

Protected Areas of the Central Siberian Arctic: History, Status, and Prospects

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Abstract—Before the Siberian Arctic was incorporated into the Russian Empire, it had been inhabited by small numbers of indigenous peoples. The first Russian settlers came to Siberia in the 16th century. The northern areas of Siberia had not been subjected to extreme anthropogenic influences before the Norilsk Industrial Complex started to be built in 1935. Negative anthropogenic impacts on nature became apparent after the end of World War II. During Stalin's rule, the idea of nature transformation in the interest of humans was proclaimed. It led to widespread "ecological cruelty." Newcomers from other regions of the U.S.S.R. came with the intention of "conquering" the North. They considered neither the interests of the indigenous population, nor the ecological features of the land. Decades of destructive use passed before the strategy was condemned. It was as late as 1985, in conjunction with Perestroika and M. S. Gorbachev coming into power, when the following Nature Reserves were established in Central Siberia: Stolby, Sayano-Shushensky, Taimyrsky, Central-Siberian, Putoransky, and Bolshoi Arktichesky. Current and potential threats to the nature of Central Siberia are discussed.

Human Impacts

The main economic value of Russia's newly acquired lands in central Siberia was highly valuable furs, which came both as a tribute from the conquered indigenous peoples and through trade and exchange. The constant influx of fur hunters from Russia resulted in a nearly complete extermination of sable within the whole of the Taiga Zone, including its northern part. The sable extermination reached its peak at the end of the 19th century due to the peculiar character of the social-economic situation. For the indigenous peoples and many of the Russian settlers, fur hunting was not a critical means of subsistence, but they could exchange skins for certain goods, including alcohol, with Russian merchants. After the numbers of sable had decreased due to overhunting, the price of skins increased considerably, and the economic profitability of sable hunting remained high. It made sense for a hunter, who spotted a sable's tracks, to chase the animal until he caught it, which sometimes took about a week. The price of a more valuable dark-colored sable skin was comparable to the price of a horse (it took a regular hired worker as long as a year to earn enough to purchase a horse). After the sable had been completely exterminated in a considerable part of its area, its hunting was banned, and Game Reserves to protect the surviving sables were established. As a result, the numbers of sable were restored by the 1930s, and it became a hunted species again.

A further impact on Siberian nature—particularly in the South—was connected with the construction of the Moscow Highway in the mid-18th century. The highway reduced the amount of time it took people to reach the Yenisey River from central areas of Russia from 2 years to 2 months. After the highway construction had been completed, and particularly when the Trans-Siberian Railway was built in 1897, there was a notable increase in the population of Russian people in Central Siberia. Thus, the Yeniseyskaya Province population increased from 570,000 to 1,200,000 from 1897 to 1914. Ninety percent of the population was concentrated in the central and southern parts of the Krasnoyarsk region.

The north, particularly the arctic areas of Siberia, had not been subjected to extreme anthropogenic influences before the Norilsk Industrial Complex started to be built in 1935. The economic situation that caused sable overhunting was unique for Siberia. Breakup of the traditional nomadic reindeer breeding also had tragic social

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consequences. It was initiated after the revolution of 1917 by the Soviet government for political reasons—a forced accustoming of “wild” nomads to the “civilized,” and resulted in an ecologically unacceptable, settled way of living.

Anthropogenic impact on nature started to be notably negative after the end of World War II in 1945. In the years of Stalin’s rule, the idea of nature transformation in the interests of humans was proclaimed. It led to widespread “ecological cruelty.” Newcomers from other regions of the U.S.S.R. had a purpose of “conquering” the North. They considered neither the interests of the indigenous population nor the ecological features of the lands. Decades of destructive use had passed before the strategy was condemned. It happened as late as 1985, in conjunction with Perestroika and M. S. Gorbachev coming into power.

Destruction of nature was furthered also by a strategy common for the U.S.S.R. It was named the “extensive economy.” It consisted of the unsustainable use of natural resources by movement from more densely populated areas to the less populated ones. To slow down this undesirable process, U.S.S.R. leaders issued decrees and resolutions to regulate all forms of nature use. These attempts were unsuccessful because similar resolutions and decisions were taken on one and the same point more than once. The U.S.S.R. Supreme Soviet’s resolution, “On the observation of the legislation requirements on nature protection and rational use of natural resources,” issued July 3, 1985, is characteristic in this respect. It is a vast document, containing lists of imaginative successes peculiar to this kind of resolution that accepted, in fact, that nature protection legislation was not observed in the country.

This kind of legislation violation used to be, and still remains, a big social and ecological problem. It is characteristic of the Russian mentality to perceive laws as imposed by the evil forces embodied in the power structures. This is a problem common for society: some States have already gone through this period in their historical development, but Russia has not. This country has never had a government that would take care of its people’s well being rather than taking advantage of them. Today, Russians witness an extreme social injustice in distribution of common property, so they will continue being suspicious of any activities advocated by the power structures.

The ecological and economic problems of the U.S.S.R. North were paid attention to only in 1984, when the U.S.S.R. Supreme Soviet Presidium issued a respective decree, “On the strengthening of the Far North nature protection...” The document accepted that the practiced methods of North “conquering” caused great damage to nature. The official disapproval did not mean that the state of affairs changed considerably in practice. From the industrial development and geological survey perspective, hunting and fishing were destructive. For the people practicing it, neither fish nor game seemed a critical means of subsistence. Consumption of resources did not undermine the economic well being of state employees, unlike for the indigenous population.

The changes that occurred in the period after World War II in the whole world made the majority of countries turn close attention to ecological problems. In the field of ecology, the changes were connected first with the activities of the Roman Club, and later with those of other nature protection and ecological organizations and initiatives—especially of the Rio World Forum in 1992. Destructive use of one’s nature became a sign of being uncivilized in the opinion of the world community. A criterion, by which ecological well being was judged, was the proportion of the areas that were specially protected. In Russia, Nature Reserves and Game Reserves used to and still constitute this category.

Another index is concern for the preservation of biodiversity, or the rare and threatened animal and plant species. To protect them, special Nature Reserves and Game Reserves were established. In the Krasnoyarsk region, the following Nature Reserves (“Zapovedniki” in Russian) have been founded since 1925:

Nature Reserve	Year of foundation	Area in thousands of hectares (acres)
Stolby	1925	47 (118)
Sayano-Shushensky	1976	390 (975)
Taimyrsky	1979	1,374 (3,435)
Central-Siberian	1985	972 (2,430)
Putoransky	1987	1,988 (4,970)
Bolshoy Arktichesky	1993	4,169 (10,423)

Judging even by these few numbers, there is a tendency that the area of each individual Nature Reserve decreases the further it is to the south of the region, where the Stolby and Sayano-Shushensky Reserves are situated. This tendency is common for the whole area of Russia. The reasons for it are obvious: there are a great number of areas in the North that will hardly be developed in the near future. Consequently, reserve establishment in the North allows having 3 percent of specially protected areas both in the whole country and in the individual regions. Thus, the country looks presentable by this index in the opinion of the world community.

When a reserve is established, a regular argument in its favor is abundance of rare species in the area that are included in the Red Books of the various ranks. In doing so, particularly convincing is the presence of endemic species. From this viewpoint, the idea to establish reserves in the Asian part of the Arctic is unconvincing. In its vast areas, the number of endemic species is insignificant. Thus, in the north of the Krasnoyarsk region, out of the three species of land mammals registered in the Red Books, only one subspecies is endemic, the northern snow ram (*Ovis nivicola borealis*). As for birds, there is also only one endemic species, the red-cropped brand goose (*Rufiborenta ruvicollis*). Nearly all the species of rare animals and birds require vast areas for survival, but only a small portion of these areas are part of the specially protected areas. Consequently, reserves cannot play any notable part in their preservation. The endemic species mainly inhabit Putoransky (*Ovis nivicola borealis*) and Taimyrsky (*Rufiborenta ruvicollis*) Reserves.

Also in the Taimyrsky Reserve, the musk ox (*Ovibos moschatus*) was successfully reintroduced. It used to inhabit Northern Eurasia. In the Taimyr tundra an experiment was started to spread musk ox, which is a representative of “mammoth fauna.” It used to inhabit Taimyr 1 to 3 thousand years ago, and became extinct due to unknown reasons. The experiment was a success—there are more than 1,500 head now that originated from 30 animals that were introduced from Canada and the United States. The reintroduced species has settled over the eastern part of Taimyr, from the northern extremity of the peninsula to the border of the southern tundra. The small number of endemic species in the Siberian Arctic is part of a general regularity of biota diversity that decreases the farther it is to the north.

Once an area is legally declared a Nature Reserve, the actual state of affairs regarding nature protection depends on the observation of the reserve regime—absence or minimization of the human impact on the nature of a certain specially protected area. At present, a complete exclusion of such an influence is impossible due to global human-caused processes and phenomena. Thus, the air pollution caused by the Norilsk Industrial Complex spreads 150 km (93 miles) to the east. The so-called “volley” exhausts are usually let out into the atmosphere at night (fig. 1).

Figure 1—“Volley” exhausts from the Norilsk Industrial Complex.



Another violation of the protected regime is deliberate poaching, which is underlain by mercenary ends. Its probability largely depends on the legal status of the protected areas: the staff of a Nature Reserve is the land user of the area, but the staff of a Game Reserve is not. The main land user does not carry out activities causing damage to nature. Often Game Reserves used to be established by local chiefs, to ban hunting and fishing in the richest game grounds and fisheries for the public, but not for themselves and their confidants. This may serve as an example of the self-mercenary lawmaking, which is quite characteristic for Russia.

On the whole, the following data on forest protection can characterize the problem's intensity in the sphere of Russian nature protection. In 1997, the Committee on Forests of the Krasnoyarsk region published a jubilee booklet telling of the Forest Service's achievements. The booklet says, "By the date 01.01.97 there were 2,444 inspectors of the State Forest Protection Inspection in the forestry enterprises of the Committee..." In 1996, the State Forest Protection Inspection of the enterprises revealed 1,146 types of forest legislation violation. Thus, on average, each inspector registered one violation during 2 years! A Forest Ranger's wages make up \$25 to \$35 equivalent in Russian rubles a month in the different districts of the region. For comparison, an average State employee in Russia earns \$50 to \$100 equivalent in Russian rubles monthly.

Employees of the reserves, forest protection, hunting, and fishing inspections are State workers. The actual level of their wages is lower in the North compared to that in the Central and Southern districts of the region, and the prices on consumer goods are 3 to 4 times higher in the Northern areas. In the Southern and Central districts of the region, the population supplies itself from their own kitchen gardens and by breeding cattle and poultry. In the North, additional food can only be obtained from fishing and hunting activities and from involvement in the tourist business. Limiting the activities of the population contradicts the modern rules of nature use.

The use of heavy machinery by the local population to move over the tundra results in the destruction of the soil cover. Today these activities are practically unregulated. Also, a correspondent of the newspaper *Nash Krai (Our Region)* on March 4, 2001, reported regular visits to Taimyrsky Nature Reserve by poachers—representatives of the local authorities.

In recent years, one more type of poaching appeared—for paleontologic values. These are, mainly, mammoth tusks, which are extracted from the banks of rivers (fig. 2). It is easy to get the mammoth tusks, as the ground is washed out by the rivers. The tusks serve as a natural currency that is paid to pilots in exchange for transportation of the hunters to remote areas (one tusk pays for one delivery). Poaching of tusks takes place in any area, including the area of the reserves. Another type of fossil value attracts poachers—household utensils and decorations of the deceased found in the ancient tombs of the Northern peoples.

A new threat to the merlin falcon (*Falco gyrfalco*), which is small in numbers, is catching and smuggling its nestlings (fig. 3) abroad where they are used as hunting birds. A trained bird of this species is worth about \$500,000 in the United Arab Emirates.

The reason for poaching is not only the hard economic situation of the local population, but also the greed of enterprising fellows. This is especially true for the fishing of sturgeons, whose numbers are steadily decreasing in the Yenisey River watershed, according to the report of L. D. Mitsukova and others, who are the employees of the Scientific Research Institute on the Ecology of Fisheries. A very small part of the Yenisey flows through the Central Siberian Nature Reserve. The bulk of the profit from the fish (60 to 70 percent) goes to the middlemen, who buy up the catches.

A potential threat to the nature of this region is development of oil and gas fields. The Yenisey-Khatangsky Oil and Gas Field has already started to be used, as well as the Western Siberian and Lena-Tungusky Fields that are partly within the Krasnoyarsk region. They are considered to be the greatest prospect in Russia, and their development will eventually lead to the degradation of the forest tundra, spread of poaching, and disturbance of the cryogenic regime in the area.

Figure 2—Mammoth tusks extracted from the riverbanks.



Figure 3—Merlin falcon (*Falco gyrfalco*) nestlings.

Conclusion

Today the Yenisey Arctic can be called a zone of patchy and bandlike development. The largest tract of heavily disturbed tundra is situated around Norilsk in a radius of 150 km (93 miles). Unsustainable industrial fishing of sturgeon and salmon along the whole of the Yenisey River takes place. The area of soil cover disturbed by cross-country machinery is expanding in the tundra. Nonrenewable paleontological and archaeological resources are increasingly extracted. The growth of oil and gas field exploitation will lead to the intensification of negative impacts on the nature of the North. Prevention of this undesirable process is not feasible. Under modern conditions, exercising strict administrative control over nature protection violations is not feasible economically or technically. To change the way of thinking of the Russians coming to the North from other regions requires a lot of time. A way out of this situation is not an expansion of the protected areas, but ecological education of the population. It should be started from an early age and be carried out both in families and at schools. The issues should also be covered more regularly in the mass media.