

Sociological Analysis of the Commercial Hunting on the Lands of Small-Numbered Indigenous Peoples of the North in the Arctic Zone of the Sakha Republic (Yakutia)

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Abstract: The article presents the results of the analysis of commercial hunting of the most typical communities of small indigenous peoples of the North of Russia living in the Arctic zone of Yakutia, for which hunting largely determines the life quality. For the analysis, statistical data and internal hunting materials were used with the participation of the article authors. In preparing this article, we used statistical data and materials from the Yakutia Department of Hunting Management, as well as stock materials from the Institute. We used statistical methods to process the materials. For the first time, the materials of the intra-economic hunting arrangement conducted in the areas assigned to small peoples are analyzed. For the first time, the article provides data on the history of establishing hunting grounds in Yakutia as part of all-Russian activities. The article provides the results of foreign researchers' studies dedicated to the issue of framing and maintaining the traditional lifestyle of indigenous peoples of the North. Based on the analysis of the structure of commercial production, it is demonstrated that hunting trends are adapted to the extreme weather and climatic conditions of the Arctic and defined by the wildlife species that inhabit these regions. Backed by retrospective analyses, considerable changes in the structure of commercial production are illustrated. These are linked to the decrease in numbers of one of the populations of wild reindeer and the decreasing demand for natural fur, factors that have reduced the importance of traditional hunting in the lives of the region's ethnic groups. It is revealed that the forecast of large-scale development of mineral resources in the Arctic regions of Yakutia demands that preventive measures be taken to protect natural resources that are the foundation for the traditional crafts of the indigenous peoples of the North.

Keywords: The Arctic, indigenous peoples of the North, tribal communities, hunting grounds, traditional crafts.

INTRODUCTION

The object of the research, presented in the current article, is the hunting grounds that are secured on the communities of small-numbered indigenous peoples of Northern Russia to conduct traditional crafts in the Arctic zone of the Yakutia.

According to the decrees by the President of the Russian Federation (The Decree of the Russian President on introducing changes into the Decree under the date of May 2, 2014 "On the land territories of the Arctic zone of the Russian Federation" under the date of May 14, 2009), the land territories of the Arctic zone of the Russian Federation include thirteen Arctic uluses (districts) of Yakutia: Abyysky district, Allaikhovskiy district, Anabarsky national (Dolgano-Evenki) district, Bulunsky district, Verkhnekolymsky district, Verkhoyansky district, Zhiganskiy national Evenki district, Momskiy district, Nizhnekolymsky district, Olenyoksky national Evenki district, Srednekolymsky district, Ust-Yansky district, and Eveno-Bytantaysky national district. The total area of the Arctic districts of Yakutia is 1,608,800 km². These districts are located in three natural areas – tundra,

forest-tundra, and forest areas (subarea of northern larch sparse (sparse) forest) (Figure 1).

For small-numbered indigenous peoples of the North and other individuals, constantly living in the places of traditional habitat and economic activities of the Sakha Republic (Yakutia), hunting has been one of the main sources of employment and life support for many decades. The hunting craft of the Northern peoples is, on the one hand, economic, and on the other hand, historic and cultural social phenomenon, which is inseparably connected to the issues of rational usage of the nature resources and lifestyle. It defines the special features of hunting of these peoples as an element of the traditional economy of Russia's Arctic zone.

The year 2010 is supposed to be the beginning of the introduction of the state measures towards legal confirmation of hunting grounds for hunting providers in Russia. This is the year when the provisions of the federal law "On hunting and the preservation of hunting resources, and on introducing changes to certain legal acts of the Russian Federation" (2009) came into force, defining a competitive basis for the distribution of hunting grounds.

Before the introduction of the federal law, hunting grounds were divided between tribal communities of

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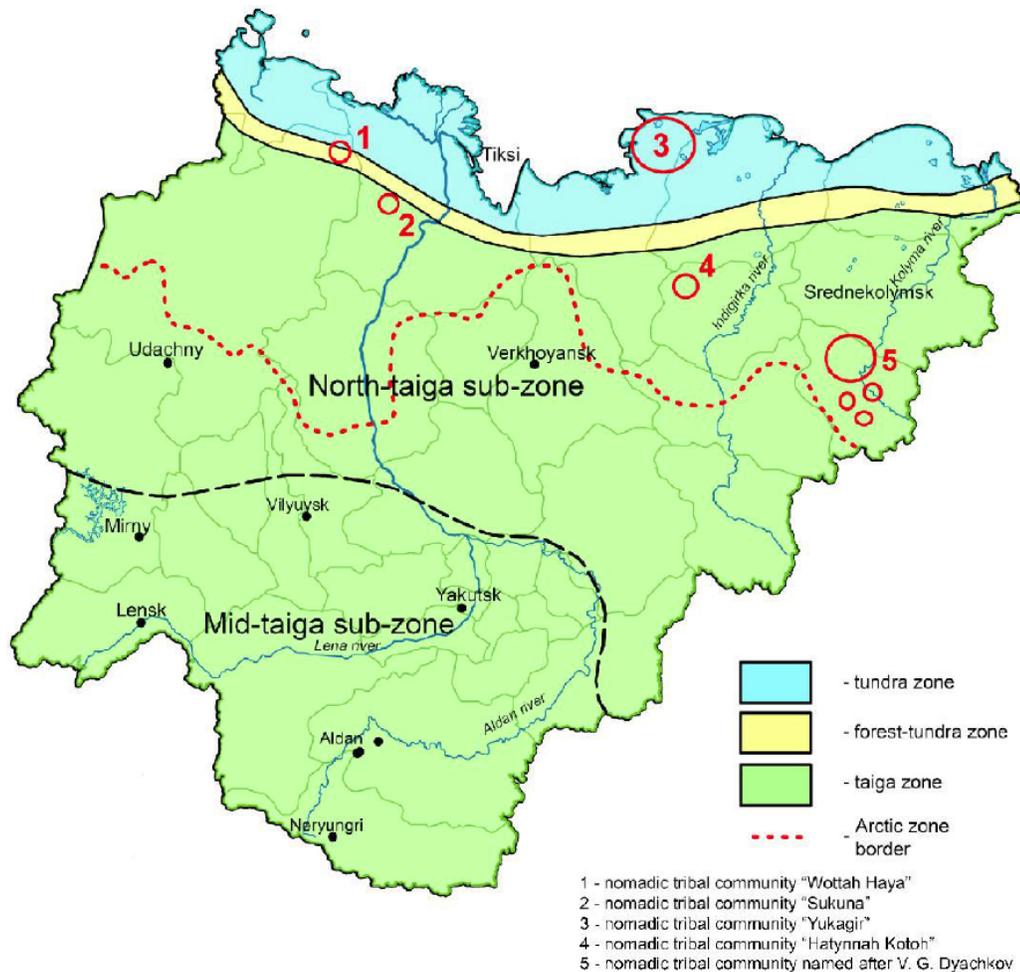


Figure 1: Hunting areas of small-numbered indigenous North peoples in the Arctic zone of Yakutia (based on the map of hunting grounds of the Hunting Department of the Republic of Sakha (Yakutia)).

the Yakutia's Northern peoples, based on traditional borders between tribal lands. In Yakutia, juridical confirmation of hunting grounds for tribal communities of the Northern peoples commenced in 2006. It was caused by concerns that the division of hunting grounds on a comparative basis could lead to them losing tribal hunting lands due to the absence of financial assets to participate in commercial auction proceedings. Between 2006 and September 2008, the Republic's Ministry of Agriculture had assigned 245 hunting lands to 172 economic entities. Their total area was 117,845,000 hectares, and the period (redundant, consider changing it to period or time) amounted to three years. From the list of all these lands, 29% were assigned to tribal communities of the Northern peoples.

By the time the regulations of the federal law "On hunting" No. 209 (2009) came into force, that is, by April 1, 2010, the work on legally securing hunting grounds for hunting providers had been completed in Yakutia.

During the activities, the hunting grounds of the Yakutia's major monopolist-hunting provider, the "Sakhabult" Consortium, were re-secured in favor of local hunters; the share of their hunting grounds increased by 168% concurrently. The share of hunting grounds granted to small business entities increased by 6.7 times: from 1.2% of hunting grounds to 8.1%. The core of the self-employed entrepreneurs who got the right to use the land was comprised of professional hunters. Rights to conduct traditional economic activities were granted to 201 hunting areas belonging to representatives of indigenous peoples of the North, including 88 hunters who got the legal right to use ancestral lands for the first time.

The differentiation of hunting crafts in the Arctic zone of Yakutia varies and is determined by the wildlife habitats. So, white fox hunting is characteristic only for six coastal regions of the Arctic tundra zone; sable, squirrel, and muskrat hunting is typical for 13 areas of forest-tundra and forest zones. Wild reindeer hunting

features in all regions of the Republic's Arctic zone because the deer make mass seasonal migrations from the North to the South and back again every year.

Hunting in the Yakutia's Arctic regions was previously based on the production of six species of fur-bearing animals, wild reindeer, and elk. The Arctic territories provided 100% of the fell of white arctic fox purchased in the Republic, about 70% of sable fells, more than 35.0% of the weasel and muskrat fells, and about 25.0% of squirrel fells. On average, more than 60.0% of the fur products purchased in the Republic were produced there.

At the same time, recent decades have seen paramount changes that have affected the output of commercial hunting of the indigenous peoples of the North. So, in the 1990-s, as a result of intensive unregulated hunting for the wild reindeer, the population of the Yano-Indigirsky population declined catastrophically. If in 1989 the number of deer in the interfluvial area of the rivers Yana and Indigirka was 130 thousand heads, nowadays it is equal to 2.5 thousand.

Currently, hunting for deer of this population is prohibited; experts are searching for the possibility of restoring it (State report, 2018).

Over the years, the white arctic fox and weasel kill has gradually decreased in all Arctic regions located in the tundra zone (Tables 1, 2). To illustrate the process duration, we provide the data with decades of intervals. The decrease in the intensity of hunting for white fox and weasel was influenced not by changes in the number of species, but by social and economic factors (Figure 2). From the 1990-s, with the fall in the demand for the wild fur, purchasing prices for arctic fox and weasel fells have begun to decrease: in 2017, the average purchasing price for one white fox fell was 637.5 rubles, and for the weasel, it was 74.7 rubles. Therefore, hunting for these species currently is not profitable for hunters, given the high costs of preparation and hunting itself.

Besides, taking into account cyclic fluctuations, the headcount of white foxes allows us to hunt up to 4 thousand fells per year. The number of the weasel is

Table 1: The Change in the Purchase Volume of White Fox Fells in the Tundra Zone of Yakutia (Federal State Statistics Service, 2020)

Districts	Bought by years, fells			
	1987	1997	2007	2017
Abyysky	85	43	50	8
Allaikhovsky	2637	669	362	0
Anabarsky	1385	229	112	0
Bulunsky	2420	164	360	13
Nizhnekolymsky	1257	343	11	0
Ust-Yansky	2474	640	629	0
Total	10258	2088	1524	21

Table 2: The Change in the Purchase Volume of Weasel Fells in the Tundra Zone of Yakutia (Federal State Statistics Service, 2020)

Districts	Bought by years, fells			
	1987	1997	2007	2017
Abyysky	3358	453	203	0
Allaikhovsky	204	0	16	0
Anabarsky	38	0	5	0
Bulunsky	396	0	12	0
Nizhnekolymsky	1447	2	0	0
Ust-Yansky	977	353	0	0
Total	6420	808	236	0

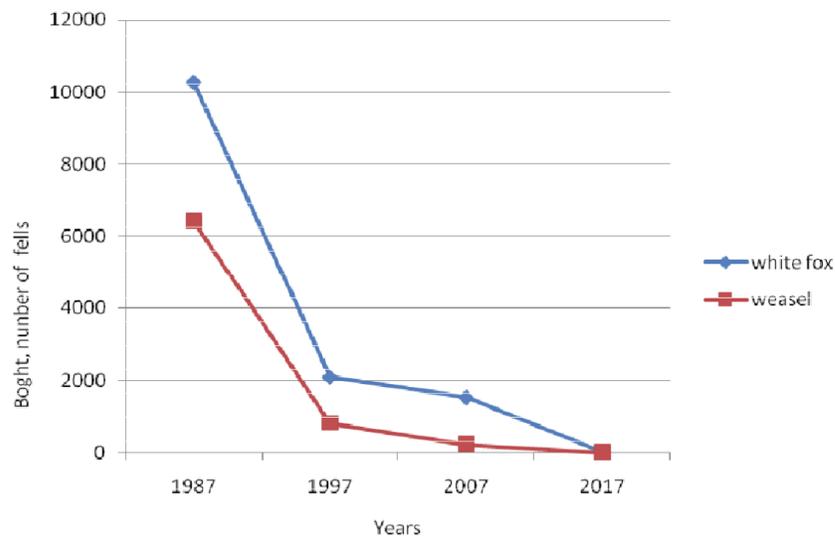


Figure 2: The dynamics of the purchases of white foxes and weasel fells in the tundra zone regions of Yakutia (Federal State Statistics Service, 2020).

also at a fairly high level in Yakutia (State report, 2018). Moreover, in recent decades, due to the demand for turndown, muskrat production has decreased as well, and white hare fells have almost ceased getting purchased.

The decrease in the volume of commercial production has somewhat reduced the importance of hunting for indigenous peoples' communities, so, since 1996, to restore the former status of hunting in the Arctic zone of Yakutia, measures have been taken to acclimatize Canadian musk buffalos (*Ovibos moschatus Zimmermann, 1780*), imported from the Taimyr Peninsula. By 2000 already, free-living populations of musk buffalos had been established on the Terpyai-Tumus cape, in the estuary of the river Lena, on Bolshoy Begichev island in the Khatanga Bay, and in the lower reaches of the Indigirka river near the village of Chokurdakh. Four viable populations have been formed: Bulun, Anabar, Begichevskaya, and Allaihovskiy. By now, the number of musk buffalos in the Republic has already exceeded 2 thousand heads. It is expected that in the coming years the musk buffalo may be included in the list of hunting resources of the Republic of Sakha (Yakutia).

Since hunting in the Arctic depends on natural conditions, it is very vulnerable to other external factors, with one of them being man-induced impact. In the nearest future, the impact of industrial enterprises on the Arctic ecosystems will be gradually increasing. Alongside with the ongoing development of placer deposits of diamonds in the Anabar river basin, it is planned to start mine development of hydrocarbons in

the Laptev sea shelf. There are plans for the exploration and development of the Tomtorsky deposit of rare-earth metals in the Oleneksky district. A Taimylyr fuel and energy complex is also planned to be developed based on coal and boghead deposits in the Bulunsky district, as well as a deposit of stream-tin in the Ust-Yansky district of Yakutia.

The implementation of such large-scale investment projects will undoubtedly affect the conditions of traditional crafts, both due to the rejection of parts of the hunting grounds and due to a hard-hitting factor of concern. One of the ways to financially support the traditional crafts of the North is to compensate for losses from industrial enterprises that will implement investment projects on the communities' lands. For these purposes, in 2013, the law "On ethnological expertise in the places of traditional residence and traditional economic activity of small-numbered indigenous peoples of the North of the Republic of Sakha (Yakutia)" (2010) was adopted in Yakutia, the occurrence being the first in the world. Owing to the implementation of this law's regulations, many communities in Yakutia have already received compensation from industrial mining enterprises and companies operating in their lands.

LITERATURE

In the course of the research on hunting in the Arctic zone of Yakutia, we have examined foreign experience. It allowed us to conduct a comparative analysis of approaches to granting the right to hunt and protect the interests of indigenous peoples. Despite the

limited number of publications, we managed to catch significant differences in the attitude of different countries to the life of Northern ethnic groups.

In contrast to the "imposition" of obligations on the development of the natural resources, conducted in some countries, in Russia, natural resources are passed to small-numbered peoples to implement the traditional lifestyle (Eichler and Baumeister, 2018). This is of great social importance, confirming the equality of all peoples living in Russia.

Besides, the communities of small-numbered indigenous peoples of Yakutia do not experience any shortage in the size of hunting areas assigned to them for traditional crafts, as it happens in cases of some South American countries (Constantino, Benchimol, and Antunes, 2018). Yakutia land areas are determined based on the needs of communities, as well as natural conditions. As one can see, the area of the lots under consideration is from 97.31 thousand hectares (nomadic tribal community "Sukuna") to 1,914.71 thousand hectares (nomadic tribal community "Yukagir"). The area of four lots of the nomadic tribal community named after V. G. Dyachkov is 1,745.5 thousand hectares, with the area of the largest lot being 1,127.5 hectares, and the area of the remaining three ones not exceeding 250.0 thousand hectares.

Indigenous peoples' hunting in Russia's North based on the national hunting traditions respect cannot lead to the wildlife number reduction. It is stated in the article "Environmental sustenance and indigenous hunting practices amongst the Wimbun people, North West Region" (Bongmba and Talla, 2020). The past significant decrease in the number of one of the populations of wild reindeer in Yakutia occurred as a result of the wrong policy of the Republic's authorities, and not one of the indigenous communities.

A much larger number of Russian and foreign publications are devoted to the issue of compensation for losses to the indigenous peoples of the North. It is also relevant to our previous and ongoing research, given the increasing impact of anthropogenic factors on the Arctic ecosystems. In this regard, the issue of protecting the economic interests of the indigenous peoples of the North is becoming more and more acute. It is also relevant for other regions of Russia, as well as for all countries where small-numbered peoples live (Petrov, Berman, Graybill, Cavin, Cooney, Kuklina, and Rasmussen, 2014; Southcott and Walker, 2015; Stammler and Ivanova, 2016; Tysiachniouk, Henry, Lamers, and van Tatenhove, 2017).

We are particularly working on this issue because in the course of the research it has been found out that the impact of industrial enterprises on the environment is not limited to the areas occupied by the enterprises themselves. Along the entire perimeter of enterprises or linear objects (such as roads or oil pipelines) form the so-called territories of anthropogenic impact, with their width depending on natural conditions and the type of industrial enterprise or object (Velichenko and Sleptsov, 2018).

METHODOLOGY AND DATA

While preparing this article we used statistical information, the data of the Department of hunting sector of the Ministry of environment, natural resources and forestry of the Republic of Sakha (Yakutia), archive materials of the Research Institute (capital) of applied ecology of the North at the North-Eastern Federal University (NEFU), literature sources, as well as the materials on the inter-farm establishment of indigenous peoples' of the North hunting lands. One copy of the materials of the inter-farm establishment is transferred to the Hunting Department. In the course of the organizational activities for hunting, the following criteria are defined for each hunting provider: general types of wildlife; their optimal number and the scale of production allowed; the capacity of the lots; one has to define optimal types to count the populations of animals, as well as biotechnical measures, accompanied by the measures to create a hunting infrastructure.

We applied the quantitative analysis method, and with its help, we confirmed the assumption that the outcomes of small-numbered peoples' hunting depend significantly on natural conditions. With no innovative gadgets, carrying out hunts with traditional means, the communities still depend on the year's weather conditions, on wild animals' migrations, as well as on the hunting luck.

For the fact-based analysis of the current state of hunting peoples of Northern Russia within the Yakutia's Arctic zone, we have examined the most typical regions which have inter-farm hunting establishment conducted (The schemes of usage and protection of the hunting grounds of the nomadic tribal communities "Sukuna" of the municipal district "Bulunsky ulus (district)", "Wottah Haya" of the municipal district "Anabarsky national (Dolgano-Evenki) district", "Yukagir" of the municipal district "Ust-Yansky ulus (district)", the nomadic tribal community named after V.

G. Dyachkov of the municipal district "Verkhnekolymsky ulus (district)", "Hatynnah Kotoh" of the municipal district "Abyysky ulus (district)" of the Sakha Republic (Yakutia)). It was carried out with the personal participation of the article's author (Velichenko, 2013). The following offers a list of hunting areas under consideration:

The lot (note the usage article) of the nomadic tribal community "Wattah Haya" of the Anabar national (Dogan-Evenki) district. The lot area is 119.71 thousand hectares.

A lot of the nomadic tribal community "Sukuna" of the Bulunsky district. The lot area is 97.31 thousand hectares.

A lot of the nomadic tribal community "Yukagir" of Ust-Yansky district. The lot area is 1 914.71 thousand hectares.

A lot of the nomadic tribal community "Khatynnah-Kotoh" of the Abyysky district.

The lot area is 104.98 thousand hectares.

The (four) lots of the nomadic tribal community named after V. G. Dyachkov of the Verkhnekolymsky district. The total lot area is 1745.5 thousand hectares.

As can be seen from the above data, the area of the lots varies, primarily depending on the geographical zone and the associated population of hunting animals, as well as the number of community members.

Apart from hunting and fishing, community members and their families are engaged in traditional activities of the indigenous peoples of the North all year round. It could be traditional national homes construction; individual breeding of reindeer and horses; products processing, including the dressing of fells or hardened horns of reindeer; breeding of dogs needed for reindeer herding, riding, or hunting; collecting and storing berries and mushrooms for their personal needs; production of boats and sleds, stuffed animals or birds, souvenirs made of reindeer fur; nets knitting, bone carving, wood carving and tailoring of national clothes.

FINDINGS

We have examined the unique characteristics of the Yakutia's North peoples' communities and the hunting areas assigned to them. They help to form a general

idea of the conditions for conducting one of the main types of traditional crafts – that is, hunting.

One of the characteristics is the composition of the commercial fauna and the animals' population density, which are determined by the natural and climatic conditions of the local area and define the specialization of hunting (Table 3). If the boundaries of the lots are located within the summer habitat of wild reindeer, this species naturally occupies the first place in the structure of commercial hunting products. This is the case in the nomadic tribal community "Wattah Haya" of the Anabar region, where the annual quota of the wild reindeer hunting is on the average more than 150 heads.

The same stays true for the sable, which lives in taiga biotopes – this species is the main object of earning for hunters of the nomadic tribal community named after V. G. Dyachkov in the Verkhnekolymsky district, where the population density of the species is very high and reaches 3.0 heads per 1,000 hectares (Table 3). Game birds are killed mainly for personal consumption, only a small-numbered subset of them is sold through local stores or sent to the city of Yakutsk.

Below is a brief description of the most typical indigenous communities of the North and the outcomes of commercial hunting (Table 4).

A lot of the nomadic tribal community "Wattah Haya": The place is located in the North-East of the Anabar district. The main hunting and commercial species of the district is the wild reindeer, and the arctic fox is one of the fur-producing species. Other species, including such as the white hare and the weasel that used to be widespread, do not bear much significance in the hunting area due to extremely low purchase prices.

In the lot, there are migration routes of wild reindeer. Most of the deer that inhabit the territory of Anabar district during the warm period of the year belongs to the Leno-Olenek population, and a small part – to the Popigaysky group of the Taimyr Peninsula. In the late 1980-s, according to the author, the main "corridor" of the autumn-winter migration moved from the right bank of the Olenek River to the left-bank basin of this river.

According to the Republican Ministry of ecology, up to 90–95 thousand wild reindeer can be found in the lands of Anabar district in recent years. The annual

Table 3: Population Density of Fur-Animals on the Hunting Grounds of the Indigenous Peoples' Communities of the North (from winter routing records (Department of Hunting of the Republic of Sakha (Yakutia), n.d.))

Wildlife	Indigenous peoples' communities				
	community "Wottah Haya"	community "Sukuna"	community "Yukagir"	Community "Hatynnah Kotoh"	community named after V. G. Dyachkov
Squirrel - <i>Sciurus vulgaris</i> L., 1776	-	-	-	5.5	2.2
Brown bear - <i>Ursus arctor</i> L., 1758	-	-	-	0.04	0.1
Wolf - <i>Canis lupus</i> L., 1758 *	0.1	0.1	0.16	0.03	0.01
Weasel - <i>Mustela erminea</i> L., 1776	1.6	1.6	0.6	1.4	1.3
Wild reindeer - <i>Rangifer tarandus</i> L., 1758	13.3	18.8	-	-	0.4
Elk - <i>Alces alces</i> L., 1758	-	-	-	0.3	1.7
White fox - <i>Alopex lagopus</i> L., 1758	4.8	1.8	0.54	-	-
Sable - <i>Martes zibellina</i> L., 1758	-	-	-	1.4	3.0
White partridge*	15.9	20.1	18.4	25.5	7.45
Capercaillie*	-	-	-	2.1	1.3
Goose*	-	-	-	-	5.2
Geese	n/a	n/a	18.62	n/a	n/a
Ducks	n/a	n/a	65.16	n/a	n/a

* - according to the data of the Hunting Department of the Sakha Republic (Yakutia) (n.d.).

production limit is about 15 thousand heads (State report, 2018).

A lot of the "Wattah Haya" community is located at the North-Eastern border of the district and is adjacent to the places where seasonal migrations of the wild reindeer take place. At the same time, migration flows of the wild deer have been constantly changing in recent years, which seriously affects the results of hunting (Table 4). So, according to the results of the 2018/2019 hunting season, only 31 deer were killed in the lands of the lot, with a permitted quota of 169 heads.

A lot of the nomadic tribal community "Sukuna": The lot is located at the Western border of the district, to the south of the summer stands of the wild reindeer of the Leno-Olenek population. Deer migration routes periodically pass through the territory of the lot.

The qualitative assessment of the land for a lot of the "Sukuna" community made it possible to determine potential scales of wildlife hunting, which are wholesale sold on an annual basis (Table 4). The obtained products are used for personal consumption by the community members, as well as are also sold in the district center, the town of Tiksi.

The territory of the Bulunsky district has a mine of alluvial diamonds developed, discovered in 1960 in the valley of the Molodo river. In the northern part of the district, there is the Bulunsky coal-bearing region with a total area of 9 thousand km² and 323 million tons of coal reserves; coal deposits are located outside the borders of the community.

A lot of the nomadic tribal community "Yukagir": Remoteness has a serious negative social and economic effect on the development of the village of Yukagir and its nomadic community. In the wintertime, it is more than 200 km across the tundra from the village of Yukagir to the nearest village of Kazachye, where the hospital and shops are located, so one can only get there by personal snowmobiles. In summer, it could be done only if the weather is good and by personal motorboats – first, by the Laptev sea and then by the Yana river. In the extreme climatic conditions, the results of hunting and fishing are a source of food supply for the population.

As of January 1, 2015, the village had a population of 118 people. The social composition and employment of the population are typical for rural settlements in the Far North. There are 75 adults and 43 children with no unemployed officially registered in the community.

Until 2005, the hunting economy of the Ust-Yansky district had been based on the wild reindeer hunting. As a result of ignorant exploitation of the resources of the Yano-Indigir population, the communities of the district have now lost their main hunting resource and the basis of income. Nowadays, the main sources of income of the community are commercial fishing (broad whitefish, vendace) with a total volume of 51–52 tons; hunting of white arctic fox with 100–130 fells; accompanied by the collection of paleontological fossils of mammoth fauna, which depends on random finds.

Based on the assessment of habitat places, the number of arctic foxes on the hunting grounds of the “Yukagir” community can change between 1,000–1,500 individuals, depending on the natural cycles of population fluctuations. At the same time, in recent years, hunters have only produced 100–130 fells of arctic foxes per season, that is, less than 20% of the potential production of 500–600 fells.

A lot of nomadic tribal community “Khatynnakh-Kotoh”: The lot is located in the North taiga subzone at the junction of the borders of the Yano-Indigirskaya and Sundrinskaya populations of wild reindeer. Most of the “Khatynnakh Kottokh” lot is occupied by larch thin forests that grow in elevated habitats. The forest is composed of *Larix Cajanderi* (crown density 0.3–0.4).

The number of Sundrinsky population in recent years is not less than 27.0 thousand heads, and the development of its reserves engages in hunting providers of the North-East of the district. The annual production quota is 2 thousand heads. For the “Khatynnakh-Kotoh” community, the main commercial species is sable, and its quota for production compounds up to 50 heads per year.

On the territory of the region, large coal reserves have been discovered. In the basin of the Indigirka river, in many places on the rivers, Selena and Yuandina gold can be found. In the East, rich reserves of poly metals, wolframite, and molybdenum have been identified. In the South, in the lands of Andrey Taas and Ilin-Taas, rock crystal can be met. Thus, it can be assumed that a gradual increase in the industrial development of exploitable minerals will necessarily affect the results of traditional crafts of indigenous peoples' communities.

Lot of the nomadic tribal community named after V. G. Dyachkov: The head of the community is Tatyana Vasilyevna Dyachkova-Sivtseva. The number of

members of the community in 2017 was 98 people (hunters and fishermen). The community also includes their family members, which is additionally over 50 people.

The main economic activities of the community named after V. G. Dyachkov are traditional crafts: hunting, fishing, breeding of domestic deer, horse breeding, wild plants collecting, collecting the remains of mammoth fauna, processing of fishing and hunting products, national clothing, and souvenirs production.

Hunting grounds of the community are divided into four hunting areas. The production quota for one hunting season in the assigned lands is the following: 12 elk, 10 wild reindeer, and more than 900 sables.

Hunters practice trapping sable on nooses, as well as hunting with dogs on elk and wild reindeer forest populations. The furs obtained by hunters are sold to Republican stockpiling organizations, and independently by the St. Petersburg international fur auction. Meat and fish products are used to provide the needs of the community members.

In recent years, the community has begun to provide sport hunting services to meet the growing needs of hunters, as well as to generate additional income, including hunting tourism.

Negative factors affecting the effectiveness of the community's crafts are climate warming and the activity of the Zyryansk coal mine, which occupies large areas, now disturbed by mining operations.

DISCUSSION

For the study's methodological purity, from the materials (schemes) of the inter-farm establishment of the considered areas, we have selected the main indicators characterizing the hunting industry: the hunting grounds' composition, the hunting animals' list, the hunting animals' population density, the allowable volume of prey (quotas), and the hunting results.

To assess the effectiveness of commercial hunting, Table 4 shows the results of the 2018/2019 hunting season. As the above data shows, the allocation of a quota does not guarantee its full implementation. This is well illustrated by the results of the hunting of the “Wattah Haya” community. The low results of the efficiency of the reindeer hunting are explained by an unexpected change in seasonal migration flows and the timing of the beginning of autumn migration since

Table 4: Results of the 2018/2019 Hunting Season in the Nomadic Tribal Communities' Hunting Areas (Federal State Statistics Service, 2020)

Rates		Indigenous peoples' communities				
		community "Wottah Haya"	community "Sukuna"	community "Yukagir"	Community "Hatynnah Kotoh"	community named after V. G. Dyachkov
	Wild reindeer					
Production quota, individuals		169	69	-	64	13
Obtained, individuals		31	69	-	64	13
Effectiveness of hunting, %		18	100	-	100*	100
	Elk					
Production quota, individuals		-	-	-	2	29
Obtained, individuals		-	-	-	2	26
Effectiveness of hunting, %		-	-	-	100	90.0
	Sable					
Production quota, individuals		-	-	-	50	901
Obtained, individuals		-	-	-	50	478
Effectiveness of hunting, %		-	-	-	100	53.0

* - 2017/2018 years season.

the lands are located on the paths of seasonal movements of the wild reindeer belonging to the Leno-Olenek population. Similar results could be seen in the community named after Dyachkov, where the quota of sable production is developed only by 53.0%.

These examples once again show the significant dependence of hunting results on natural conditions and luck, which is referred to in hunting literature as "hunting risk". In other words, adverse weather conditions that seriously affect the state and life of entire populations of wild animals can "bring to naught" all the efforts of local hunters. At the same time, in favorable seasons, the hunting efficiency of indigenous communities of the North of Yakutia is traditionally high, since they almost constantly live within the borders of their lots, know their lands well, and have a vast experience in hunting.

It is worth noting that art. 11 of the Rules on hunting on the territory of the Russian Federation (2011) provides significant benefits in terms of access to hunting for indigenous peoples of the North. Thus, hunting aimed at maintaining a traditional way of life and carrying out traditional economic activities can be produced freely (without permits) on the scale of wildlife production necessary to meet personal needs. The norms of this article are applied differently in each

region of Russia, but their essence remains the same – representatives of the indigenous peoples of the North who lead a semi-nomadic and nomadic lifestyle have serious advantages in access to hunting.

In Yakutia, the distribution of quotas for communities of small-numbered indigenous peoples of the North for the ungulates, brown bear, sable, and lynx is made on a general basis, that is, based on the results of winter route consideration and the production limit of the listed species allocated to the Republic. According to the Rules of hunting, representatives of communities have the right to hunt within the allocated quotas for the entire calendar year, since it is assumed that the extracted products are used for domestic consumption. Communities do not use these privileges, as a rule, because common sense, tradition, and biological laws that form the basis of mechanisms for regulating the timing of hunting engage in the matter.

Since the main goal of the hunting industry is the rational use of wild animal stocks to obtain the maximum amount of products, hunting is allowed from the time when a particular animal has the highest qualities for consumers. At the same time, hunting should not interfere with the natural process of reproduction, that is, it is closed during the breeding period.

This principle also applies to hunt the ungulates; in the early autumn, the majority of the ungulate species are the best-fed, the young have grown up enough and gained the appropriate weight, which guarantees the highest yield of meat of the hunted animals. Hunting for wild reindeer in tundra populations begins a little earlier, in August, which coincides with the beginning of seasonal migration.

Despite the granted privileges, representatives of the small-numbered indigenous peoples of the North of Yakutia hunt for commercial products during the permitted hunting season, which corresponds to local traditions and customs developed over centuries. In addition to obtaining high-quality products, hunting within the permitted and scientifically justified time limits guarantees compliance with Rules on hunting and the preservation of the wildlife population at an optimal level.

As we noted above, to compensate the communities for the faults of industrial enterprises in Yakutia, based on the provisions of the law "On ethnological expertise in the places of traditional residence and traditional economic activity of small-numbered indigenous peoples of the North of the Republic of Sakha (Yakutia)" (2010), the government of the Republic established a special Commission for ethnological examination. It focuses on assessing the impact of business on traditional crafts. Thanks to coordinated work, many communities in the South of the Republic have already received substantial compensation; in the Arctic zone of Yakutia, the works on assessing the impact of enterprises on traditional crafts are just beginning.

CONCLUSION

Extensively interpreted results of our research show that in Russia, and Yakutia in particular, serious attention is paid to the preservation of the traditional way of life of small indigenous peoples of the North, which is confirmed by providing them with the opportunity to engage in commercial hunting.

The experience of the government and hunting specialists of Yakutia helps build relationships between industrial enterprises and indigenous communities and can be considered as a promising direction of serious support for traditional crafts to protect the lifestyle of ethnic groups. For this purpose, industrial enterprises are required by law to compensate for damage caused to traditional crafts, including hunting.

Currently, the decline in the efficiency of hunting in some communities is linked to the forced cessation of hunting for wild reindeer of the Yano-Indigir population, as well as to the climate change and unfavorable economic conditions for arctic fox hunting and obtaining other low-value furs. It enables us to conclude that the traditional crafts of the North have a significant dependence on natural conditions and social and economic factors.

To preserve one of the main types of traditional fishing in the North, that is, hunting, scientists of Yakutia are developing a set of preventive measures that will preserve natural hunting resources and build a system for their effective implementation in the extreme conditions of the Arctic. It is for this purpose that work is continuing on the settlement of musk buffalos in the Yano-Indigirsky lowland of Yakutia, which will enrich the local hunting fauna with a promising commercial species.

Specialists need to join efforts to restore the Yano-Indigirsky population of wild reindeer, which requires comprehensive scientific research with the involvement of foreign innovative technologies.

The output of bird shooting is limited to personal consumption due to the remoteness of territories from markets. It is necessary to start detailed research and identification of the most valuable wetlands for taking measures for their protection within the framework of Russian and international ornithological projects. It will allow developing tourist and hunting infrastructure for organizing amateur hunting of feathered game, including such aims as to saturate the domestic market and possibly export delicatessen products.

The relatively small impact of techno genesis on hunting grounds located in the Arctic zone of the Republic of Sakha (Yakutia) may, in the future, advance into large-scale industrial development of Northern territories rich in mineral deposits. Therefore, one of the main conclusions that can be drawn is that the increasing man-made impact on the Arctic ecosystem requires strengthening measures to protect traditional crafts of the North. In this regard, it will be relevant to continue research on improving mechanisms for compensating losses resulting from the industrial development of the territories of indigenous peoples of the Northern Arctic zone of Russia.

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REFERENCES

- Bongmba, E., & Talla, T. (2020) Environmental sustenance and indigenous hunting practices amongst the Wimbun people, North West Region, Cameroon. In: Green, M. C., & Haron, M. (eds.). *Law, Religion and the Environment in Africa* (pp. 243-257). Stellenbosch: African Sun Media. <https://doi.org/10.18820/9781928480570/17>
- Constantino, P., Benchimol, M., & Antunes, A. (2018). Designing indigenous lands in Amazonia: Securing indigenous rights and wildlife conservation through hunting management. *Land Use Policy*, 77, 652-660. <https://doi.org/10.1016/j.landusepol.2018.06.016>
- Department of Hunting of the Republic of Sakha (Yakutia). (n.d.). <https://dephota.sakha.gov.ru/>
- Eichler, L., & Baumeister, D. (2018). Hunting for Justice. *Environment and Society*, 9, 75-90. <https://doi.org/10.3167/ares.2018.090106>
- Federal Law under the date of July 24, 2009, No. 209-FL “On hunting and on preservation of hunting resources, and on introducing changes to certain legal acts of the Russian Federation” (in ed. of federal laws).
- Federal State Statistics Service. (2020). <https://eng.gks.ru/>
- Law of Sakha Republic (Yakutia) under the date of April 14, 2010, n 820-з n 537 “On ethnological expertise in the places of traditional residence and traditional economic activity of small-numbered indigenous peoples of the North of the Republic of Sakha (Yakutia)”.
- Petrov, A., Berman, M., Graybill, J., Cavin, P., Cooney, M., Kuklina, V., & Rasmussen, O. R. (2014). Measuring impacts: A review of frameworks, methodologies and indicators for assessing socio-economic impacts of resource activity in the arctic. [http://yukonresearch.yukoncollege.yk.ca/resda/projects/gap-analysis/\(20\)](http://yukonresearch.yukoncollege.yk.ca/resda/projects/gap-analysis/(20))
- Southcott, C., & Walker, V. (2015). The changing nature of social economy organizations in Canada’s North: A portrait of non-profit, voluntary and cooperative organizations. In: Southcott, C. (ed.) *Northern Communities Working Together: The Social Economy of Canada’s North*. Toronto: University of Toronto Press.
- Stammler, F., & Ivanova, A. (2016). Resources, Rights and Communities: Extractive Mega-Projects and Local People in the Russian Arctic. *Europe Asia Studies*, 68(7), 1-25. <https://doi.org/10.1080/09668136.2016.1222605>
- The Decree of the Russian President on introducing changes into the Decree under the date of May 2, 2014 “On the land territories of the Arctic zone of the Russian Federation” under the date of May 14, 2009.
- The Ruling of the Ministry of Natural Resources of the Russian Federation under the date of November 16, 2010 No. 512 “On confirmation of the rules of hunting” (registered in the Ministry of Justice of the Russian Federation on February 4, 2011. Registration No. 19704).
- The scheme of usage and protection of the hunting grounds of the nomadic tribal community “Hatynnah Kotoh” of the municipal district “Abyysky ulus (district)” of the Sakha Republic (Yakutia).
- The scheme of usage and protection of the hunting grounds of the nomadic tribal community named after V. G. Dyachkov of the municipal district “Verkhnekolymsky ulus (district)” of the Sakha Republic (Yakutia).
- The scheme of usage and protection of the hunting grounds of the nomadic tribal community “Sukuna” of the municipal district “Bulunsky ulus (district)” of the Sakha Republic (Yakutia).
- The scheme of usage and protection of the hunting grounds of the nomadic tribal community “Wottah Haya” of the municipal district “Anabarsky national (Dolgano-Evenki) district” of the Sakha Republic (Yakutia).
- The scheme of usage and protection of the hunting grounds of the nomadic tribal community “Yukagir” of the municipal district “Ust-Yansky ulus (district)” of the Sakha Republic (Yakutia).
- Tysiachniouk, M., Henry, L. A., Lamers, M., & van Tatenhove, J. P. M. (2017). Oil extraction and benefit sharing in an illiberal context: The Nenets and Komi-Izhemtsi indigenous peoples in the Russian Arctic. *Society & Natural Resources*, 31, 556-579. <https://doi.org/10.1080/08941920.2017.1403666>
- Velichenko, V. V. (2013). Recommendations for Conducting Inter-Farm Hunting Management in the Territories of Nomadic Tribal Communities Focused on Hunting for Migrating Species of Hunting Resources of the Republic of Sakha (Yakutia). Yakutsk: Dephota RS (Ya).
- Velichenko, V., & Sleptsov, A. (2018). Protection of traditional crafts of indigenous peoples of the North: socio-economic aspects and methodology. *Amazonia Investiga*, 7(17), 165-177.

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