, with the participation of such ecologists as S.A. Podolsky (leader, senior researcher at the Institute of Water Problems, deputy director of the Zeya Reserve), K.P. Pavlova (senior researcher of the Zeya Reserve), T.A. Domanov (senior researcher of the Zeya Reserve), E.K. Krasikova (monitoring engineer of the Zeya Reserve), S.V. Dudov (senior researcher at Moscow State University, Faculty of Biology, and researcher at the Zeya Reserve), V.A. Kastrikin (deputy director at the Khingan Reserve), A.I. Antonov (senior researcher at the Khingan Reserve), A.A. Kadetova (senior researcher at the Moscow Zoo), Yu.A. Darman and S.I. Titov (WWF, Amur branch).

This article provides basic information about the fauna and population of mammals of the Tokinsko-Stanovoy National Park and the adjacent territory, which was obtained in 1992-1993, 2009, 2018 and 2020-2022. In addition to the original authors' data, we used the census results for game species based on the materials of the Federal Service for Veterinary and Phytosanitary Supervision were used.

Materials and Methods

Biotopic Habitats Differentiation of Mammals

The study area is characterized by altitudinal zonality. Its 3 main zones are well pronounced: forest (mountain taiga), subalpine and alpine (mountain tundra or alpine). The forest includes vegetation of the bottoms of valleys, slopes and watersheds and is located at 1200-1300 m above sea level. The transition from the forest to the alpine gradually goes through the subalpine plant communities, with the latter including a strip of sparse areas and subalpine thickets, located from 1300-1400 to 1500-1600 m above sea level. The alpine vegetation is the upper step of the vertical zonation, which includes the upper parts of the slopes, mountain peaks and watersheds above 1600 m a.s.l.

We classified the forest zone to be part of the low and middle mountains (up to 1200-1300 m a.s.l.), while the subalpine and alpine belong to high mountains (above 1300 m a.s.l.). For the convenience of data collection and analysis of the mammals' biotopic distribution, we classified the main types of habitats by giving them a number, a letter index and a conventional name shown in Table 1.

Species Composition of Mammals

The local theriofauna was characterized according to our own observations, literature sources (Chevychelov et al., 2010; Terrestrial mammals …, 1984; Red Data Book of the Amur Region, 2020), and the surveys carried out among the residents (Table 2). The systematic names of species are given according to A.A. Lisovsky et al. (2019).

Table 1. Mammals' habitats in the study area.

No.	Index	Habitat
I. Natural complexes of slopes and watersheds of low and middle mountains		
Forests on the slopes and watersheds		
1	(Л-скл)	Closed larch forests, sometimes with birch and/or dwarf pine
2	(Е-скл)	Spruce forests, sometimes with larch, birch and/or dwarf pine
3	(Б-скл)	White birch forests леса, sometimes with larch and/or dwarf pine
Sparse forests on the slopes and watersheds		
4	(ЛР-скл)	Sparse and bogged larch forests (dwarf birch bogs) outside the river valleys and floodplains
Screes and rocks on the slopes and watersheds		
5	(Ос-скл)	Screes and rocks, sometimes with hillocks of dwarf pine and/or crowberries
II. Intrazonal (of valleys and coasts) natural complexes of low and middle mountains		
Forests of the valleys and gorges		
6	(Л-дол)	Larch valley forests, sometimes with birch and/or dwarf pine
7	(Е-дол)	Spruce valley forests, sometimes with larch, birch, poplar and/or dwarf pine
8	(Смеш-дол)	Mixed valley and floodplain forests with larch, birch, poplar, sometimes with spruce undergrowth
Open and semi-open valley biotopes		
9	(Р)	River courses and coastal vegetation complex with alternating willows, hillock meadows, oxbow lakes and creeks
10	(ЛР-дол)	Sparse larch forests, including the bogged ones (dwarf birch bogs) in the river valleys
11	(О-дол)	Open areas with no forests in the river valleys and along the lake shores: meadows and bogs, sometimes with thickets
12	(Ск-дол)	Screes and rocks in the river valleys, sometimes with hillocks of dwarf pine and/or crowberries
III. Disturbed and anthropogenically altered territories of low and middle mountains		
13	(Г-с)	Freshly burnt areas and logged areas
14	(Г-з)	Overgrowing burnt and logged areas
15	(Т)	Industrial wastelands: buffer areas of power lines, roadsides and buffer areas of roads and railways, areas cleared for construction works
16	(Ос-т)	Industrial rocky screes and piles: rocky mounds along the railroad, rocky quarries
IV. Natural complexes of the slopes and watersheds of high mountains		
17	(Стл)	Thickets of dwarf pine and other elfinwoods
18	(Са)	Alternating subalpine meadows, mountain bogs, thickets and hillocks of dwarf pine
19	(Са-ос,ск)	Screes and rocks among the dwarf pine thickets and in the subalpine zone
20	(А)	Alpine meadows, mountain tundra, bare mountains
21	(А-ос,ск)	Screes and rocks in the alpine zone
V. Valley and coastal natural complexes of high mountains		
22	(Р-в)	River banks and lake coasts with coastal thickets in the alpine and subalpine zones and elfinwoods
23	(О-дол.в)	Open coastal biotopes: floodplain meadows, bogs, aufeis glades, other open and semi-open coastal biotopes (also, around lakes) in the alpine and subalpine zones and elfinwoods
VI. Disturbed territories of high mountains		
24	Гстл-с	Freshly burnt areas of dwarf pine thickets
25	Гстл-з	Overgrowing burnt areas of dwarf pine thickets

Table 2. Mammals of the Tokinsko-Stanovoy National Park and the adjacent territory.

Species	Data acquisition*	Residence type**	State of the species***
EULIPOTYPHLA			
Soricidae			
Siberian large-toothed shrew – *Sorex daphaenodon* Thomas, 1907	Н	П	–
Laxmann's shrew – *Sorex caecutiens* Laxmann, 1785 (1788)	Н, Нс	П	–
Even-toothed shrew – *Sorex isodon* Turov, 1924	Н	П	–
Eurasian least shrew – *Sorex minutissimus* Zimmermann, 1780	Н	П	–
CHIROPTERA			
Vespertilionoidae			
Eastern water bat – *Myotis petax* Hollister, 1912	Н	Л, Ск	–
LAGOMORPHA			
Ochotonidae			
Northern pika – *Ochotona hyperborea* Pallas, 1811	Н	П	–
Leporidae			
Mountain hare – *Lepus timidus* Linnaeus, 1758	Н	П	Пр
RODENTIA			
Sciuridae			
Red squirrel – *Sciurus vulgaris* Linnaeus, 1758	Н	П, Нк	Пр
Siberian flying squirrel – *Pteromys volans* Linnaeus, 1758	Н	П	–
Siberian chipmunk – *Tamias sibiricus* Laxmann, 1769	Н	П	–
Black-capped marmot – *Marmota camtschatica* Pallas, 1811	Нс	?	Охр (КкАо, КкРС)
Cricetidae			
Wood lemming – *Myopus schisticolor* Lilljeborg, 1844	Н	П	–
Amur lemming – *Lemmus* amurensis Vinogradov, 1924	Ос	?	Охр (КкАо, Прилож. КкРФ)
Northern red-backed vole – *Myodes rutilus* Pallas, 1779	Н	П	–
Grey red-backed vole – *Craseomys rufocanus* Sundevall, 1846	Н	П	–
Lemming vole – *Alticola lemminus* Miller, 1899	Н	П	Охр (КкАо), ГА (ю)
Gromov's vole – *Alexandromys shantaricus* Ognev, 1929	Н	П	ГА (з)
Tundra vole – *Alexandromys oeconomus* Pallas, 1776	Лс	?	–
Muridae			
Korean field mouse – *Apodemus peninsulae* Thomas, 1907	Н	П	ГА(с)
CARNIVORA			
Canidae			
Wolf – *Canis lupus* Linnaeus, 1758	Н	Зч	Пр
Red fox – *Vulpes vulpes* Linnaeus, 1758	Н	Зч	Пр
Ursidae			
Brown bear – *Ursus arctos* Linnaeus, 1758	Н	П, Нк	Пр
Mustelidae			
Stoat – *Mustela (Mustela) erminea* Linnaeus, 1758	Н	П	Пр
Siberian weasel – *Mustela sibirica* Pallas, 1773	Ос	?	Пр, ГА(с)
Common weasel – *Mustela nivalis* Linnaeus, 1766	Лс	?	Пр

Continuation of Table 2.

Species	Data acquisition	Residence type	State of the species
American mink – *Neovison vison* Schreber, 1777	Нс	?	Пр
Wolverine – *Gulo gulo* Linnaeus, 1758	Н	Зч	Пр
Sable – *Martes zibellina* Linnaeus, 1758	Н	П, Нк	Пр
Eurasian otter – *Lutra lutra* Linnaeus, 1758	Ос	?	Охр (КкРС)
Felidae			
Siberian tiger – *Panthera tigris* Linnaeus, 1758	Л, Лс	Зр, ?	Охр (КкАо, КкРФ)
Eurasian lynx – *Lynx lynx* Linnaeus, 1758	Н	Зр	Пр
ARTIODACTYLA			
Cervidae			
Moose – *Alces americanus* Clinton, 1822	Н	П, Ск	Пр
Reindeer – *Rangifer tarandus* Linnaeus, 1758	Н	П, Ск	Пр
Moschidae			
Siberian musk deer – *Moschus moschiferus* Linnaeus, 1758	Н	П	Пр
Bovidae			
Siberian bighorn sheep – *Ovis nivicola alleni* Matschie, 1907	Н	П	Охр (КкАо, КкРС) ГА(ю)

Notes to Table 2. *Data acquisition*:* Н – through observations in the territory of the national park, Нс – in the adjacent territory, Л – literature sources about the park, Лс – literature sources about the adjacent territory, О – surveys carried out in the park, Ос – surveys carried out in the adjacent territory. *Residence type**:* П – lives constantly throughout the year, Л – can be found in summer, Зч – frequently visits, Зр – visits rarely and non-annually, Ек – annual seasonal migrations or migrations away from the park, Нк – non-annual migrations are registered, ? – possibly, inhabits the park, but it is not confirmed by reliable encounters. *State of the species***:* ГА – lives on the border of its range (ю – southern, с – northern, з – western), Пр – commercial species, Охр – protected species, КкАо – listed in the Red Data Book of the Amur Region (2020), КкРФ – in the Red Data Book of the Russian Federation (2021), ПрилККРФ – in the Appendix to the Red Data Book of the Russian Federation "List of the Animals in Need of Special Attention", КкРС – in the Red Data Book of the Republic of Sakha (2019).

Methods and Main Results of Observations

Small mammals. Our main method of census was the usage of spring-loaded bar traps "Hero" that was carried out according to the standard method (Karaseva et al., 2008). The traps were lined up within one biotope, 5 m away from each other, loaded with a standard bait of dried rye bread dipped in virgin sunflower oil. The pieces of foam rubber soaked in vegetable oil were used during the period of prolonged rains. The trap lines were left for at least one night, the optimal duration being two full days. The rate of catch (relative abundance) of mammals in specific habitats was calculated as individuals per 100 trap-days to determine the abundance of mouse-like rodents, Siberian chipmunk, northern pika, and, partially, shrews (Tables 3, 4).

For insectivores, a modified method that involves the usage of pitfall traps, invented by H.S. Barber, was used (Ignatenko, Pavlova, 2012). The traps made of 1 L plastic bottles that we had to cut down to 14 cm, with an entrance diameter of 6.5 cm (the size of a 0.5 L glass jar), were buried in a line. From 25 to 30 bottles were buried and submerged to the ground level, in a line 5 m away from each other. The space 10-15 cm around them was cleared of any vegetation that could get in the way. About 100 ml of a 4.5-5% solution of acetic acid was poured into each trap. They were set for 24-48 hours and inspected once a day to collect the obtained materials. The results of the relative abundance of shrews obtained with H.S. Barber pitfall traps are presented in Table 3.

Table 3. Distribution of rodents and pikas in their habitats according to the censuses carried out with "Hero" spring-loaded bar traps in the Tokinsko-Stanovoy National Park and adjacent territories (based on expeditions of 2018 and 2020-2022); numbers and indices of biotopes are as shown in Table 1.

Biotopes		Year	Trap-days (t.-d.)	Species															
				Northern red-backed vole		Grey red-backed vole		Gromov's vole		Lemming vole		Wood lemming		Korean field mouse		Siberian chipmunk		Northern pika	
No.	Biotope name (index)			ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.
1	Larch forests on the slopes (Л-скл)	2018	*23*	*0*	*0*	*1*	*4.3*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
4	Dwarf birch bogs on the slopes (ЛР-скл)	2018	75	2	2.7	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
		2022	50	0	0	2	4.0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	*125*	*2*	*1.6*	*2*	*1.6*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
5	Screes and rocks on the slopes (Ос-скл)	2018	*25*	*2*	*8.0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
6	Larch valley forests (Л-дол)	2018	50	0	0	2	4.0	0	0	0	0	0	0	0	0	0	0	0	0
		2020	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		2021	58	2	3.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		2022	15	7	46.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	*173*	*9*	*5.2*	*2*	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Spruce valley forests (Е-дол)	2020	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		2021	60	4	6.7	4	6.7	0	0	0	0	0	0	0	0	0	0	0	0
		Total	*97*	*4*	*4.1*	*4*	*4.1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
8	Mixed valley and floodplain forests (Смеш-дол)	2018	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		2021	70	17	24.3	0	0	0	0	0	0	0	0	7	10.0	0	0	1	1.4
		2022	15	1	6.7	5	33.3	0	0	0	0	0	0	0	0	0	0	0	0
		Total	*110*	*18*	*16.4*	*5*	*4.5*	0	0	0	0	0	0	*7*	*6.4*	0	0	*1*	*0.9*
9/6	Borders of the thickets near the rivers and larch forests (Р/Л-дол)	2018	*25*	*5*	*20.0*	*4*	*16.0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
10/6	Borders of the dwarf birch valley bogs aand larch forests (ЛР-дол/ Л-дол)	2021	*160*	*10*	*6.3*	*5*	*3.1*	*0*	*0*	*0*	*0*	*1*	*0.6*	*0*	*0*	*0*	*0*	*0*	*0*

Continuation of Table 3.

Biotopes		Year	Trap-days (t.-d.)	Species															
No.	Biotope name (index)			Northern red-backed vole		Grey red-backed vole		Gromov's vole		Lemming vole		Wood lemming		Korean field mouse		Siberian chipmunk		Northern pika	
				ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.
11	Coastal meadows and bogs (О-дол)	2018	48	0	0	0	0	7	14.6	0	0	0	0	0	0	0	0	0	0
		2020	200	1	0.5	2	1.0	1	0.5	0	0	0	0	4	2.0	2	1.0	0	0
		Total	*248*	*1*	*0.4*	*2*	*0.8*	*8*	*3.2*	*0*	*0*	*0*	*0*	*4*	*1.6*	*2*	*0.8*	*0*	*0*
17	Thickets of dwarf pine (Ст)	2020	113	0	0	0	0	0	0	0	0	0	0	1	0.9	1	0.9	0	0
		2021	30	0	0	0	0	0	0	0	0	0	0	0	0	5	16.7	0	0
		Total	*143*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*0.7*	*6*	*4.2*	*0*	*0*
18	Subalpine zone (Са)	2020	220	0	0	1	0.45	0	0	0	0	0	0	4	1.8	2	0.45	0	0
		2021	125	0	0	0	0	0	0	0	0	0	0	4	3.2	0	0	0	0
		2022	65	1	1.5	4	6.2	5	7.7	0	0	1	1.5	0	0	0	0	0	0
		Total	*410*	*1*	*0.2*	*5*	*1.2*	*5*	*1.2*	*0*	*0*	*1*	*0.2*	*8*	*1.9*	*2*	*0.5*	*0*	*0*
19	Subalpine screes and rocks (Са-ос)	2020	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		2021	120	0	0	1	0.8	0	0	4	3.3	0	0	0	0	0	0	3	2.5
		Total	*136*	*0*	*0*	*1*	*0.7*	*0*	*0*	*4*	*2.9*	*0*	*0*	*0*	*0*	*0*	*0*	*3*	*2.2*
20/21	Borders of the alpine meadows, rocks and screes (А/А-ос)	2018	50	0	0	1	2.0	0	0	0	0	0	0	0	0	0	0	1	2.0
		2020	50	0	0	0	0	0	0	3	6.0	0	0	0	0	0	0	1	2.0
		2021	65	0	0	0	0	0	0	8	12.3	0	0	0	0	0	0	1	1.5
		2022	47	0	0	4	8.5	0	0	5	10.6	0	0	0	0	0	0	1	2.1
		Total	*212*	*0*	*0*	*5*	*2.4*	*0*	*0*	*16*	*7.5*	*0*	*0*	*0*	*0*	*0*	*0*	*3*	*1.4*
23	Coastal meadows and bogs of high mountains (О-дол.в)	*2020*	*261*	*0*	*0*	*0*	*0*	*9*	*3.4*	*0*	*0*	*0*	*0*	*2*	*0.8*	*0*	*0*	*0*	*0*
Total		2018-2022	2148	52	2.4	36	1.7	22	1.0	22	1.0	2	0.09	22	1.0	10	0.5	7	0.3

Table 4. Biotopic distribution of insectivores according to the data obtained with "Hero" spring-loaded bar traps (on the left from the line) and Barber's pitfall traps (on the right) in the Tokinsko-Stanovoy National Park and adjacent territories (based on expeditions of 2020-2022); numbers and indices of biotopes are as shown in Table 1.

Biotopes		Year	Trap-days (t.-d.)	Species							
No.	Biotope name (index)			Laxmann's shrew		Siberian large-toothed shrew		Even-toothed shrew		Eurasian least shrew	
				ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.
1/4	Border between a dwarf birch bog and a larch forest (Л-скл/ЛР-скл)	2022	0/45	0/2	0/4.4	ND/0	ND/0	ND/0	ND/0	ND/0	ND/0
4	Larch and dwarf birch bog (ЛР-скл)	2022	50/0	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND
6	Larch valley forest (Л-дол)	2020	50/0	0/ND	0/ND	0/ND	0/ND	1/0	0.4/0	0/ND	0/ND
		2021	58/0	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND
		2022	15/0	3/0	20.0/0	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND
		Total	*123/0*	*3/0*	*2.44/0*	*ND*	*ND*	*1/0*	*0.8/0*	*ND*	*ND*
6/10	Larch valley forest alternating with dwarf birch bog (Л-дол/ЛР-дол)	2021	100/225	0/13	0/17.3	2/0	2.0/0	0	0	0/1	0/1.3
7	Spruce valley forest (Е-дол)	2020	37/0	0/ND	0/ND	0/ND	0/ND	1/0	0.4/0	0/ND	0/ND
		2021	60/10	0/0	0/0	0/0	0/0	0/2	0/20.0	0/0	0/0
		Total	*97/10*	*0/ND*	*0/ND*	*0/ND*	*0/ND*	*1/2*	*1.04/20.0*	*0/ND*	*0/ND*
8	Mixed floodplain forest (larch, birch, willow, honeysuckle) (Смеш-дол)	2021	70/100	0/4	0/8.0	0/0	0/0	0/0	0/0	0/0	0/0
		2022	15/0	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND
		Total	*85/100*	*0/4*	*0/4.0*	*0/0*	*0/0*	*0/0*	*0/0*	*0/0*	*0/0*
10	Larch and dwarf birch bog at the creek source (ЛР-дол)	2021	60/225	1/2	1.7/2.7	0/0	0/0	0/0	0/0	0/0	0/0
11	Open river banks and river coast of middle mountains (О-дол)	2020	200/0	1/0	0.5/0	0/ND	0/ND	2/0	1.0/0	0/ND	0/ND

Continuation of Table 4.

Biotopes		Year	Trap-days (t.-d.)	Species							
No.	Biotope name (index)			Laxmann's shrew		Siberian large-toothed shrew		Even-toothed shrew		Eurasian least shrew	
				ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.	ind.	ind./100 t.-d.
17	Thickets of dwarf pine (Стл)	2020	113/0	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND
		2021	30/0	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND
		Total	*143/0*	*0/ND*	*0/ND*	*0/ND*	*0/ND*	*0/ND*	*0/ND*	*0/ND*	*0/ND*
18	Subalpine meadows and bogs (Ca)	2020	220/480	0/4	0/0.8	0/0	0/0	0/1	0/0.2	0/0	0/0
		2021	125/0	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND
		2022	65/0	2/0	4.0/0	0/ND	0/ND	1/0	2.0	0/ND	0/ND
		Total	*410/480*	*2/4*	*0.49/0.83*	*ND*	*ND*	*1/1*	*0.24/0.21*	*ND*	*ND*
19	Subalpine screes (Ca-oc)	2020	16/0	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND
		2021	120/0	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND
		Total	*136/0*	*0/ND*	*0/ND*	*0/ND*	*0/ND*	*0/ND*	*0/ND*	*0/ND*	*0/ND*
20/21	Border between a rock run and an alpine meadow (A/A-oc)	2020	50/0	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND
		2021	65/0	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND
		2022	47/0	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND	0/ND
		Total	*162/0*	*0/ND*	*0/ND*	*0/ND*	*0/ND*	*0/ND*	*0/ND*	*0/ND*	*0/ND*
23	Subalpine open river banks and river coast (О-дол.в)	2020	261/40	0/0	0/0	0/0	0/0	1/0	0.4/0	0/0	0/0
Total			*1827/1125*	*7/25*	*0.38/2.22*	*2/0*	*0.11/0*	*6/3*	*0.33/0.27*	*0/1*	0/0.09

For bats, thin 10-meter-long webs (Botvinkin, 2002; Kruskop, 2021) were used, mounted on telescopic fishing rods and set in various places. After dark they were checked every 15 minutes for 2-4 hours, depending on the environmental conditions. Small mammals were observed at 15 plots in the southwestern and central parts of Tokinsky Stanovik (Fig. 2), while bats were observed only at the plots No. 13 and 14.

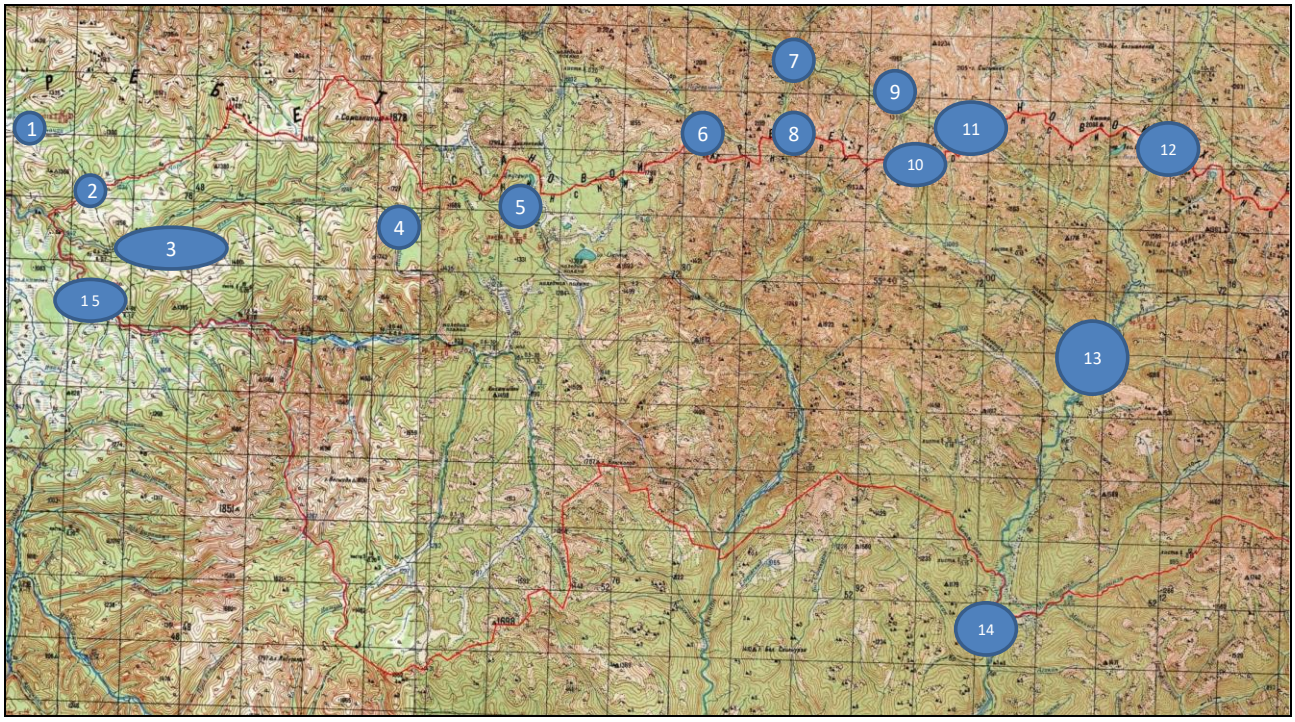

Fig. 2. Capture areas for small mammals. *Legend:* the red line marks the border of the Tokinsko-Stanovoy National Park. Location of the capture areas (the coordinates are given for the center of each area): 1 – "Anachan" (watershed of the Anachan and Algama Rivers – N 55° 44' 56.2", E 129° 32' 19.5"), 2 – "Chardat" (middle and low reaches of the Chardat River – N 55° 42' 41.7", E 129° 39' 34.6"), 3 – "Ulyagir" (basins of the Ulyagir and Neleg Rivers – N 55° 40' 34.2", E 129° 42' 34.2"), 4 – "Inarogda" (basin of the upper reaches of the Inarogda River – N 55° 41' 58.9", E 129° 58' 21.9"), 5 – "Dugdui" (territory of Dugdui Lake – N 55° 42' 58.9", E 130° 07' 00.5"), 6 – "Perevalnoye" (territory of the lake in the catchment area of the B. and M. Tuksani Rivers – N 55° 46' 12.3", E 130° 16' 03.1"), 7 – "Oyur Mouth" (valley of the B. Tuksani River near the mouths of the Oyur and Utuk-Makit Rivers – N 55° 47' 39.0", E 130° 23' 12.1"), 8 – "Oyur Source" (basin of the Oyur River source – N 55° 45' 07.2", E 130° 23' 32.3"), 9 – "Sivaktylyak – Makit Mouth" (valley of the B. Tuksani River near the mouth of the Sivaktylyak – Makit River – N 55° 45' 24.3", E 130° 24' 56.8"), 10 – "Tuksani – Sivaktylyak-1 Pass" (area of the pass between the Sivaktylyak – Makit River source (left tributary of the B. Tuksani River) and the middle source of the Sivaktylyak-1 River – N 55° 44' 06.4", E 130° 31' 15.9"), 11 – "Zeya – B. Tuksani Pass" (area of the pass between the Zeya and B. Tuksani Rivers sources – N 55° 44' 55.4", E 130° 33' 39.0"), 12 – "Tas-Balagan Pass" (area of the Tas-Balagan Pass – N 55° 44' 42.4", E 130° 46' 19.9"), 13 – "Sivaktylyak-1 Mouth" (valley of the Zeya River near the mouth of the Sivaktylyak-1 River – N 55° 37' 42.5", E 130° 42' 08.3"), 14 – "Kara-Urek Mouth" (valley of the Zeya River near the mouth of the Kara-Urek River – N 55° 26' 35.6", E 130° 35' 38.3"), 15 – "Sredniy Tok" (valley of the middle reaches of the Tok River near the "Krasnye Skay" area – N 55° 39' 11.8", E 129° 39' 20.2").

Ungulates and carnivores. During the surveys of large mammals, a special attention was paid to the Siberian bighorn sheep, the most important protected species in the Tokinsko-Stanovoy National Park. The local subspecies, the Allen's sheep, is listed in the Red Data Books of the Amur Region (2020) and Yakutia (2019). Bighorn sheep were observed at 5 sites in the western, central, and eastern parts of Tokinsky Stanovik (Fig. 3).

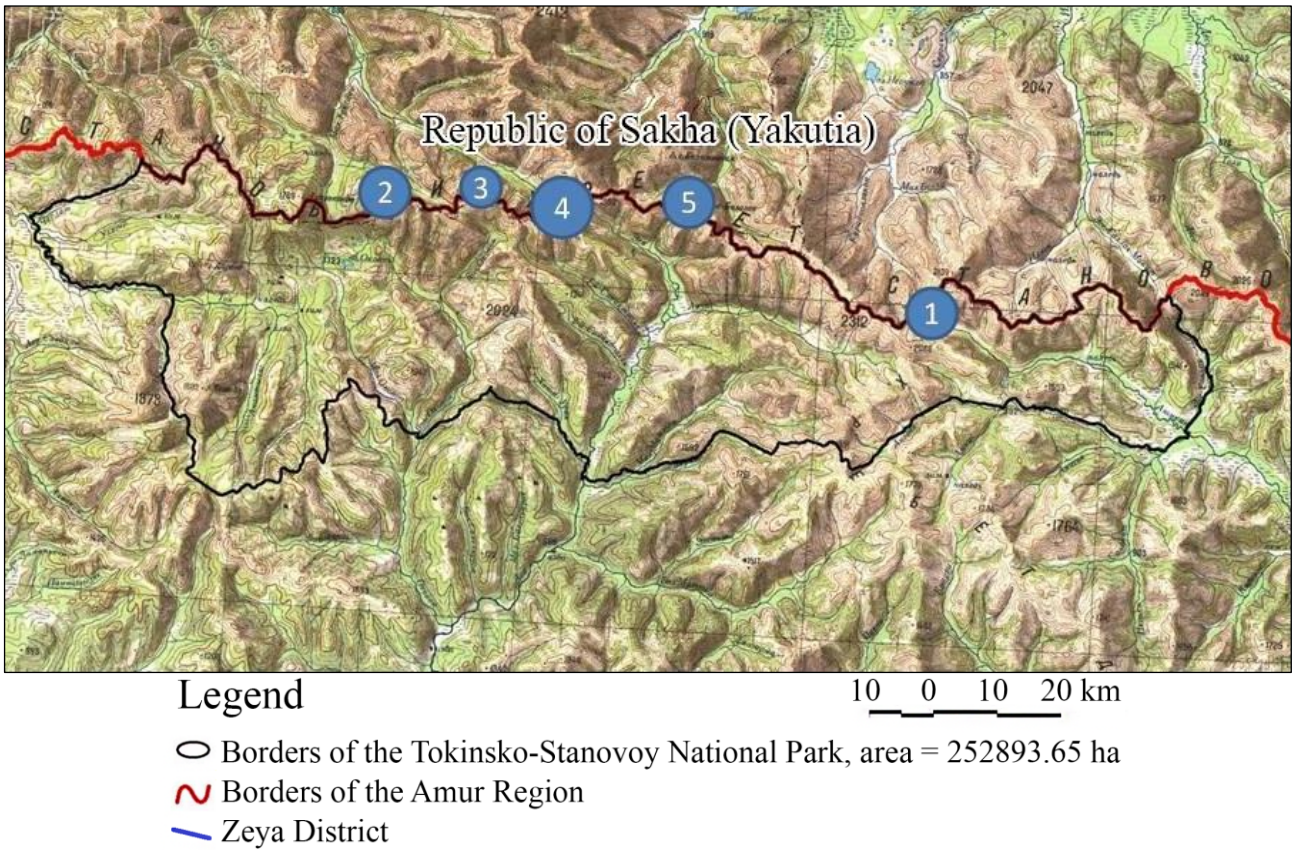

Fig. 3. Areas of Siberian bighorn sheep observation. *Legend.* Locations and geographical coordinates of central part of each area: 1 – "Ayumkan" (Ayumkan Town; watershed of the Ayumkan, Lucha (Zeyskaya), Sargakanda and Idyum Rivers – N 55° 38' 58.6", E 131° 14' 08.5"), 2 – "Perevalnoye – M. Tuksani" (near Perevalnoye Lake; watershed of the Solokit, B. and M. Tuksani Rivers; watershed of the M. Tuksani and M. Okonon Rivers – N 55° 46' 12.3", E 130° 16' 03.1"), 3 – "Oyur" (source of the Oyur River; watershed of the Oyur, B. Tuksani and B. Okonon Rivers – N 55° 45' 07.2", E 130° 23' 32.3"), 4 – "Zeya – B. Tuksani" (basin of the upper reaches of the Zeya, B. Tuksani and Sivaktylyak-1 Rivers – N 55° 44' 06.4", E 130° 31' 15.9", N 55° 44' 55.4", E 130° 33' 39.0"), 5 – "Tas-Balagan" (Tas-Balagan Pass – N 55° 44' 42.4", E 130° 46' 19.9").

The main method for determining the density of the bighorn sheep population was visual registration at census sites that were located in open areas of slopes and ridges. The same method was used for reindeer and bears in the alpine zone. It was based on N.K. Zheleznovy-Chukotsky's method (1994) for Siberian bighorn sheep census, and applied in 2020-2022 at Tokinsky Stanovik as follows below.

Within each site on the open slopes, cirques and ridges, the census plots were selected; the area of each was determined according to a topographic map at a scale of 1:100000, without the relief being taken into account. We started our observations at 5-6 AM, i.e. when animals were the most active, and ended at twilight. The sites were examined every 15-20 minutes using 8x and 10x

binoculars with antiglare optics to register the number of different animals and groups that had visited the site during the day.

If it was impossible to reliably identify individual animals and groups, in order to avoid overestimating the number of animals, the maximum number of animals, registered at the site at the same time, was taken as a census index. The sites were observed only when they were clear of clouds and fog; most of them were observed repeatedly over several days. To calculate the population density, we used the total number of individual animals recorded within the site over the entire period of census and its area, multiplied by the number of census days. The generalized results for the Siberian bighorn sheep are presented in Table 5.

It is important to remember: if the obtained indicators are used to estimate the number of Siberian bighorn sheep in the national park, the results may be overestimated due to the fact that the data in Table 5 is summarized both for their typical habitats and the areas of their local concentrations near large natural solonetzes.

Table 5. Population density of the Siberian bighorn sheep in Tokinsky Stanovik based on the results of visual censuses at the sites that were carried out in the late summer – autumn (average for all open and semi-open biotopes of high mountains, including areas of concentration).

Year	Season	Part of the area	Census sites (their geographical location)*	Number of registered ind.	Population density (ind./1000 ha)
1993	August	eastern	No. 1 – "Ayumkan" (Ayumkan Town; watershed of the Ayumkan, Lucha (Zeyskaya), Sargakanda and Idyum Rivers)	10	2.5
2009	Early October	western	No. 2 – "Perevalnoye – M. Tuksani" (near Perevalnoye Lake; watershed of the Solokit, B. and M. Tuksani Rivers; watershed of the M. Tuksani and M. Okonon Rivers)	2	1.3
2018	End of July	central	No. 3 – "Oyur" (source of the Oyur River; watershed of the Oyur, B. Tuksani and B. Okonon Rivers; No. 4 – "Zeya – B. Tuksani" (basin of the upper reaches of the Zeya, B. Tuksani and Sivaktylyak-1 Rivers	27	10.4
2020	End of July – August	central	No. 4 – "Zeya – B. Tuksani" (basin of the upper reaches of the Zeya, B. Tuksani and Sivaktylyak-1 Rivers	58	7.2
2021	2nd half of July	central	No. 5 – "Tas-Balagan" (Tas-Balagan Pass); No. 4 – "Zeya – B. Tuksani" (basin of the upper reaches of the Zeya, B. Tuksani and Sivaktylyak-1 Rivers	48	9.3
2022	2nd half of July – August	central	No. 4 – "Zeya – B. Tuksani" (basin of the upper reaches of the Zeya, B. Tuksani and Sivaktylyak-1 Rivers; No. 3 – "Oyur" (source of the Oyur River; watershed of the Oyur, B. Tuksani and B. Okonon Rivers	94	10.6

Note to Table 5: * – numbers and coordinates of the sites are given in Figure 3.

In addition to registering the number of bighorn sheep population group, their sex and age composition were recorded. Given the fact that most of their individuals were observed from more than 500 m, only 3 indices were distinguished from the observations to avoid errors in the further analysis: 1) “adult males”, 2) “females and young animals”, 3) “underyearlings”. The “adult males” conditionally included all male individuals older than 2 years that can be recognized easily at any distance. The “females and young animals” included adult and young females, as well as young males up to 2 years old that often prefer to stay together with their families. Data on the age and sex structure of the Tokinsky Stanovik population of Siberian bighorn sheep collected in 2022 are shown in Table 6.

Table 6. Indices of sex and age structure of the Siberian bighorn sheep population in Tokinsky Stanovik collected for different years.

Year	Season	Total		♂ Ad*		♀ Ad** ♀Sad*** ♂ Sad****		Juv*****		Sp******	
		absolute	%	absolute	%	absolute	%	absolute	%	absolute	%
1992	End of July	15	100	2	13.3	7	46.7	4	26.7	1	6.7
1993	August	10	100	4	40.0	4	40.0	2	20.0	0	0
2009	Early October	2	100	0	0	0	0	0	0	2	100
2018	End of July	27	100	4	22.2	13	48.2	8	29.6	0	0
2020	End of July – August	58	100	7	12.1	38	65.5	9	15.5	4	6.7
2021	June – early July	540	100	98	18.2	262	48.5	94	17.4	86	15.9
2022	July-August	94	100	15	16.0	63	67.0	10	10.6	6	6.4

Notes to Table 6: ♂Ad* – adult males (older than 2 years), ♀ Ad**** – adult females, ♀ Sad *** – young females (1-2 years old), ♂ Sad**** – young males (1-2 years old), Juv***** – underyearlings (younger than 1 year), Sp****** – sex and age could not be identified.

As an additional method of visual census, we recorded ungulates and carnivores along our complex zoological routes by taking into account every encounter on a transect of indeterminate width that was determined by the average detection distance. Thus, we estimated the population density of reindeer, brown bear and stoat in various biotopes (Table 7).

Moreover, in 2022 we estimated their abundance using traces of their vital activity (Table 8) by finding their scat in a 3-meter-wide strip of such large mammals as elk, reindeer, Siberian musk deer and bear. For moose, only the winter scat was counted.

To identify the total load of moose and Siberian musk deer on various biotopes, we estimated their presence by “scat method” (Sorokina, 1977), which Yu.A. Darman (1994) adapted for the Amur Region. The coefficients (Кд) were calculated to quickly move from the “number of scats per 1 ha” to the “number of individuals per 1000 ha”. In order to do this, the resulting census index (“number of scats per 1 ha”) should be divided by Кд. For moose, Кд = 3.02, for Siberian musk deer, Кд = 2.2. For musk deer, Кд was determined empirically based on observations in the Zeya Reserve. For moose, the census based on scat showed the estimated winter population density, while for musk deer it was the average number for all seasons. For the reindeer and brown bear, only relative numbers were obtained.

Aside from field observations required for the analysis, we used stock data for 2013-2017 censuses, received for Tokinsky Stanovik and adjacent territory from the Department for the Protection, Control and Regulation Management of Wildlife Objects and Their Habitats in the Amur Region (Table 9).

Table 7. Census results for the number of mammals in the middle and high mountains of Tokinsky Stanovik based on encounters in 2020-2022 along the routes.

Biotope		Year	Site	L* (km)	Species											
					Reindeer				Brown bear				Stoat			
No.	Index				N (ind.)	Lcp (m)	S (km^2)	P (ind./ 1000 ha)	N (ind.)	Lcp (m)	S (km^2)	P (ind./ 1000 ha)	N (ind.)	Lcp (m)	S (km^2)	P (ind./ 1000 ha)
6	Larch valley forests (Л-дол)	2020	No. 4 – “Zeya – B.Tuksani”	44.0	1	80	3.5	2.9	0	0	0	0	0	0	0	0
		2021	No. 5 – “Tas-Balagan”	10.7	0	0	0	0	1	80	0.9	11.1	0	0	0	0
		2022	No. 4 – “Zeya – B.Tuksani”; No. 3 – “Oyur”	70.0	0	0	0	0	0	0	0	0	0	0	0	0
			Total	*124.7*	*1*	*80*	*10.0*	*1.0*	*1*	*80*	*10.0*	*1.0*	*0*	*0*	*0*	*0*
9	River courses and coastal thickets of middle mountains (Р)	2020	No. 4 – “Zeya – B.Tuksani”	9.0	0	0	0	0	1	600	5.4	1.8	0	0	0	0
		2021	–	1.6	0	0	0	0	0	0	0	0	0	0	0	0
			Total	*10.6*	*0*	*0*	*0*	*0*	*1*	*600*	*6.4*	*1.6*	*0*	*0*	*0*	*0*
11	Open areas with no forests in the river valleys and along the lake shores of low and middle mountains (О-дол)	2020	No. 4 – “Zeya – B.Tuksani”	15.0	1	100	1.5	6.7	0	0	0	0	0	0	0	0
		2021	No. 5 – “Tas-Balagan”	2.6	0	0	0	0	0	0	0	0	0	0	0	0
		2022	No. 4 – “Zeya – B.Tuksani”	3.0	0	0	0	0	0	0	0	0	0	0	0	0
			Total	*20.6*	*1*	*100*	*2.1*	*4.8*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
17	Thickets of dwarf pine and other elfinwoods (Стл)	2020	No. 4 – “Zeya – B.Tuksani”	21.0	0	0	0	0	0	0	0	0	0	0	0	0
		2021	No. 5 – “Tas-Balagan”	7.7	0	0	0	0	0	0	0	0	0	0	0	0
		2022	No. 4 – “Zeya – B.Tuksani”; No. 3 – “Oyur”	16.0	1	100	1.6	6.2	0	0	0	0	0	0	0	0
			Total	*44.7*	*1*	*100*	*4.5*	*2.2*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

Continuation of Table 7.

Biotope		Year	Site	L (km)	Species											
					Reindeer				Brown bear				Stoat			
No.	Index				N (ind.)	Lcp (m)	S (km^2)	P (ind./ 1000 ha)	N (ind.)	Lcp (m)	S (km^2)	P (ind./ 1000 ha)	N (ind.)	Lcp (m)	S (km^2)	P (ind./ 1000 ha)
18, 19	Subalpine zone: subalpine meadows, bogs, bushes; screes and rocks (Ca, Ca- oc,ск)	2020	No. 4 – “Zeya – B.Tuksani”	34.5	2	100	3.5	5.7	1	200	6.9	1.4	0	0	0	0
		2021	No. 5 – “Tas-Balagan”	39.3	6	558	21.9	2.7	5	640	25.2	2.0	0	0	0	0
		2022	No. 4 – “Zeya – B.Tuksani”; No. 3 – “Oyur”	53.0	2	145	7.7	2.6	0	0	0	0	1	5	0.3	33.3
			Total	*92.3*	*10*	*268*	*24.7*	*4.1*	*6*	*420*	*38.8*	*1.5*	*1*	*5*	*0.5*	*20.0*
20, 21	Alpine zone: meadows, mountain tundra, bare mountains; rocks and screes (A, A-oc,ск)	2020	No. 4 – “Zeya – B.Tuksani”	46.5	0	0	0	0	1	1500	69.7	0.14	0	0	0	0
		2021	No. 5 – “Tas-Balagan”	37.5	1	600	22.5	0.5	5	1540	57.8	0.9	0	0	0	0
		2022	No. 4 – “Zeya – B.Tuksani”; No. 3 – “Oyur”	41.0	0	0	0	0	0	0	0	0	2	5	0.2	100.0
			Total	*125.0*	*1*	*600*	*75.0*	*0.13*	*6*	*1520*	*190.0*	*0.32*	*2*	*5*	*0.63*	*31.7*
22	Stream channels and coastal thickets of high mountains (P-в)	*2021*	*No. 5 – “Tas-Balagan”*	*9.8*	*0*	*0*	*0*	*0*	*1*	*600*	*0*	*0*	*0*	*0*	*0*	*0*
23	Open areas of river valleys and lake coasts in low mountains (O-дол.в)	2021	No. 5 – “Tas-Balagan”	12.9	1	700	9.0	1.1	0	0	0	0	0	0	0	0
		2022	–	3.0	0	0	0	0	0	0	0	0	0	0	0	0
			Total	*15.9*	*1*	*700*	*11.1*	*0.9*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
			Total for 2020-2022	*443.6*	*15*	*308*	*136.6*	*1.1*	*15*	*644*	*285.7*	*0.5*	*3*	*5*	*2.2*	*13.6*

Notes to Table 7: L – length of the routes (km), N – number of registered individuals, Lcp – average detection distance (m), S – total area of the census transect (km^2), P – population density (ind./1000 ha), serial numbers and indices of biotopes correspond to those given in Table 1; the numbers and coordinates of the sites are given in Figure 3.

Table 8. Census of large mammals in the middle and high mountains of Tokinsky Stanovik by their scat, from 13/07/22 to 21/08/22, in the basins of the sources and upper reaches of the Zeya, B. Tuksani, Sivaktylyak-1 and Oyur Rivers.

Biotopes		L (km)	Species									
			Moose*			Reindeer		Siberian musk deer			Brown bear	
No.	Index		scat	scat/ ha	ind./ 1000 ha	scat	scat/ ha	scat	scat/ ha	ind./ 1000 ha	scat	scat/ ha
6, 9	Larch valley forests (Л-дол), river courses and bank thickets (Р) of middle mountains	70.0	71	3.4	1.1	35	1.7	4	0.2	0.1	9	0.43
11	Valley meadows and bogs (О-дол) of middle mountains	6.0	0	0	0	0	0	0	0	0	0	0
Total in middle mountains below 1500 m. a.s.l.		***76.0***	*71*	*3.1*	*1.0*	*35*	–	*4*	*0.17*	*0.08*	*9*	*0.39*
17	Thickets of dwarf pine (Стл)	16.0	0	0	0	3	0.63	3	0.63	0.3	8	1.7
18	Subalpine meadows, bogs and thickets (Са)	53.0	0	0	0	17	1.1	0	0	0	2	0.13
20	Alpine meadows, mountain tundra and bare mountains (А)	41.0	0	0	0	3	0.24	0	0	0	5	0.4
Total in high mountains from 1400 m to 2100 m a.s.l.		***110.0***	*0*	*0*	*0*	*23*	*0.7*	*3*	*0.09*	*0.04*	*15*	*0.45*
Total		*186.0*	*71*	*2.3*	*0.75*	*58*	*1.0*	*7*	*0.13*	*0.06*	*24*	*0.43*

Notes to Table 8: Moose* – only winter scat was counted.

Table 9. Population density (ind./1000 ha) of game animals in 2013-2017 in the Tokinsky Nature Reserve and adjacent territories, according to the data from the Department for the Protection, Control and Regulation Management of Wildlife Objects and Their Habitats in the Amur Region.

Site	Area (ha)	Moose	Reindeer	Siberian musk deer	Sable	Stoat	Hare	Squirrel	Wolf	Lynx	Wolverine
2013											
State Nature Reserve “Tokinsky”	251000	*	*	0.41	0.41	0.72	0.14	1.08	0	0	0.02
LLC “Bomnak”	1390800	0.30	0.23	0.81	4.12	0.05	0.23	1.46	0.01	0	0
Ancestral hunting grounds of the tribal community Yukte of the indigenous people of the North	1268000	0.37	0.37	0.32	1.43	0.23	1.49	0.71	0.08	0.01	0.02
2014											
LLC “Bomnak”, small area	530000	0.48	0.35	1.60	4.35	not found	0.30	3.02	0.05	0.15	0.01
LLC “Bomnak”, big area	860800	0.25	0.72	2.76	4.97	not found	not found	1.03	0.03	0.06	0.02
Ancestral hunting grounds of the tribal community Yukte of the indigenous people of the North	1268000	0.69	0.55	1.0	3.13	1.27	1.82	0.76	0.20	0.05	0.03
2015											
LLC “Bomnak”	530000	0.51	1.52	2.90	3.84	0.23	0.63	2.91	0.02	0.11	0
Common lands of the Zeya District	2936600	0.29	0.22	0.32	0.15	0.62	0.63	0.40	0.04	0	0.02
2016											
Common lands of the Zeya District	2936600	0.75	0.88	1.05	1.92	0.05	1.78	1.47	0.04	0	0.02
2017											
Zeya public hunting grounds	2936600	0.45	0.28	0.40	0.83	0.21	0.84	0.79	0.01	0	0.01
В среднем		0.45	0.57	1.2	2.5	0.42	0.87	1.36	0.05	0.04	0.02

Notes to Table 9: * – during the winter census moose and reindeer move out to the adjacent territories due to extremely deep snow, н.д. – the species was not encountered during the winter census.

Results and Discussion

According to available information, the mammalian fauna of the Tokinsko-Stanovoy National Park includes 27-35 species from 6 orders and 14 families (Table 2). Below we provide brief information on the species that we registered ourselves, and the species that are most likely to inhabit the studied territory.

Eulipotyphla

Laxmann's shrew is dominant in *Eulipotyphla* communities throughout the north of the Amur Region and is the most widespread and abundant species of shrews in the park (Photo 1). Its average rate of catch using the spring-loaded bar traps "Hero" was 0.38/100 trap-days (hereinafter – t.-d.); the pitfall traps – 2.2/100 t.-d. The Laxmann's shrew was caught in 6 sites: No. 3 (basins of the Ulyagir and Neleg Rivers), No. 7 (valley of the B. Tuksani River at the mouth of the Oyur River), No. 11 ("Zeya – B. Tuksani" Pass), No. 12 (Tas-Balagan Pass), No. 13 (valley of the Zeya River near the mouth of the Sivaktylyak-1 River), and No. 14 (valley of the Zeya River near the mouth of the Kara-Urek River, about 10 km south outside of the park border; Fig. 2). This shrew was found in most biotopes, including subalpine ones, but was not recorded in thickets of Siberian dwarf pine and the alpine zone, being the most numerous in the valley larch forests (2.4 ind./100 t.-d.), dwarf birch bogs (1.7 ind./100 t.-d. for spring-loaded traps; 2.7 ind./100 t.-d. for pitfall traps), and along their borders (17.3 ind./100 t.-d. for pitfall traps; Table 4).

Photo 1. Laxmann's shrew is dominant in *Eulipotyphla* communities throughout the north of the Amur Region (photo by S.A. Podolskiy).

Even-toothed shrew is common for the region, being the second most frequently encountered species of shrews in the park. Its average rate of catch using the spring-loaded bar traps "Hero" was 0.33 ind./100 t.-d.; the pitfall traps – 0.27 ind./100 t.-d. The even-toothed shrew was caught in 2 sites: No. 11 ("Zeya – B. Tuksani" Pass), and No. 13 (valley of the Zeya River near the mouth of the Sivaktylyak-1 River; Fig. 2). It prefers humid habitats, and was found in the valley forests and meadows along the banks, including the subalpine zone (Table 4). This shrew is the most numerous in the valley forests with spruce (1.04 ind./100 t.-d. for spring-loaded traps; 20.0 ind./100 t.-d. for pitfall traps).

Siberian large-toothed shrew is not numerous in the north of the region, and is rare in the park itself. Its average rate of catch using the spring-loaded bar traps "Hero" was 0.11 ind./100 t.-d., caught only in 2021 in the site No. 13, on the border between a valley larch forest (with thickets of elfinwoods and dog rose, and stone remains) and birch bog along the right bank of the Zeya River above the mouth of the Sivaktylyak-1 River (2.0 ind./100 t.-d.).

Eurasian least shrew is widely distributed in the north of the region, but in small numbers; its encounters in the park are rare. Its average rate of catch using the pitfall traps was 0.09 ind./100 t.-d. The only specimen, an adult mature male, was caught in 2021 at the site No. 13, into a pitfall trap that was set in a larch forest with the thickets of elfinwoods and dog rose, stone remains, wet sphagnum patches of Labrador tea, blueberries and sedges, and patches of green moss and lichens, along the right bank of the Zeya River above the mouth of the Sivaktylyak-1 River (1.3 ind./100 t.-d).

Chiroptera

Eastern water bat is one of the most common species of *Chiroptera* in the Far East (Photo 2). In 2021, the fact of its presence in the park was established at the site No. 13 (Fig. 2). Two males got caught into a net that was installed on 28/07/2021 above the left-bank channel of the Sivaktylyak-1 River in a floodplain poplar-larch shrub-forb forest (N 55.62638, E 130.70210). They were then marked with individual aluminum rings (29-01992, 29-01993) and released at the place of capture.

Photo 2. Eastern water bat was found in the national park, in a floodplain forest near the mouth of the Sivaktylyak-1 River (photo by A.A. Kadetova).

Lagomorpha

Northern pika is a common and, in places, numerous species, most natural in the rocky areas and stone runs of the subalpine and alpine zones (Photo 3). Its average rate of catch using the spring-loaded bar traps "Hero" was 0.3 ind./100 t.-d. (Table 3). In 2020 and 2022, pika was numerous on stone runs in the alpine and subalpine zones and in the dwarf pine thickets on the "Zeya – B. Tuksani" Pass, where A.I. Antonov photographed a dark-furred pika in 2020 (N 55.74814,

E 130.57227; Photo 4). In August 2022, a similar looking animal was observed at the edge of the stone run near the line of spring-loaded bar traps, between the right source of the Zeya River and the left source of the B. Tuksani River. In 2021 pika was as numerous near the Tas-Balagan Pass, as at the "Zeya – B. Tuksani" Pass. Most of its large inhabited colonies were found in old screes with medium-sized stones in the subalpine zone and among thickets of dwarf pine, where pika's relative abundance was at its maximum of 2.5 ind./100 t.-d. Northern pika is the main prey of stoats, which are the most numerous predators of the high mountains of the Tokinsky Stanovik. In 2022, the stoats were observed hunting around pika's colonies 3 times.

Photo 3. Northern pika is a common species of the stone runs (photo by S.A. Podolskiy).

Mountain hare is not numerous in the studied territory. Its abundance changes dramatically over the years, sometimes tenfold, in a cycle. In the northern part of the Far East, the large abundance numbers are observed every 10-12 years. During autumn, hares prefer floodplains, while in spring they can move up to the subalpine and alpine zones. Its population density in the territory that is now part of the park, was 0.14 ind./1000 ha according to the winter census of 2013. On average, in 2013-2017 in the Amur part of Tokinsky Stanovik and the adjacent territory (according to the records of the Department for the Protection, Control and Regulation Management of Wildlife Objects and Their Habitats in the Amur Region), the mountain hare population density was 0.87 ind./1000 ha, varying from 0.14 ind. to 1.78 ind. Per 1000 ha (Table 8). In the summer of 2020, hare droppings were common in the subalpine and alpine zones near the "Zeya – B. Tuksani" Pass. In 2022, it was less frequent and only in the alpine zone. In July 2021, it was found on the Tas-Balagan Pass, where the hare was not quite numerous as well.

Rodentia

Siberian flying squirrel is not a numerous species (Photo 5). In the summer of 2018, it was found in the upper reaches of the Ulyagir River: at least four flying squirrels inhabited the hollows

of an old larch, inclined over the left bank of a stream (N 55º 41' 37.1", E 129º 52' 44.4"). In 2021, one animal was observed at the mouth of the Kara-Urek River (site No. 14) in a strip of birch-larch forest along the bank (Fig. 2).

Photo 4. Black-coated pikas are a rare sight in the national park (photo by A. Antonov).

Photo 5. Siberian flying squirrel is a common, but not quite numerous species of the forest zone (photo by S.A. Podolskiy).

Red squirrel in the park is rare or few. Its main habitats are tall larch forests and spruce-larch forests in river valleys, as well as mountain spruce forests. The main factors influencing its number

are larch and spruce productivity, climate factors and wild fires. The population density of squirrels in the studied area, according to the data of the winter survey of 2013, was 1.08 ind./1000 ha. In the Amur part of Tokinsky Stanovik and the adjacent territory in 2013-2017 (according to the records of the Department for the Protection of the Amur Region), the average population density of squirrel was 1.36 ind./1000 ha, varying from 0.4 ind. to 3.02 ind. per 1000 ha. In 2009, one squirrel was seen in the sparse larch forests of the Okonon Plateau. In 2018, 2020 and 2021, it was a rare sight in the park. In 2020, some spruce cones eaten by a squirrel were found at the source of the Zeya River.

Siberian chipmunk is numerous and can be found in most biotopes. Its average rate of catch using the spring-loaded bar traps "Hero" was 0.5 ind./100 t.-d. (Table 3), with its maximum of ind./100 t.-d. in the thickets of dwarf pine (Photo 6). In 2020 and 2022 at the "Zeya – B. Tuksani" Pass chipmunk was very abundant, with a local cluster found near a tourist base, where they actively collected and stored food waste left by people. Additionally, we registered two times when chipmunks visited a natural solonetz to lick and gnaw on mineralized soil. In 2021, near the Tas-Balagan Pass, chipmunks were observed in most biotopes, except for the alpine zone, being the most numerous in the subalpine zone and in thickets of dwarf pine.

Photo 6. Siberian chipmunk is a typical species of the thickets of dwarf pine (photo by O. Agni).

Black-capped marmot is listed in the Red Data Books of the Amur Region (2009, 2020), Republic of Sakha (2019) and Russia (2021) as a species with an undetermined status. In the Red Book of Russia, the marmot's range includes part pf the Stanovoye Upland. In different years, unverified reports would come from various sources about the discovery of its colonies in the western part of the Stanovoy Range or the commercial production of the animals themselves. The Red Book of the Republic of Sakha (2019) provides reliable information collected by E.V. Shemyakin about his discovery that took place in June 2016, when he found an inhabited colony of marmots with the actual sighting of at least 3 marmots on the northern macroslope of

the western part of the range, at the source of the Burzhuyka River (left tributary of the Aldan River, northern macroslope of the Zverev Ridge).

In the summer of 2018, inhabited dens and fresh paths that presumably belonged to the black-capped marmots, were discovered on the circus of a nameless left tributary of the B. Tusani River, located upstream, to the east of the Oyur River (N 55º 45' 24.3", E 130º 24 ' 56.8"; N 55º 45' 24.6", E 130º 25' 00.0"; N 55º 45' 24.4", E 130º 25' 02.3"). Besides, a distinctive whistle of disturbed marmots was heard twice around that place. The burrows with a diameter of 12-15 cm were similar to those found on the Verkhoyansk Range. This colony is located on the territory of Yakutia, about 500 m north of the Tokinsko-Stanovoy National Park border. To confirm that marmots inhabit the park as well, a special search for their colonies in the highlands should be carried out.

Northern red-backed voles is common and sometimes even numerous (Photo 7). Its average rate of catch in 2018-2022 using the spring-loaded bar traps "Hero" was 2.4 ind./100 t.-d. (Table 3). Vole is a common species of the valley forests and dwarf birch bogs, where it reaches the peak of its numbers; much it is much less common in the floodplain and subalpine meadows (Table 3). The red-backed vole was caught at 9 sites: No. 1, 2, 3, 7, 8, 11, 13, 14 and 15 (Fig. 2). In 2009, it was found in the valley of the Chardat River and the Okonon Plateau; in 2018, it was caught in the basins of the Anachan, Chardat, Ulyagir and Zeya Rivers (below the Lokshak weather station outside the park territory). In 2022, red-backed vole was the dominant species among small mammals in the valley forests of the upper reaches of the B. Tuksani River (46.6 ind./100 t.-d.). Moreover, single individuals were caught in humid subalpine meadows of the right source of the Oyur River.

Photo 7. Northern red-backed vole is a common species of the valleys and dwarf birch bogs of the park (photo by S.A. Podolskiy).

Grey red-backed vole is common, numerous in some places and widespread. Its average rate of catch in 2018-2022 was 1.7 ind./100 t.-d., which is almost as high as the catch rate of northern red-backed vole (Table 3). This species has the widest habitat range, being common in most forest biotopes, floodplains and subalpine meadows (Table 3). Red-backed vole was caught at 8 sites: No. 2, 6, 7, 8, 9, 11, 12 and 13 (Fig. 2). In 2022 it was quite common for the subalpine zone of the "Zeya – B. Tuksani" Pass (8.0 ind./100 t.-d.); in 2021 it was registered in the subalpine zone of the Tas-Balagan Pass, in the thickets of Siberian dwarf pine and in the sparse bogged valley forests,

where it was especially numerous (1.7 ind./100 t.-d.).

Lemming vole is a protected species from the Red Data Book of the Amur Region (2009, 2020), listed as Class 3, i.e. this species is rare, with highly patched range. Prior to our research, reliable finds of lemming vole were only in the western part of the Tukuringr Range outside the territory of the Zeya Reserve. Its average rate of catch in 2018-2022 at the Tokinsky Stanovik was 1.0 ind./100 t.-d. This vole prefers a specific type of habitat with stone runs between the alpine and subalpine zones, where it is dominant with the average number of 7.5 ind./100 t.-d. It was found only at 2 sites, including high mountains: No. 11 and 12 (Fig. 2). In 2020 it was found on the watershed of the sources of the Zeya and B. Tuksani Rivers (No. 11) near the border of stone run and mountain tundra with tussocks of dwarf pine. In 2022, it was dominant in the same biotope, but in the alpine zone (14.9 ind./100 t.-d.). In 2021, lemming vole was dominant in the mouse-like community near the Tas-Balagan Pass (No. 12). Its highest numbers were registered near the lower borders of stone runs and alpine meadows (10.8 ind./100 t.-d.). It was also found in rocky patches of the subalpine zone, as well as among thickets of dwarf pine.

Gromov's vole. It was believed before that its distribution area was limited to southeastern Yakutia and the southern part of the Western Okhotsk Region (Dokuchaev, Sheremetyeva, 2017). Gromov's vole is sporadically distributed throughout the park in the meadow habitats along the lakes and in the wet subalpine meadows, where it can reach a high abundance. It was first discovered in the Amur Region in 2018. The census line was stretched along the lake shore in the basin of the upper reaches of the Inarogda River, at the western end of the Okonon Plateau (N 55º 41' 58.9", E 129º 58' 21.9", site No. 4; Fig. 2). Its biotope is treeless shores with moss, lichen, crowberries, dwarf birch, cinquefoil and wolf's bane. In the summer of 2020 and 2022, it was caught in the subalpine zone of the "Zeya – B. Tuksani" Pass (No. 11; Fig. 2). In 2022, its rate of catch in a wet subalpine meadow with willow tussocks and crowberries was 10.0 ind./100 t.-d. Its average rate of catch in 2018-2022 at Tokinsky Stanovik was 1.0 ind./100 t.-d.

Tundra vole was encountered on the northern foothills and low mountains of the Stanovoy Ridge (Chevychelov et al., 2010), however, we never caught it in the central part of Tokinsky Stanovik. There is a possibility of tundra vole living in the park itself, but it is yet to be confirmed.

Wood lemming is rare or few. It can be found in various biotopes with developed moss cover. In case of this lemming species, the spring-loaded bar traps "Hero" are not effective, so its average rate of catch in 2018-2022 was 0.09 ind./100 t.-d. In 2021, a single specimen, an adult mature female, was caught in a trap in a larch forest with thickets of elfinwood and dog rose, stone remains, wet sphagnum patches of rosemary, blueberry and sedges, and patches of green moss and lichen along the right bank of the Zeya River, above the mouth of the Sivaktylyak-1 River (N 55.628913, E 130.70275), in the territory of the park (No. 13; Fig. 2). In 2022, lemming was caught in a wet subalpine meadow with patches of sphagnum bogs at the source of the Oyur River (No. 8; Fig. 2). In addition, a dead wood lemming was found in the valley larch forest of the upper reaches of the B. Tuksani River (No. 7; Fig. 2).

Amur lemming is listed in the Red Data Book of the Amur Region (2020) as a rare, relic and extremely few species; it is also included into the Appendix to the Red Data Book of the Russian Federation "List of the Animals in Need of Special Attention" (2000). Its habitats are wet valleys and boggy cols, with forb-cereal-sedge vegetation and moss cover as the ground layer. There are known finds in the foothills of the Soktakhan Ridge, on the Upper Zeya Lowland near the mouth of the Argi River (Red Data Book of the Amur Region, 2009) and in the basin of the upper reaches of the Aldan River (Revin, Popov, 1988; Revin, 1989). According to surveys (A.P. Krasikova's report), Amur lemming can be encountered in the valley of the Nuyam River, about 50-60 km southwest of the western border of the Tokinsko-Stanovoy National Park. Its presence in the park is possible, but must be confirmed first, so the best survey areas should be in the dwarf birch bogs, along the valleys and watersheds of the Tok, Chardat and Ulyagir Rivers,

and in the wetlands of the Okonon Plateau (Tok-Tuksani Plateau).

Korean field mouse can be found both in the Amur Region and Yakutia. In Yakutia, the field mouse is common in the developed floodplain forests of plains and low mountains (Chevichelov et al., 2010). Until recently, the high mountains of the Stanovoy Ridge were considered a place where its range grows especially patchy. Before that, in the north of the Amur Region, the field mouse was encountered only in the oak and black birch forests and tall mixed valley forests. The northernmost find of this species in the region was the valley of the Zeya River, 8 km below the Lokshak weather station. In 2020, it was a common species of the subalpine zone of the "Zeya – B. Tuksani" Pass (site No. 11; Fig. 2). In 2021, it was caught on the Tas-Balagan Pass (No. 12; Fig. 2). It was also abundantly found in the subalpine zone and the valley sparse boggy forests (5.0 ind./100 t.-d.). In 2022, it was dominant in the subalpine zone of the source of the Oyur River (20.0 ind./100 t.-d., No. 8; Fig. 2). Its average rate of catch at Tokinsky Stanovik in 2018-2022 was 1.0 ind./100 t.-d.

Carnivora

Brown bear is common or numerous. It is distributed throughout the most biotopes of the study area (Tables 7, 8), but its most typical habitats are valley forests and thickets along the rivers (Photo 8), subalpine zone (Table 7) and thickets of Siberian dwarf pine. The number of bears in the national park varies dramatically from year to year.

For example, in the summer of 2021, its abundance in the park and the adjacent territory was close to its maximum. At the Tas-Balagan Pass (No. 5; Fig. 3), there were 12 visual sightings of bears. Their population density was 0.9 ind./1000 ha in the alpine zone, 2.0 ind./1000 ha in the subalpine zone, 1.1 ind./1000 ha on average in the high mountains, and 1.12 ind./1000 ha on average in the study area. A female bear with two cubs was noticed twice, but the rest of the records were about single animals. On the contrary, in the summer of 2022, the number of bears in the high mountains of the central part of Tokinsky Stanovik was close to its minimum, because there were no visual encounters, but, based on the found scat, the data on its relative abundance in different biotopes were obtained (Table 8). The average population density based on visual encounters along the routes in 2020-2022 was 0.5 ind./1000 ha (Table 7). Therefore, the total number of brown bears in the park, the area of which is about 253 thousand ha, can be approximately estimated at 110-130 ind.

In the park territory in the southwestern foothills and low mountains of Tokinsky Stanovik, brown bears cause damage to herds of domestic reindeers. They usually hunt calves, rarely going after the adult animals. According to reindeer herders, during the calving period in the spring of 2022, bears constantly visited the base at the mouth of the Neleg River (No. 3; Fig. 2). At least 8 bears were seen trying to hunt reindeer calves. They were scared away by shots aimed in the air, dogs, and constantly maintained smoking pyres. In the western part of the park near the Ulak–Elga highway, bears that are accustomed to the presence of humans can pose a real danger not only to domestic reindeers, but to humans themselves.

Wolverine number in the national park is small. Just like wolves, it enters Tokinsky Stanovik through the valleys of large rivers and streams before the heavy and deep snow covers the ground and lives mainly where the population density of Siberian musk deer is high. The average density of the wolverine population in 2013 in the study area was 0.02 ind./1000 ha. In the adjacent territory in 2013-2017 it was 0.03 ind./1000 ha, varying from 0.01 ind. to 0.11 ind. per 1000 ha (Table 9). In the summer of 2018, wolverine tracks were found on the bank above the mouth of the Otobok River. In July 2021, its scat containing musk deer hair was discovered in the valley forest of the left source of the Tas-Balagan River, on the slope under the roots of a fallen tree (N 55.730°, E 130.759°, No. 5; Fig. 3).

Sable is a common and, perhaps, the most numerous predator in the forest zone of the park (Photo 9). Its average population density in the southern foothills of Tokinsky Stanovik and the north

of the Zeya District is 2.5 ind./1000 ha (Table 9). In 2013, in the territory that is now part of the park, this figure was 0.4 ind./1000 ha. In the optimal biotopes, such as mountain larch forests with dwarf pine and Ezo spruce forests at the source of springs, the numbers can be much higher. However, in the subalpine and alpine zones sable is rare. In the area of the "Zeya – B. Tuksani" (according to observations of 2020-2022) and Tas-Balagan (2021) passes, in the upper reaches of the B. and M. Tuksani Rivers (2009, 2018, 2020, 2022) sable was not that numerous. Scared up into the trees by dogs, they were observed in the middle reaches of the M. Tuksani River (2009) and on the watershed of the B. and M. Tuksani Rivers on the way from Perevalnoye Lake to B. Tuksani (2018). In 2022, sable droppings were found on bank stones in the valley of the right tributary of the Utuk-Makit Spring. This species is the main object of the traditional fur trade of the Evenk communities.

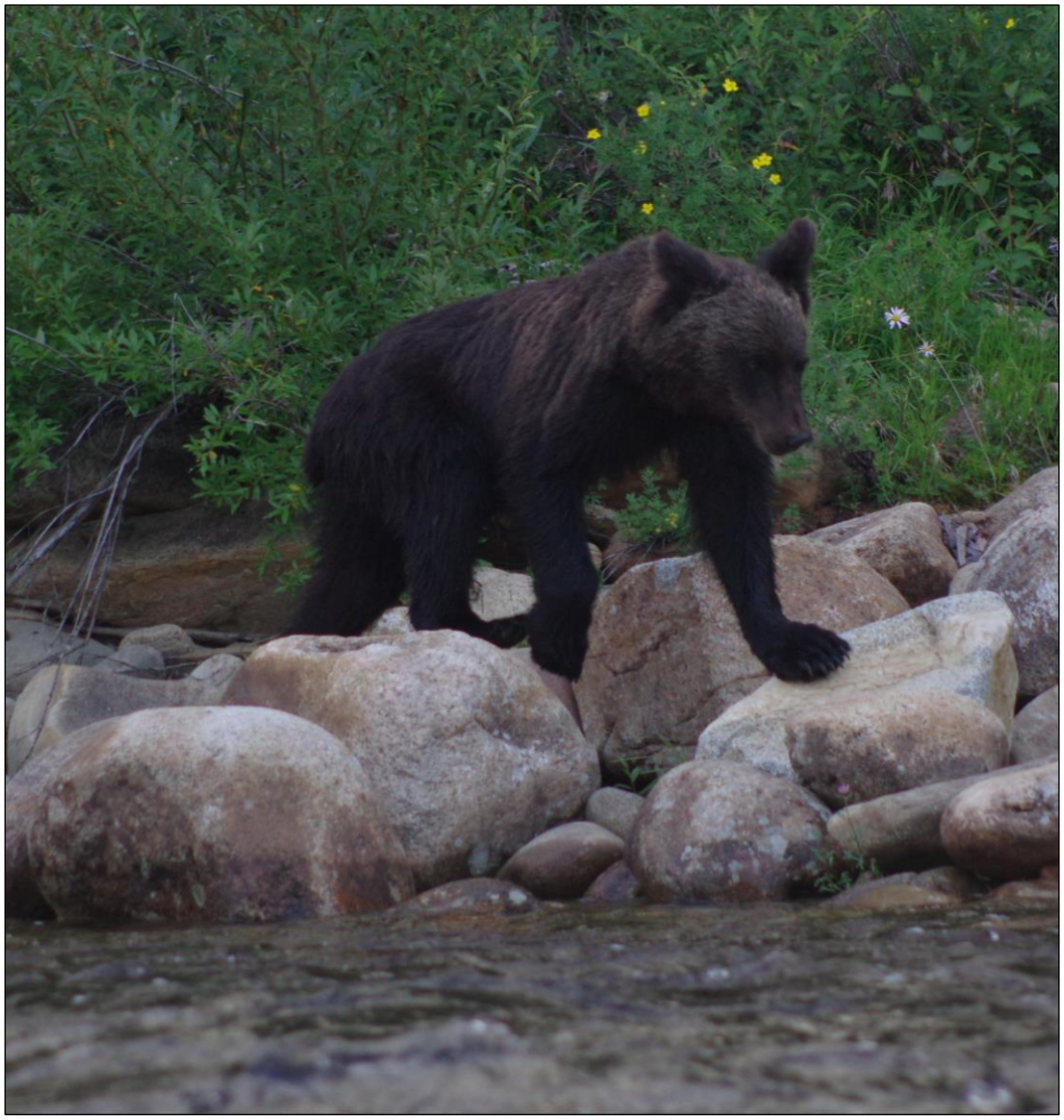

Photo 8. Young brown bear on a river bank (photo by S. Dudov).

Stoat lives throughout the entire territory of the park, but its distribution is extremely uneven: numerous in the high mountains, stoat is rare or not numerous at all in the forest zone. It is the most numerous predator in the high mountains of the central part of Tokinsky Stanovik (Photo 10). Its droppings were found several times in the subalpine zone on rocks near large pika colonies on

the “Zeya – B. Tuksani” and Tas-Balagan passes. In the summer of 2022, on the Tas-Balagan Pass and the adjacent ridges, three visual encounters were registered at a minimal distance. In all cases, the animals were observed near the colonies of pikas. According to transect censuses of 2020-2022, the population density of stoats was 20.0 ind./1000 ha in the subalpine zone and 31.7 ind./1000 ha in the alpine zone (Table 7). In 2013, the average in the park territory was only 0.73 ind./1000 ha.

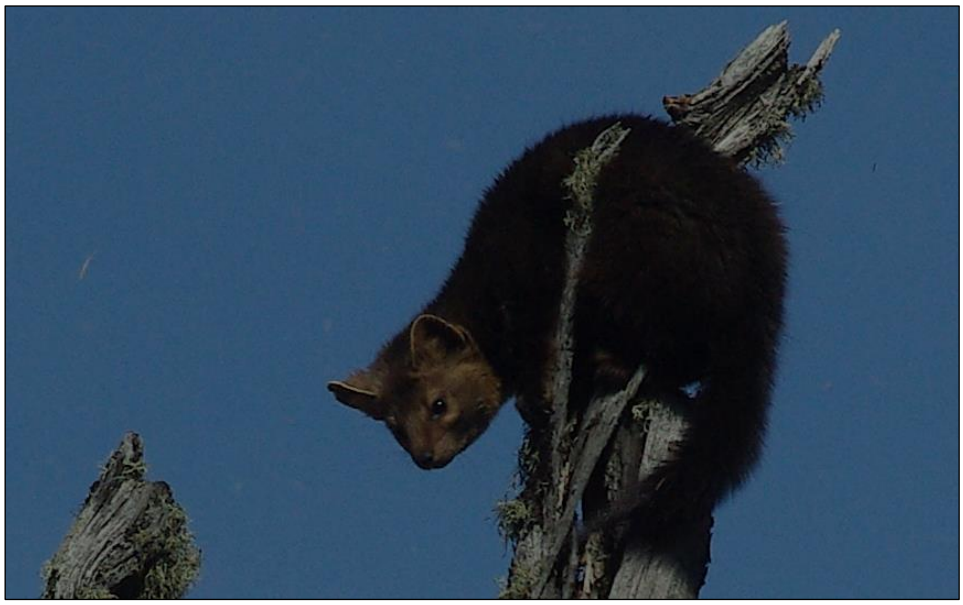

Photo 9. Sable is the most widespread predator in the high mountains of the forest zone of Tokinsky Stanovik (photo by S.A. Podolskiy).

Common weasel constantly inhabits the Zeya Reserve and the southern regions of Yakutia. We have no information about any reliable finds on the southern macroslope of Tokinsky Stanovik. Its presence in the national park is possible, but is yet to be confirmed.

Photo 10. Stoats are the most numerous predators in the high mountains, usually found on the stone runs near the colonies of pikas (photo by S.A. Podolskiy).

Siberian weasel is rare in the north of the Amur Region due to competitive pressure and direct extermination by sables. It inhabits the territory of the Zeya Reserve. In the 1970s, it was encountered in the upper reaches of the Zeya River all the way up to the mouth of the Okonon River (as reported by N.I. Aboimov). We did not observe weasel on the territory of the park ourselves, but there is a small probability of its visits.

American mink is an introduced species. They were never specifically released in the north of the region, and so they distributed there themselves, escaping from fur farms into nature. It was a widespread phenomenon in the early 1990s, during the rapid collapse of fur farming. By the 2000s, minks had spread widely along the banks of the water bodies of the Zeya Region and began to show up the Zeya Reserve. Mink has not yet been recorded in the Tokinsko-Stanovoy National Park, but its tracks were found in the valley of the Zeya River near the southern border of the protected area, at mouth of the Kara-Urek River (No. 14; Fig. 2). There is no doubt that mink can also move further up into the Zeya River valley, but its habitat in the park still needs to be confirmed.

Otter is a rare species in the north of the region. A single short-term visit of an otter to the territory of the Zeya Reserve was registered. It has not been observed in the national park yet, however, there is a small probability of it entering the upper reaches of the Zeya River.

Wolf is a species with an extremely uneven distribution. It is common in the valley of the Zeya River, including the section of the upper reaches near the mouth of the Sivaktylyak-1 River, as well as near the western borders of the national park, near the Ulak–Elga highway. In the high and middle mountains of the central part of Tokinsky Stanovik, as well as on the Okonon Plateau (Tok-Tuksani Plateau), wolves are not numerous and are found mainly during the snowless period. They enter the territory through the valleys of large rivers and usually leave before the deep snow covers the ground. In 2013-2017 their average population density in the southern foothills of Tokinsky Stanovik and the adjacent territory was 0.05 ind./1000 ha (Table 9).

Wolf's tracks on the sand along the banks were repeatedly seen in the valley of the Zeya River, in the area from the mouth of the Sivaktylyak-1 River to the backwater of the Zeya Reservoir. Their scat with bighorn sheep hair was sporadically found on the ridge of the "Zeya – B. Tuksani" watershed (2020) and in the valley of the upper reaches of the right tributary of the Utuk-Makit Spring (2021). According to the Evenks, wolves and, possibly, wolf-dog hybrids are often encountered near the Ulak–Elga highway, where they actively hunt for domestic reindeer.

Red fox is not a numerous species and is distributed unevenly. It can be encountered in the valley of the Zeya River and much less often in the central part of Tokinsky Stanovik, which it most likely simply visits. In July 2021, fox's tracks and scat were found several times in the subalpine zone near the Tas-Balagan Pass.

Lynx is rare both in the park and the adjacent hunting grounds. In 2013-2017 its average population density in the adjacent territory was 0.04 ind./1000 ha, varying from 0.01 to 0.11 ind. per 1000 ha (Table 9).

In 2018, their tracks were found in the park in the valley of the Tok River near the mouth of the Ulyagir River. We did not find any lynx in the central part of Tokinskiy Stanovik, but, according to surveys of the local reindeer herders, rare and non-annual visits of lynx are quite possible. In 2021, tracks were found in the Zeya River valley below the Lokshak weather station, south of the park borders.

Siberian tiger is listed in the Red Data Book of the Amur Region (2009, 2020) as a rare subspecies that has survived only in Russian territory. It is also listed in the Red Data Book of Russia (2021) and UICN Red List (2023). In recent decades, tiger visits to the north of the Zeya District of the Amur Region have been repeatedly recorded (Kolobaev et al., 2005). Their tracks and the animals themselves were seen in the Zeya Reserve, at the mouth and upper reaches of the Arga River, near the station and Lake Ogoron. Besides, there are reports of tiger sightings directly in the territory that is now part of the national park (Red Data Book of the Amur

Region, 2009). In 1944, the Evenks described a frozen tiger carcass found on the Stanovoy Ridge near the Zeya peak (Chugunkov, 1958). The possibility of rare individual visits of the tiger to the park is beyond doubt, but their permanent habitation there is impossible due to the deep snow cover and insufficient population density of ungulates.

Artiodactyla

Siberian musk deer is currently rare and sporadically distributed. It is common in spruce forests near the rocks (Photo 11), sometimes in larch forests and thickets of dwarf pine, and is rarely found in other biotopes. It is known for significant fluctuations of abundance. In the Zeya Reserve, its population density during peaks and depressions in population numbers differ by a factor of 10 (Podolsky et al., 2006).

Photo 11. Siberian musk deer is a common species in the subalpine Ezo spruce forests, but currently its population density in the national park is minimal (photo by S.A. Podolsky, 07/06/2022, 17:22:26).

Similar phenomena are most likely common for Tokinsky Stanovik as well. In the 1990s and early 2000s, there was a high abundance of musk deer. For example, the scat census of 1993 showed that their population density in the spruce forests of the upper reaches of the Ayumkan River was 4-5 ind./1000 ha. Censuses that took place in 2000 in spruce forests adjacent to Yakutia recorded the maximum density of 15-18 ind./1000 ha (Chevichelov et al., 2010). In 2013, this indicator in the territory of the Tokinsky Reserve was 0.41 ind./1000 ha (Table 9). In 2022, the results of the scat census showed an average density of about 0.1 ind./1000 ha, which indicates a deep depression of the deer population (Table 8).

We noted the Siberian musk deer on Tokinskiy Stanovik in several places: in 1992, numerous heaps of their excrement were found in the spruce forests of the Tas-Balagan River; in 1993, the animals were spotted in the basin of the upper reaches of the Ayumkan River; in 2009 and 2018, there were sightings on the rocky areas of the Tok River canyon. In 2021, we found two spots that the deer used as a toilet and one place used as bed under an overhanging rock in the valley spruce forest of the right source of the Tas-Balagan River. In the valley forest of the left source of the same

river, we found wolverine droppings with the hair of musk deer. In 2022, their scat was discovered on a cliff on the high right bank of the Ulyagir River, 1 km below the mouth of the Neleg River in a larch forest with spruce (No. 515: N 55º 40' 48.9", E 129º 42' 03.4"), as well as in basin of the upper reaches of the B. Tuksani river.

According to our preliminary estimates, in recent years the number of Siberian musk deer in the park has not exceeded 100-150 individuals. More accurate estimates require mapping of their main habitats and specialized population censuses.

Moose is a common rare species and an object of traditional hunting for Evenk reindeer herders. The park is located exactly between ranges of two subspecies, the relatively small Ussuri moose (*A.a. cameloides* Milne-Edwards, 1867; Photo 12) and large East Siberian moose (*A.a. pfizenmayeri* Zukowski, 1910) with spatulous antlers. Therefore, animals with features of both subspecies are encountered there with equal frequency. Moose is a typical species of the foothills and low mountains of Tokinsky Stanovik, but in the high mountains it visits only the subalpine zone where the game trails cross the mountain passes. In July-August 2020 and 2022, single tracks were found in the subalpine zone at the pass between the sources of the Zeya and B. Tuksani Rivers (No. 4; Fig. 3). During winter most of the moose leave the coniform hills, watersheds and vast dwarf birch bogs in the foothills and low mountains. However, wintering moose were seen in the river valleys of middle mountains, such as the Zeya River, in the area from the mouth of the Sivaktylyak-1 River to the mouth of the Kara-Urek River, and in the upper reaches of the Ayumkan, B. Tuksani and Tas-Balagan Rivers. Scat censuses if 1994 showed that in the upper reaches of the Ayumkan River valley, the winter population density of moose reached 3.5 ind./1000 ha; in 2022 in the valley forests of the upper reaches of the B. Tuksani river, it was 1.1 ind./1000 ha. According to winter route census of the 1980s – early 1990s and 2013-2017 (Table 9), their average population density in the north of the Zeya District and in the southern foothills of Tokinsky Stanovik was 0.45 ind./1000 ha. Based on the available data, the total number of moose in the Tokinsko-Stanovoy National Park can be approximately estimated at 120-140 individuals.

Fig 12. Large male moose of Ussuri subspecies in the upper reaches of the Zeya River (photo by S. Dudov).

Reindeer is a typical inhabitant of river valleys, sparse forests and subalpine zone (Photo 13), but in the alpine zone and mountain taiga it is less common. It is probably the most numerous species of ungulates in the national park, and at the same time it is one of the most important objects of traditional hunting of the Evenk tribal communities. For the reindeer, Tokinsky Stanovik is the main summer habitat.

Photo 13. Male reindeer on a pass between the sources of the Zeya and B. Tuksani Rivers (photo by O. Agni).

In spring, in the western part of the park, most of the reindeer move from Yakutia through the Tokinsky depression to the south, and then proceed along the Tokinsky Stanovik to the west; in autumn, migration goes in the opposite direction. The total number of the "western" group is estimated at about 1000 individuals (Chevichelov et al., 2010).

According to the route censuses of 2020-2022, in the second half of summer, the average population density of the reindeer in the central part of Tokinsky Stanovik was 1.0 ind./1000 ha in the valley forests, 4.8 ind./1000 ha in the open valley biotopes, 2.2 ind./1000 ha in the thickets of Siberian dwarf pine, 4.1 ind./1000 ha in subalpine meadows, and 0.13 ind./1000 ha in the alpine zone (Table 7).

Judging by our observations in 1994, 2009 and 2018, the abundance of reindeer in both the western and eastern parts of Tokinskiy Stanovik was noticeably higher than in its center. In the western part, animals from domestic herds constantly join the population group; in the eastern part (the area of the Ayumkan Town) they actively use the subalpine zone and river valleys, along with the alpine zone. There, in 1994, the density of their population in alpine meadows and mountain tundra reached 5-6 ind./1000 ha. Given these facts, their total number in the park can be tentatively estimated at 400-500 individuals. With a further detailed study of the entire specially protected natural area, these numbers can be refined.

According to surveys (reports of D. Kolesov and P. Safronov), reindeer periodically concentrate during winter and early spring at the source of the Sivakan River, to the south and southwest of the park boundary. In the future, it is advisable to include that site in the buffer zone of specially protected natural areas.

Siberian bighorn sheep is a common inhabitant of the high mountains of the Stanovoy Range. A subspecies called Allen's sheep (*Ovis nivicola alleni* Matchie, 1907) is common on Tokinsky Stanovik and is listed in the Red Data Books of the Amur Region (2009, 2020) and the Republic of Sakha (2003, 2019). In the national park, bighorn sheep inhabit a relatively narrow strip of high mountains 5 to 15-kilometer-wide along the northern border of the Amur Region, stretching from the sources of the Okonon River in the west to the upper reaches of the Ayumkan River in the east (Podolsky et al., 2019). We carried out censuses in 1992, 1993, 2009, 2018 and 2020-2022 (Table 5).

Their distribution throughout the study area is very uneven; the population density in the optimal biotopes of the central part of Tokinsky Stanovik (9.4 ind./1000 ha averagely) is significantly higher than in the western (1.3 ind./1000 ha) and eastern (2.5 ind./1000 ha) ones (Table 5). This is due to the fact that sheep prefer areas with highly dissected relief, maximal heights and rocky areas, and areas with large natural salt licks at the outcrops of volcanic deposits (Photo 14). The area of their high density in the west starts at the sources of the B. Okonon and Oyur Rivers; in the east, it goes through the basin of the sources of the Zeya River up to the mouth of the Tas-Balagan River, as well as the Golets Tas-Balagan mountain massif, with the adjacent section of the right-bank part of the Lucha (Zeyskaya) River basin.

Photo 14. Female Siberian bighorn sheep on a rocky ledge near the natural salt lick (photo by S.A. Podolskiy).

It is also common for the population group from Tokinsky Stanovik to have sharp seasonal changes in the areas with different population density. In spring and early summer, they concentrate near large natural salt licks, where their population density is almost 10 times higher than the background density (Darman, Titova, 2022). In the second half of summer, bighorn sheep are relatively evenly distributed over the territory within their main habitats, although their population

density around salt licks remains approximately twice as high as the background one (Table 10). It is noteworthy that in July some bighorn sheep walk at least 15-20 km away from the main salt licks, which can be considered as seasonal migrations or extended horizontal migrations.

Table 10. Numbers of Siberian bighorn sheep population in the central part of Tokinsky Stanovik at the census sites near the main natural salt lick "Zeya – B.Tuksani" and away from it, collected for 2018 and 2020-2022.

Location relative to the last lick	**Area of observations**	**Year**	**Number of animals, ind.**	**ind./10 km^2**
First half of summer (June – 1st half of July)				
Sites away from the salt lick	Right banks of the B. Tuskani River sources; area of the "B. Tuskani – Sivaktylyak-1" Pass; area of the Tas-Balagan Pass	2021	41	2.0
Sites near the salt lick	Left source of the B. Tuskani River; right source of the Zeya River; left source of the Sivaktylyak-1 River	2021	292	109.3
Second half of summer (2nd half of July – August)				
Sites away from the salt lick	Right source of the Oyur River; source of the Oyur-Makit River; area of the "B. Tuskani – Sivaktylyak-1" Pass	2018	27	10.4
	Right banks of the B. Tuskani River sources; area of the "B. Tuskani – Sivaktylyak-1" Pass	2020	10	2.4
	Area of the Tas-Balagan Pass	2021	48	9.3
	Right banks of the B. Tuskani River sources; area of the "B. Tuskani – Sivaktylyak-1" Pass; right source of the Oyur River; source of the Oyur-Makit River	2022	22	4.2
	Average (by the years of observations) population density for remote sites			*6.6*
Sites near the salt lick	Left sources of the B. Tuskani River; right source of the Zeya River; left source of the Sivaktylyak-1 River	2020	48	11.3
	Left sources of the B. Tuskani River; right source of the Zeya River; left source of the Sivaktylyak-1 River	2022	72	20.4
	Average (by the years of observations) population density for sites near the salt lick			*15.8*

To estimate the abundance of Siberian bighorn sheep in the Tokinsko-Stanovoy National Park, we used data obtained in the second half of summer, when the animals were evenly distributed over the territory. At the same time, we took into account the differences in population density in the

central part and on the periphery. In addition, for the central part, the abundance near large natural salt licks and away from them was estimated separately.

In the territory of the Tokinsko-Stanovoy National Park the area of the main high mountain (open) habitats of the bighorn sheep, such as the alpine and subalpine zones with bald mountains and rocks, the upper sparse part of the Siberian dwarf pine zone, is about 60,000 ha, while the area of secondary habitats, such as dense thickets of dwarf pine on the slopes of the ridges, is about 35,000 ha. The area of increased population density in the central part inside the park, from the sources of the B. Okonon and Oyur Rivers in the west to the Tas-Balagan and the lower reaches of the Lucha River in the east, is about 12,500 ha, of which about 600 ha are the concentration of bighorn sheep near salt licks (Table 10). Abundance indices in the main biotopes of the central part of the southern macroslope of Tokinsky Stanovik in the second half of summer were as follows: the population density in an area of 11,900 ha was 6.6 ind./1000 ha, the number was about 80 ind.; population density in an area of 600 ha was 15.8 ind./1000 ha, the number was about 10 ind. If the average values are used for this site (Table 5), then the abundance is about 90 ind. If the slightly higher values are used, the density is 9.4 ind./1000 ha on an area of 12,500 ha, and the number was 118 ind. This means that the number of Siberian bighorn sheep in the optimal biotopes of the central mountains of the park can be estimated at 90-120 individuals.

To estimate the number of bighorn sheep in the remaining part of the main habitats of the park (47,500 ha), we used the population density index obtained in the area of the Ayumkan town, where it was 2.5 ind./1000 ha (Table 5). According to our calculations, about 120 bighorn sheep live in the eastern and western parts of the high mountains of this specially protected natural area. In addition, sheep were found in small numbers in the thickets of dwarf pine on the slopes of mountain ranges. According to route censuses, their population density in these minor habitats (35,000 ha) does not exceed 0.5 ind./1000 ha, and the number is about 15-20 individuals.

Thus, the total number of bighorn sheep in the Tokinsko-Stanovoy National Park can be approximately estimated at 230-260 animals. The numbers can be refined after a more detailed study of the high mountains of the eastern part of this specially protected natural area.

Data on the age and sex structure of the bighorn sheep population group in the park are shown in Table 6. It is important to note that in 2020, the minimum encounters rate of adult males and a low proportion of young animals were registered. In 2021 and 2022, the occurrence of adult males normalized, but the proportion of young sheep in the population remained highly unstable. Such significant fluctuations may be the consequences of trophy hunting carried out in the years before the national park was established. In 2020, we discovered three camp sites of trophy hunters, visited frequently: two in the watershed area of the Zeya and B. Tuksani Rivers, one on a pass above the middle source of the Sivaktylyak-1 River. According to surveys of the local helicopter pilots, employees of airfields and reindeer herders, for 3-4 years before the creation of the park (2016-2019), adult males of Siberian bighorn sheep were intensively hunted in the central part of Tokinsky Stanovik by several teams of hunters who would come in by helicopters. According to pilots, the shooting often carried out directly from the helicopters.

Since 2020, during the snowless periods, employees of the Zeya Reserve stay vigilant in the zone of increased numbers of bighorn sheep near the most important salt licks, and a significant part of the high mountains is constantly patrolled. According to the information we received, in 2020-2022 trophy hunting on the “Zeya – B. Tuksani”, “B. Tuksani – Sivaktylyak-1” and Tas-Balagan passes stopped, which significantly helped to start the normalization process of the sex and age structure of the local bighorn population.

Aside from poachers, Siberian bighorn sheep are threatened by large predators. In spring, newborn lambs are actively hunted by brown bears (according to the reports of N.I. Aboimov and P. Safronov). In the bear’s scat, collected in early July 2021 (n = 9), the hair of bighorn sheep was encountered in 2 cases, which is 22.2% from total. Observations of 3 bears also showed that they

actively explore the paths used by bighorn sheep in the high mountains and try to hunt them on salt licks. During the snowless periods, bighorn sheep sometimes fall prey to wolves and wolverines. We found wolf's scat with sheep hair on the crest of a ridge of the "Zeya – B. Tuksani" Pass. The underyearlings can be hunted by golden eagles, the fact of which was repeatedly observed in the high mountains. On the Tas-Balagan Pass, the remains of an adult male and female, probably crashed by an avalanche, were found.

Conclusions

A system for zoological monitoring was created in the Tokinsko-Stanovoy National Park and the adjacent territory, including 15 sites for recording the relative abundance of small mammals (Fig. 2), and 5 sites for observing Siberian bighorn sheep and other large animals (Fig. 3). All zoological observations that were carried out there have an individual biotopic reference according to the list of the main types of habitats (Table 1). Over the years of monitoring (1992, 1993, 2009, 2018 and 2020-2022) we managed to perform most of the census of the local theriofauna, find out the population numbers, and biotopic, spatial and seasonal distributions of many mammal species. We also found the most important directions for further improvement of protection of the animal populations and monitoring optimization.

We were able to clarify that 27 species of mammals inhabit the study territory, such as Laxmann's shrew, Siberian large-toothed shrew, even-toothed shrew, Eurasian least shrew, Eastern water bat, mountain hare, northern pika, Siberian flying squirrel, red squirrel, Siberian chipmunk, Korean field mouse, lemming vole, northern red-backed vole, grey red-backed vole, wood lemming, Gromov's vole, wolf, red fox, brown bear, wolverine, sable, stoat, Eurasian lynx, Siberian musk deer, moose, reindeer and Siberian bighorn sheep. Black-capped marmot and American mink were encountered near the boundaries of the specially protected natural areas, meaning that they are very likely to be found in the park as well. According to the literature sources and/or surveys, such animals as tundra vole, Amur lemming, common weasel, Siberian weasel and otter might also live near the park boundaries. Therefore, we cannot exclude the possibility of finding these species within the protected natural areas. In addition, the Red Data Book of the Amur Region (2009) contains information on the Siberian tiger that was spotted in the territory of the park. Its permanent habitation is impossible within the park borders, but there is no doubt that the tiger visits it sometimes.

Thus, according to our data, the theriofauna of the Tokinsko-Stanovoy National Park includes 27-35 species from 6 orders and 14 families (Table 2). This list can be expanded mainly with *Chiroptera* and *Eulipotyphla*, as well as those species that have been found near the boundaries of the park.

The optimal period for the main zoological observations during the snowless period, which was established during this research, should last from mid-July to August inclusive. During this period, it is necessary to conduct an annual census of Siberian bighorn sheep that are evenly distributed over open areas of high mountains, and small mammals that actively grow in numbers in the second half of their breeding season. It is advisable to observe the bighorn sheep on the main natural solonetzes once every 2-3 years in June, and to expand the existing network of census transects and sites to the east, into the basins of the Lucha (Zeyskaya) and Ayumkan River.

The results of our observations showed that protective measures in the territory of the national park have already yielded some results. For example, the intensive and illegal hunting for bighorn sheep was banned in the central part of Toko-Stanovik, and the sex and age structure of the bighorn group began to stabilize. In order to increase the reliability of the specially protected natural areas and to continue studies of the animal population, it is necessary to create a buffer zone along the territory perimeter and expand the patrols and observations to the eastern part of the area.

Acknowledgment. We thank the management of the Zeya State Nature Reserve for the valuable help in organizing the expeditions and transportation.

Funding. This research was carried out as part of the State Assignment No. FMWZ-2022-0002 for the Water Problems Institute of the Russian Academy of Sciences “Research of Geoecological Processes in Hydrological Land Systems, Formation of the Surface and Ground Water Quality, Problems of Water Resources Management and Water Use under Conditions of Climate Change and Anthropogenic Impact”, as well as part of the State Assignment No. 051-00007-22-00 for Zeya State Nature Reserve “Dynamics of Phenomena and Processes in the Ecosystems of the Zeya Reserve and the Tokinsko-Stanovoy National Park”.

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УДК 599; 502,743; 502,45

МЛЕКОПИТАЮЩИЕ НАЦИОНАЛЬНОГО ПАРКА «ТОКИНСКО-СТАНОВОЙ»

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Поступила в редакцию 18.01.2023. После доработки 06.02.2023. Принята к публикации 01.03.2023.

Национальный парк «Токинско-Становой», учрежденный в конце 2019 г, имеет площадь около 253 тыс. га. Он находится на севере Амурской области - на стыке ее границ с Республикой Саха (Якутия) и Хабаровским краем. Первое зоологическое обследование этой территории было проведено экспедицией В.Ч. Дорогостайского в 1914 году. В статье приводятся основные сведения о фауне и населении млекопитающих полученные в течение семи летне-осенних сезонов: 1992, 1993, 2009, 2018, 2020-2022 гг. Экспедиции 2009, 2018, 2020-2022 гг. были организованы и проведены Зейским государственным заповедником при участии экологов из следующих организаций: Института водных проблем (ИВП РАН), Хинганского заповедника, Амурского филиала WWF России, Московского зоопарка, Московского государственного университета им. М.В. Ломоносова.

Непосредственно на территории национального парка удалось подтвердить обитание 27 видов млекопитающих: средняя бурозубка, крупнозубая бурозубка, равнозубая бурозубка, крошечная бурозубка, восточная ночница, заяц-беляк, северная пищуха, летяга, обыкновенная белка,

азиатский бурундук, восточноазиатская мышь, лемминговидная полевка, красная полевка, красносерая полевка, лесной лемминг, полевка Громова (шантарская), волк, лисица, бурый медведь, росомаха, соболь, горностай, рысь, кабарга, лось, дикий северный олень, снежный баран. Черношапочный сурок и американская норка отмечались в непосредственной близости от границ ООПТ, их обнаружение в национальном парке весьма вероятно. По литературным и/или опросным данным вблизи границ парка могут также обитать: полевка-экономка, амурский лемминг, ласка, колонок, выдра, возможны редкие заходы амурского тигра. Таким образом, териофауна Токинско-Станового национального парка включает от 27 до 35 видов из 6 отрядов и 14 семейств. При дальнейшем изучении список отмеченных видов зверей может быть расширен за счет рукокрылых и насекомоядных.

В национальном парке и на сопредельной территории создана система зоологического мониторинга, основу которой составляют 15 участков учета относительной численности мелких млекопитающих, а также 5 участков наблюдений за снежными баранами и другими крупными зверями. Благодаря этому удалось не только провести основной объем работ по инвентаризации териофауны, но также получить представления о показателях численности, биотопическом, пространственном и сезонном распределении многих видов млекопитающих. Получены первые оценки работы ООПТ, намечены важнейшие направления улучшения охраны животного населения и оптимизации мониторинга. Установлено, что меры по охране территории национального парка уже дают ощутимые результаты: в центральной части Токинского Становика прекратилась интенсивная незаконная охота на снежного барана, началась нормализация половозрастной структуры группировки толсторогов. Для повышения надежности обеспечения режима ООПТ и дальнейшего изучения животного населения необходимо создать охранную зону по ее периметру, а также распространить экспедиционное патрулирование и зоологические наблюдения на восточную часть национального парка.

Ключевые слова: Становой хребет – Токинский Становик, национальный парк, млекопитающие, фауна, животное население, численность, плотность населения, зоологический мониторинг, охрана.

Благодарности. Авторы благодарят администрацию Зейского государственного заповедника за неоценимую помощь в организации экспедиционных исследований и транспортного обеспечения.

Финансирование. Исследования выполнены в рамках темы № FMWZ-2022-0002 Государственного задания ИВП РАН «Исследования геоэкологических процессов в гидрологических системах суши, формирования качества поверхностных и подземных вод, проблем управления водными ресурсами и водопользованием в условиях изменений климата и антропогенных воздействий», а также в рамках Государственного задания ФГБУ «Зейский государственный природный заповедник» № 051-00007-22-00 «Динамика явлений и процессов в экосистемах Зейского заповедника и национального парка «Токинско-Становой»».

DOI: 10.24412/2542-2006-2023-1-162-204

EDN: HMGFQG