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WOLVES AS ENEMY OF THE SOVIET STATE: POLICIES AND IMPLICATIONS OF PREDATOR MANAGEMENT IN YAKUTIA*

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ABSTRACT
This article gives an overview of wolf extermination endeavours in Soviet Yakutia as part of state ideologies of human dominance over nature in the process of modernisation of the Russian North. The proclaimed wolf extermination was a large-scale operation planned and launched by state authorities in Yakutia involving bureaucratic, finance and human contingents, as well as the available infrastructure. Based on ethnographic research among game managers, wolf hunters and Eveny and Evenki hunting-herding communities, as well as archival materials on Soviet Yakutia, we demonstrate how state goals to eradicate wolves were sometimes unsystematic in practice due to the misuse of state resources as well as the difficulty in accomplishing this objective in remote and difficult to access taiga landscapes. Furthermore, while being involved in wolf eradication campaigns Indigenous communities also retained their vernacular notions of wolves as non-human persons with whom they were inclined to maintain neighbourly relations rather than pursue extermination.

KEYWORDS: wolf extermination • Soviet Yakutia • Eveny • Evenki • Indigenous hunters and reindeer herders

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INTRODUCTION

In the post-war USSR, a political program was developed for the extermination of wolves, declaring them to be pests, an ulcer on society and the enemy of the modernising Soviet nation (see also Bibikov 1985: 5; Pavlov 1990: 11; Bibikov and Shtil'mark 2011 [1993]). The term 'enemy of the Soviet nation' was commonly used in Russia, and especially during the times of Stalin (1930s and early 1940s) as a label for political opponents, counter revolutionaries and anybody else considered dangerous to the Bolshevik regime (see Naimark 2010: 1–14). This negative reference to wolves was widely circulated in Soviet newspapers, books and mass media, especially publications specialising in livestock farming and hunting management issues. Soon, wildlife managers proclaimed wolves to be "outlaws", that had to be harshly eradicated (see also Pavlov 1990: 5–6). In Yakutia, due to this politics, wolves could be exterminated by anybody, using any means including tools and methods that were prohibited in the hunting of wild game. Therefore, wolves could be killed in their dens, shot from any kind of vehicles including helicopters, poisoned, or killed using all kinds of trapping devices all year round in all areas without any permits or licenses. Furthermore, specially established professional wolf hunters, the so-called *volchatniki* (lit. 'wolf specialists') in Russian, became involved in wolf hunting on a regular basis. (See more in Jefanovas and Brandišauskas forthcoming.)

The idea of exterminating wolves was part of Soviet modernist ideology of human dominance over nature, in the context of industrialisation, infrastructure development and the modernisation of the Russian North. Intensive industrialisation throughout Russia, and especially in the North beginning in the 1930s, were conducted by the central industrial ministries. In addition to collectivisation, large-scale projects such as timber cutting, oil, minerals and gas extraction were developed, as well as the construction of industrial complexes and settlements along with the building of the railway to the Russian Far East (see also Vakhtin 1992). The policy of the Soviet Union was moulded by the ideal of "mastery of the North", a term that can be read as appropriation of the North, which was to be accomplished through a combination of futuristic technological progress and tight political control (Vitebsky 2005: 47). Propaganda campaigns, labour resource mobilisation and the development of infrastructure were the key components of the associated large-scale development projects (Schweitzer et al. 2017: 64–65). The Soviet state, which proclaimed the ideology of domination of man over nature, associated this idea with the creation of a "new Soviet people", portrayed as separated from nature, capable of regulating and bringing order to chaotic, passive, nature (see Bolotova 2014: 73–75). In this context, wolves, as part of the harsh northern environment and depicted as alien and hostile to the modernising Soviet people, fell under the gaze came of Soviet propaganda discourse and became objects of harsh state extermination policies.

The intense construction of state farms (*sovkhoz*) and collective farms (*kolkhoz*) all over Siberia resulted in the accumulation of high numbers of domesticated animals. The state proclaimed the goal of achieving ambitious economic results, declaratively set in accordance with five-year plans. State authorities also considered wolves the main competitors for wild ungulates hunters. Therefore, livestock predation and consumption of game by wolves became the main stimulus for Soviet agricultural and game management authorities to launch extensive wolf extermination campaigns across the

USSR (see also Bibikov 1985: 547). As with most industrial development projects, the Soviet state also developed a plan for the control of wolves by investing a huge amount of financial and human resources into its implementation.

This article aims to present an overview of Soviet state ideology, bureaucratic apparatus and human and financial resources that were employed in wolf extermination in the former Yakut Autonomous Soviet Socialist Republic (YASSR). We suggest that although the Soviet state bureaucracy proclaimed a harsh eradication of the wolf as a species, nevertheless in practice wolves were never fully exterminated in any part of Yakutia, although they were reduced in places of intensive farming and hunting. Additionally, the extermination of wolves in Yakutia was quite a complicated activity to implement due to the difficult terrain. In addition, many participants in the extermination campaigns did not hesitate to use state resources for their own needs, therefore the eradication of wolves was sometimes inconsistent in practice. Wolf extermination also did not find much support among the Indigenous people of Yakutia, who retained their vernacular perception of wolves as non-human persons with whom humans enter into reciprocal relations.

This research is based on the authors' ethnographic fieldwork among different Eveny and Evenki hunting and reindeer herding communities in the north and south of Yakutia. The long-term ethnographic research dedicated to human–wolf interaction was conducted by Aivaras Jefanovas in 2018 and 2019 among Indigenous Eveny people based in Eveno-Bytantayskiy and Tomponskiy districts in north Yakutia. Donatas Brandišauskas conducted the ethnographic fieldwork in 2019 and 2020 in different taiga and village settings in south Yakutia with various Evenki leaders, members of their families, elders, village youth, taiga hunters and reindeer herders. Both Eveny and Evenki people conduct traditional subsistence practices based on a combination of reindeer herding used for transport and hunting in mountainous taiga areas (see more in Lavrillier et al. 2018). Contemporary Eveny and Evenki communities are semi-nomadic, as most settled in remote villages as part of the early 1930s Soviet project of modernising the Russian North (for Eveny see also Ulturgasheva 2017). Apart from long-term involvement in indigenous communities, both authors also conducted interviews with wolf hunters and game managers in rural areas as well as the city of Yakutsk. Archival material on the management of wolves in socialist Yakutia were retrieved from the National Archives of the Republic of Sakha (Yakutia) by Aivaras Jefanovas.

THE POLITICO-ECONOMIC ASPECTS OF WOLF REGULATION

According to the famous zoologist Dmitriy Bibikov (1975), who investigated wolves of Russia, the damage caused by wolves to livestock farming became the main reason for the development of antagonistic social attitudes towards wolves. Since farms became one of the communist state's political-economic foundations, livestock predation by wolves also became a matter of priority in the economic development of rural areas. Several periods of increased livestock predation by wolves across Russia can be distinguished. Periods of high predation, which corresponded to increases in the wolf populations, were documented during the interwar years (1920–1925), as well in the years of WWII and the early post-war period (see also Bibikov 1985: 374–377; Boitani 2003: 327–328). Increased wolf population and predation were explained by the absence

of predator regulation measures and unorganised hunting activities, this due to most male hunters being recruited into the Soviet army during the war (see also Koroleva 2016: 111–113; Gaydin and Burmakina 2017: 39).

In the 1950s the wolf population reached its lowest level (see also Bibikov 1985: 374–377), coinciding with an intense period in the construction of socialism (for socialism construction see Humphrey 1983: 93–94), which was accompanied by strict control measures imposed on wolves. At that time, intensive predator extermination campaigns were also implemented in the YASSR (Sedalishchev and Odnokurtsev 2016). As a result, by the 1960s many predators had been exterminated and economic losses from wolves in Yakutia were reduced, especially in *sovkhoz* and *kolkhoz* areas. In the 1950–1957 period, losses of reindeer to wolves amounted to an average of 4,309 in Yakutia, whereas annual losses of reindeer to wolves in the following eight years (1958–1967) averaged 2,409 head, a nearly 50% reduction (ibid.).

From about the 1970s, a new rise in the wolf population resulted in a peak in predation rates caused by the introduction of changes in wolf regulation, which were based more on scientific research, rational management and an ecological approach[1] rather than entirely on the ideology of mass extermination, as had prevailed earlier (see also Bibikov 1985: 7–8; Pavlov 1990: 12–13). According to approximate data from a wolf census[2] (Tavrovskiy et al. 1971: 377), there were 500–700 wolves in Yakutia in 1963–1964. Yuriy Labutin and V. Vshivtsev (1985) report that the number of wolves in Yakutia increased to about 2,000 in 1978–1979. Based on the predation data provided by Bibikov (1985: 374–377), the economic damage from wolves in the YASSR in 1978 was millions of roubles. For instance, wolves predated 7,000 reindeer and 1,000 cattle in 1978, these worth 1.5 million roubles (ibid.). Thus, compared with the average annual loss of 2,409 reindeer to wolves in Yakutia in the 1960s, the predation rate had increased almost threefold (to 7,000) in 1978. Although almost everyone involved with livestock farming in Yakutia blames wolves for the destruction of reindeer, the wolf is also a metaphor for human predation (humans are known as "two-legged wolves") as the loss of reindeer through human behaviour – inattention or overconsumption – is often written off as losses to wolves in farm accounts (see also Vitebsky 2005: 271–273). Thus, wolf predation statistics should be considered an approximate evaluation.

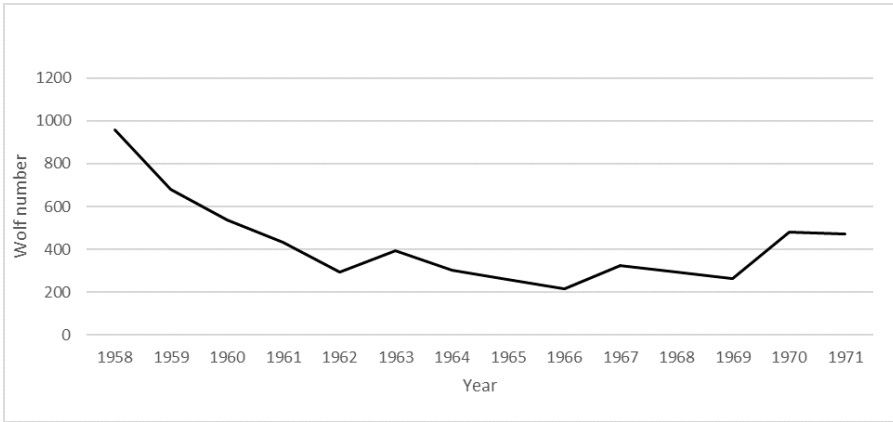


Figure 1. Statistics on wolf culls in Yakutia between 1958 and 1971. Sources: Sedalishchev and Odnokurtsev 2016: 257; F. R976, Op.4, D.34 (1972).

Regarding the dynamics of the number of wolves culled in Soviet Yakutia, Viktor Sedalishchev and Valeriy Odnokurtsev (2016: 257) report that an average 440 wolves were killed each year during the 1958–1967 period. Based on archival data (F. R976, Op.4, D.34 [1972]), an average of 376 wolves per year were culled in Soviet Yakutia from 1968 to 1971. Hence, overall, there were an average of about 400 wolves culled annually in the YASSR in the 13-year period from 1958 to 1971 (see Figure 1). Vasiliy Yadrikhinskiy (1998) shows that in the next 17-year period, from 1974 to 1991, an average 580 wolves were culled annually in Yakutia (see Figure 2). These statistics show relatively low numbers of culled wolves given that Yakutia is the largest Russian region in the Far East occupying a territory of 3,103,200 km^2 (comparable to India) and has a sparse human population of only one million (see also Vitebsky 2005: 38), leading to the potential for a large number of wolves. This number was mainly reduced in the areas of farms, pastures and hunting grounds, as economic losses from predation were most significant there. For example, between 1960 and 1970, wolves were almost completely exterminated in the Olenekskiy, Kobyayskiy and Allaikhovskiy districts as they had well-developed reindeer herding areas (Tavrovskiy et al. 1971: 377; for an analysis of area by development level of reindeer herding in Yakutia see Dayanova et al. 2017: 4–9). Thus, this extermination was more a case of keeping the population of wolves at a minimal level through constant control, while in the remotest mountainous and densely forested areas wolves were difficult to pursue.

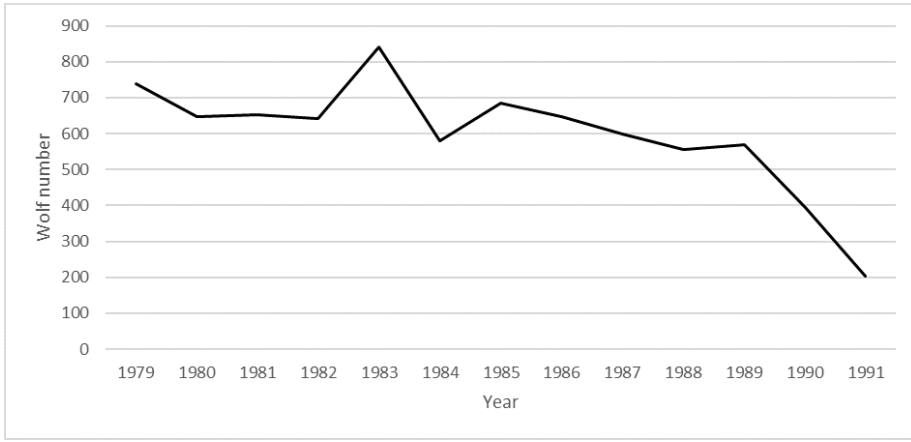


Figure 2. Statistics on wolf culls in Yakutia between 1974 to 1991 (Yadrikhinskiy 1998).

The main government responsible for allocating finance for wolf control, as well as the establishment of economic measures to stimulate wolf hunters in Soviet Yakutia, was the Council of Ministers. Another State body of great importance in wolf control was the Game Management Authority (GMA), established under the Council of Ministers of the YASSR. The main responsibility of the GMA was to carry out the wolf extermination plan, for example through the application of predator extermination measures, the implementation of economic incentives for wolf hunters, and the spread of anti-predator ideology. An important state institution based in Moscow, called the General Directorate of Game Management and Nature Reserves under the Council of Ministers of

the Russian Soviet Federative Socialist Republics, supervised extermination of wolves at the level of the USSR. According to a game manager, although the GMA had a certain degree of freedom and could exercise initiative in wolf-related issues, the body in Moscow was the main decision maker during the Soviet period. Thus, from this account we can understand that predator control was a USSR-wide issue and general decisions about the extermination of wolves were centralised and controlled by the authority in Moscow. Therefore, we can say that wolf damage to the agricultural economy, as well as hunting management, were of high importance. The concern of the Soviet authorities was to raise agricultural productivity and increase livestock on farms, as well as to harvest fur and meat from the hunting of game animals.

Meanwhile, at the local level (districts in Yakutia), wolf extermination measures were executed by wildlife inspectors, game managers, wolf hunters and employees of Soviet farms: salaried fur hunters, reindeer herders, horse and cattle breeders, all of whom were responsible for the extermination of predators in the *sovkhoz* and *kolkhoz* areas to one degree or another. Farmworkers were usually organised by the directorate of the farm or the local wildlife inspector or game manager into special wolf hunting brigades consisting of four or five men. Among their duties were trapping wolves, and poisoning and killing wolf cubs in dens.

To encourage the hunting of wolves and to increase the efficiency of predator extermination campaigns, the Soviet government established three types of socio-economic measure: economic awards (bounty, bonuses, prizes), socialist competitions and propaganda, and seminars with instructions on predator extermination. For instance, in Yakutia in 1968, a total of 49,134 roubles was spent on predator extermination campaigns, of which 16,134 roubles (33 %) was spent on awards and the organisation of socialist competitions for wolf hunters (R976, Op.3, D.82 [1968]). In comparison, 16,134 roubles would have been enough to reward roughly 90 farmworkers in Yakutia with bonuses equal to their average monthly wages.[3] The reward system[4] was part of the strategy of stimulating human productivity in the Soviet Union. The bounties for wolf killing were specified in the Legal Regulation on Hunting in the YASSR (see Semenova 1989). An adult female wolf was priced at 150 roubles, a female wolf taken with cubs at 200 roubles, an adult male wolf at 100 roubles and a wolf cub at 50 roubles. Hence, it was quite good encouragement for hunters and reindeer herders of Yakutia as the monthly salaries of the farm employees could be lower than or similar to the wolf bounties. Furthermore, through a YASSR Council of Ministers resolution in 1965 and a YASSR Supreme Council Presidium resolution, the directorates of farms were also obliged to establish monetary prizes or bonuses (for example, a foal or a reindeer) paid from farm funds to hunters for the extermination of wolves in the farm area (F. R976, Op.3, D.33 [1965]).

Apart from rewards, the GMA also organised socialist competitions to raise interest in wolf hunting. Competitions were conducted at the level of the Republic of Yakutia, as well as in certain districts. According to Yakutia government decree, residents on the districts had to be informed by local authorities about planned competitions and prizes. For instance, in an advertisement for a 1965 competition (F. R976, Op.3, D.33 [1965]), five prizes were announced amounting to 300 roubles as bonuses for hunters who had killed not less than five wolves, and 15 prizes of 150 roubles were awarded to hunters who had killed not less than three wolves. Additionally, for each exterminated wolf, the *sovkhoz* would pay a bonus of 50 roubles and give a reindeer or a foal, while the GMA

would give a moose license per killed wolf. Licences for moose were in quite short supply during the Soviet period. Officially, the state strictly controlled moose hunting and most of the meat went to satisfy state demands.

The Soviet state also used agitation to spread the ideology of exterminating wolves, pressing hunters to take active steps in eradicating wolves. The following is an example of agitation which, in 1965 (ibid.), the GMA directed to farm managers, as well as hunters and herders in Yakutia:

> All who are involved in wolf extermination have to contribute and participate fully in the anti-predator campaign. Those who show negligence and failure to fulfil their duties will be held personally liable. We must do our best because every wolf causes damage to livestock husbandry and to hunting management. One wolf consumes 1.5 tons of raw meat per year, and this costs the state 10–15 thousand roubles annually.

Apart from these actions, wolf extermination agitation was spread through central and regional newspapers, journals and special radio programs in Yakutia (ibid.). The perception of predators as enemies of the Soviet state was also introduced to the indigenous inhabitants via print and the spreading of posters and informative flyers with slogans such as "Let's rid our lands of the grey bandits". The GMA also organised various workshops and training sessions that instructed local hunters and herders in Yakutia on the extermination of wolves.

POISONING WOLVES

The Soviet agricultural and game management authorities made wide use of strychnine and barium fluoroacetate to poisoning predators, with both chemicals mass produced in Russian factories for agricultural pest control. Strychnine had been applied in wolf extermination in Siberia before the socialist period (see also Boreyko 2011: 21; Brandišauskas 2020: 83). There are records in the National Archives of Yakutia showing the application of strychnine during the 19th century (F. R55, Op.16, D.52 [1928]; F. R84, Op.1, D.45 [1920–1921]; F. I12, Op.1, D.10656 [1892–1896]). During the Soviet period, strychnine was commonly used in Yakutia until about the 1930s, then from around the 1960s barium fluoroacetate was used instead (F. R976, Op.4, D.34 [1972]; F. R976, Op.3, D.82 [1968]). The Soviet authorities expected that barium fluoroacetate would be more effective, less expensive and less harmful to the ecosystem. However, both chemicals are extremely hazardous. As a side effect, falcons, crows, rodents, sables, wolverines, foxes and other mammals including dogs died in large numbers after eating poisoned carrion (see Bibikov 1985: 571). According to Eveny reindeer herders, they were afraid even to touch the bones of poisoned wolves. They believed that the poisons were so effective that if a single wolf ate a piece of the bait, the deadly poison would spread to the rest of the pack through saliva contact and the whole pack would die. Indeed, the poisons were very effective in killing predators, for example a quantity of 2.9 kilograms of strychnine was issued per district in Yakutia in 1928, this sufficient to kill 7,000 wolves (F. R55, Op.16, D.52 [1928]; F. R84, Op.1, D.45 [1920–1921]; F. I12, Op.1, D.10656 [1892–1896]). Only 0.4 grams was enough to kill a wolf. Barium fluoroacetate

was also highly effective; it was enough for one farm to receive on average 100 grams of poison per year. In 1965, for instance, the GMA ordered 2.5 kilograms of barium fluoroacetate from the poison factory to distribute to farms across Yakutia (F. R976, Op.3, D.33 [1965]). After delivering poisons to the farms, it was then distributed among the hunters, reindeer herders and horse breeders. According to the instructions provided by the GMA, the poison had to be supplied to hunters and herders through the district's veterinary service, which was responsible for poison storage, putting the correct doses into starch capsules, issuing it and accounting for it (ibid.). However, there were many cases of negligence on the part of hunters, herders and veterinarians who grossly violated the instructions, thereby lowering the effectiveness of poisons. For example, there was a case when barium fluoroacetate was delivered to farm hunters without the starch capsules, thus there were no possibilities even to quantify the poison into the correct doses (ibid.). Barium fluoroacetate is effective when it is packed in starch capsules at a dosage of 0.3 grams and inserted into a piece of meat as bait. In such quantities, it takes effect gradually and the wolf dies anywhere up to 5–7 km from the place where the bait was eaten. However, hunters often used overdoses, perhaps using 0.5 grams or more (ibid.). When the wolf swallows such a quantity of poison it causes vomiting that frees the stomach of the poison and the wolf survives. Additionally, most people who were given the poison tended to abuse the instructions and pick up and destroy bait that remained untouched at the end of the hunting season (spring), which had negative consequences for the environment. Regardless, local hunters and herders would receive fresh poison each year, and thus the poison accumulated in the environment and did not decay for many years. The most hazardous side effect occurred in the spring when the poisoned bait melted and spread across the landscape in water. An Eveny hunter from Yakutia recalled that in the Soviet period some locals would throw big doses of poison into the wilderness without any great concern about the outcome. Their justification for this was that wolves and other predators would die by eating poison, and that this would be the fault of the predators themselves. Thus, human guilt at poisoning wolves was minimal. Rather, Eveny hunters and herders viewed poisoning wolves as less personal activity and having more delayed, also distanced effect. The Evenki of Zabaykalya considered poisoning the least interactional way of killing wolves, which would eliminate the 'cheekiest' predators, but not all wolves in the area. Thus, as Evenki elders said such poisoning was seen by hunters and herders as a less risky practice that would not cause wolves to take revenge. Wolves taking revenge by excessively attacking peoples' livestock was a widespread concern among Eveny and Evenki, especially when wolf siblings were hunted or cubs were killed in dens.

Although barium fluoroacetate was outlawed in Russia in 2015 because of the environmental damage it did (Boreyko 2011: 14; Brandišauskas 2020: 83), many local hunters and reindeer herders in Yakutia still consider it the best measure ever applied to the extermination of wolves. In the areas occupied by Indigenous nomadic people in Yakutia the prohibition on poison, together with the expansion of resource extraction industries and increasing taiga fires, accelerated the increase in wolves in the post-Soviet era. The Indigenous communities usually blame wolves not only for predating reindeer, but also for destroying the traditional lifeways on which Indigenous peoples entirely depend (see also Davydov 2014; Kharinsky 2014; Lavrillier and Gabyshev 2018; Brandišauskas forthcoming).

USE OF HELICOPTERS AND PLANES

The aerial shooting of wolves using small aircraft came into use in Russia in about 1950. However, in the 1970s, Soviet biologists working on wolf issues criticised this population control method as ineffective and a waste of resources. The criticism came in part because of the abuse of aviation by people selfishly using helicopters for their own purposes instead of wolf shooting. (Pavlov 1990: 175–176) On the other hand, wolf extermination using small aircraft was organised and supplied by governmental bodies responsible for predator control and, furthermore, economic stimulation encouraged game managers and hunters to actively participate in such missions in Yakutia. Most of our contacts in Yakutia considered the aerial shooting of wolves to be the most effective way of predator control. This triggered people's memories of the Soviet past, when helicopters were used in abundance to shoot wolves as well as for multiple other purposes such as trading vodka, poaching moose or wild reindeer, personal visits to relatives in remote villages, etc. Tons of fuel were allocated to the airports in the Arctic regions of Yakutia for the specific purpose of the aerial shooting of wolves (F. R976, Op.3, D.33 [1965]). According to a game manager, during the Soviet period fuel barrels were simply dropped from helicopters or planes onto the tundra with the idea that the struggle against wolves should be continuous and so small aircraft could refuel right on the tundra. Planes were effective in open areas (especially tundra) as they could cover huge territories and the wolves were unable to hide due to the terrain. In more mountainous taiga areas, where pilots had to make difficult manoeuvres to pursue the wolves, helicopters were generally used.

The aerial shooting of wolves in Yakutia was organised by the GMA, either by the Ministry of Agriculture or by *sovkhoz/kolkhoz* administrations (F. R976, Op.3, D.82 [1968]). Such activities were costly, but according to a game manager, shooting from a helicopter was effective because an entire pack of wolves could be destroyed in one flight. For instance, according to a report by the GMA in 1968, the use of aviation (including fuel costs) for the aerial shooting of wolves cost 33,000 roubles (ibid.). As a result, 75 wolves were killed between March and April of 1968 across Yakutia. Moreover, another 3,739 roubles were spent awarding members of the aerial wolf shooting missions for the killed wolves (ibid.). Consequently, the cost of aerial wolf extermination was 36,739 roubles. The extermination of wolves from the air was more costly than hunting on the ground (poisoning, trapping, shooting, killing wolf cubs in dens, pursuing wolves with ground transport). For example, in 1968 aerial shooting accounted for 74% of the total annual budget allocated for predator control in the YASSR (ibid.). However, the damage to livestock husbandry by wolves justified the cost of aerial shooting. Again, according to a report by the GMA (F. R976, Op.3, D.33 [1965]), the economic losses of livestock from predators in Yakutia in 1964 totalled 208,000 roubles, a figure that is almost six times higher than aerial shooting, as described above. Thus, our contacts were convinced that aerial wolf shooting in Yakutia during the Soviet period was the most effective means of population regulation. However, there were also cases when, due to bureaucratic obstacles (difficulties in servicing the aircraft, administrative problems, resource allocation), helicopters remained at airports and flights for predator extermination were cancelled (F. R976, Op.3, D.33 [1965]).

Although bureaucratic obstacles sometimes led to failures in wolf shooting, the flights in general were carefully coordinated between the crew of the helicopter and ground hunters, who led the helicopters towards the wolves. The crew of an MI-2 helicopter (which could carry up to ten passengers) usually consisted of a chief pilot, a second pilot, a mechanic, game managers, a zootechnician, an employee of the Ministry of Agriculture and a worker from the farm who knew the area well (F. R976, Op.4, D.44 [1973–1974]; F. R976, Op.3, D.82 [1968]). Each crew member had to perform specific tasks, for example the mechanic and pilots had to ensure the safety of the flight, while the local farmworker helped the pilots navigate the terrain, and several hunters had to open fire to kill as many wolves as possible. Furthermore, to maintain communication between the helicopter crew and other hunters on the ground, military radio was used. The helicopter crew was also in communication with other helicopters exercising wolf extermination tasks in neighbouring districts (ibid.). Thus, the pursuit of predators was well-coordinated, which also enabled the collection of information on the movements of wolves across the districts. During the missions, biological information on killed wolves was collected: the length of the head, body length, height, tail length, and weight. Additionally, biometric parameters such as the number of embryos, sex and age, as well as several examples of the skull were taken (ibid.). Zoologists and game managers used these parameters to analyse the wolf population with a view to improving extermination methods. And to make these methods even more effective, helicopter crews also gathered information from local hunters and herders about the locations of wolf dens. Then, in spring, wolf hunters on the ground were sent to these places to exterminate wolf cubs in the dens (F. R976, Op.3, D.82 [1968]). Local hunters and reindeer herders also had a duty to inform game managers through the radio station immediately after any cases of predation took place in an area. The pilots were ready to take off in helicopters as soon as information about wolf movement in the area was provided. Such manoeuvres were possible during the Soviet period because helicopters were based in almost all district centres ready to take off.

Experienced pilots were key figures in wolf shooting from helicopters, the success of such hunts in general depending on the pilot's skill. According to a wolf hunter, professional pilots participating in wolf pursuit were well aware of the behaviour of predators and could also distinguish wolf tracks from the pilot's seat. These pilots could accurately hover a helicopter close to the ground over a wolf trail to enable hunters to determine how recent the tracks were. If they were fresh, the pilot continued following them until they encountered the wolves, thereby enabling the hunters to shoot. According to a wolf hunter, wolves had to be driven out of the forest to an open area such as a frozen lake, river or meadow. Usually, upon spotting wolves, the pilot would swing the helicopter from side to side, but the wolves tended to escape deeper into thickets. The pilot would then go lower to create a loud noise, and, along with the disturbance from the rotor blades, scare the wolves out. An inexperienced pilot could fly over the wolves scattering them in all directions under the helicopter, allowing them to run back into the forest. In contrast, an experienced pilot would start by gently pushing the wolves from a distance until they were driven out into an open area. The wolves would then usually pass through this area in a line, thereby giving the hunters the opportunity to shot them one after another. In this way as many as 12–16 wolves could be shot at once, i.e. a whole pack (see Photo 1).



Photo 1. Wolf hunting crew at the airport with a culled wolf pack. Photo by Innokentiy Semenov, 1970s, Yakutia.

Helicopters were used daily for almost everything, thus the pilots had many flight hours. They exercised their professionalism during unusual situations, for example when landing hunters in their hunting grounds in thick taiga, or transporting reindeer and even horses from one district to another. These experienced pilots had special permission to fly as low as 50 meters and also in mountainous areas. Pilots could choose a landing place on the tundra or taiga at their discretion. Due to such flexibility, it was possible to take off immediately, fly to a destination, manoeuvre at low altitude and land on any surface chosen by the pilots themselves, making the pursuit of wolves possible from the air. However, despite the professionalism of the pilots, there were accidents, mainly due to negligence. According to a game manager, there were also cases of pilots crashing into mountains and onto the taiga while involved in the poaching of moose or wild reindeer. It was not unheard of for some aerial hunting crews to poach wild ungulates during the wolf flights. There were also cases when aerial wolf shooting became a sport or an amusement for farm chairmen, chiefs of state authorities or the marksmen. Game managers also reported a few well-known cases when, due to low visibility inexperienced or intoxicated marksmen accidentally blew up the fuel tanks on the bottom of the helicopter, causing it to crash. Participation in the aerial shooting of wolves was somewhat risky, but quite profitable and privileged as the helicopter crew were all generously rewarded stimulated by the state with bonuses.

THE CHALLENGES OF EXTERMINATION AND THE ADAPTIVE RESPONSES OF WOLVES

In the opinion of a game manager, helicopters could take one to nearly any location. However, in thick taiga areas, especially in central and southern districts of Yakutia, wolf hunters could not pursue every wolf they spotted. Predators could hide under the dense coniferous trees that usually stretched along the river valleys. In such cases, the helicopter usually circled around so that hunters could make a few attempts, but if the wolves remained under cover they would leave it for a while. The helicopter would then fly further to hunt for other wolves. After a suitable interval the helicopter would return and begin tracking the wolves, which would usually have left cover. According to a wolf hunter, the pursuit of wolves in thick taiga areas often resulted in enormous usage of fuel and time, with many manoeuvres and altitude changes. Sometimes wolf exterminators could only take a look at wolves from the cabin as the helicopter had to turn back due the low fuel. Thus, the wolves used the thick forest as shelter to get away from pursuers. Wolves particularly choose to hide in eroded riverbanks with many caves, ravines and fallen trees. According to a game manager, during one flight in which he took part the pursued wolves ran into ice tunnels that had formed along a dried mountain river course. These natural structures usually form during the cold period in Arctic Yakutia, especially when the water level drops in the river beds. Such empty spaces under the ice, sometimes extending for a few kilometres, helped the wolves to escape. Often one or two wolves from the pack hid undercover and hunters had to leave them alive, as it was impossible to flush them out and to pick up and transfer the dead wolves into the helicopter.

The negligence of the participants in wolf extermination seems also to have contributed to the wolves' survival. The supplies allocated by the state for aerial wolf extermination were sometimes unused due to institutional bureaucracy and helicopters did not take off. In other cases, resources allocated to helicopters were appropriated by those involved in wolf extermination. Many of them used the opportunity to utilise cost-free resources for their own purposes instead of wolf extermination. For example, a 1968 GMA report argued that by organising wolf shooting from a helicopter a *sovkhoz* consumed 12,700 litres of fuel, although only 8,200 litres were accounted for, thus 4,500 litres of fuel were probably illegally expropriated (F. R976, Op.3, D.82 [1968]). The GMA also stated that aerial wolf shooting should not take a so-called convivial or sport-like character (ibid.). Additionally, according to archival data, some farm chairmen neglected to reward hunters for killed wolves (F. R976, Op.4, D.44 [1973–1974]; F. R976, Op.3, D.82 [1968]), which could discourage hunters. A game manager recollected that, among professional wolf hunters during the Soviet period, there was the idea to deliberately allow a few wolves to survive in a certain area because the absence of wolves would mean no flights, no mission and no extra money. Furthermore, human negligence in applying poisons allowed predators to survive due to ineffective dosages of these chemicals. Consequently, while the wolves were adapting to human pursuit, people seemed to deliberately, or unintentionally, increase the possibilities for such adaptation. Hunters avoided some areas due to remoteness, while wolves due to their adaptivity naturally moved to such places with lower extermination pressure and thereby concentrated there. Such areas, free of wolf pursuit, could be called refuges where wolves

could hide, re-establish themselves, breed and raise cubs, and from where they could make repeated attacks on livestock. Hunters involved in wolf extermination as well as reindeer herders would noticed that wolves that were pursued by humans, associated man with the threat of death, and therefore naturally avoid encounters. Some Eveny wolf hunters believe that reduced extermination reduced the wolf's fear of humans. For example, the hunter M. Makhatyrov (2002) noted that at the beginning of the use of helicopters for wolf hunting in Soviet Yakutia, predators felt safe in some districts when keeping a distance of 7–15 km from domestic reindeer herds. However, after more and more helicopters were used to shoot wolves, predators changed behaviour and avoided coming closer than 50 km from the herds. It seems that the wolves realised the danger posed by the helicopters and kept away from the reindeer herds. According to a game manager, some experienced wolves quickly adapted to living near humans by connecting the sound of the helicopter with threat and withdrawing from patrolled areas to a refuge, then returning when the helicopter had departed. As a result of such adaptations, what the game managers called "synanthropic wolves" appeared that specialised in surviving near human settlements and pastures, attacking domestic livestock and dogs. So well adapted did some wolves become that they used to feed on carrion and waste thrown by villagers into dumpsites near the village. In their interviews game managers argued that synanthropic wolves managed to read and understand the signs of human activity, distinguishing between activities which can be a threat and others that can be ignored. This adaptability led to their successful survival during the Soviet period, with the rugged terrain, remote deep taiga and mountainous landscapes facilitating this adjustment. Furthermore, wolf biologists note that the intensive killing of wolves increases their rate of reproduction (as a natural adaptation) and more females then usual are born; thus this extermination works as a mortality compensation mechanism (see also Bibikov 1985: 404–408). Meanwhile, data collected in the 1950 and 1960s by biologists (Tavrovskiy et al. 1971: 375) in Yakutia on sex ratio among wolves are quite contradictory. Tavrovskiy et al. indicate a predominance of females among 51 wolf cubs taken from nine litters. However, among 2,279 culled wolves in Yakutia between 1958 and 1964 males predominated (54.6 %), while in 1964 more females were killed (ibid.). Wolf biologists in other regions of the world document how wolves easily reoccupy vacant territorial space, restoring pack units and numbers inside the packs, thereby compensating for population losses (see also Mech and Boitani 2003).

The social organisation within wolf packs by itself increases the ability to withstand the pursuit. For instance, if a maternal wolf female is killed, her eldest daughter or sister can take the mother's role in raising the cubs. Based on his observations, a skilful rural hunter from Yakutia told of how a wolf male took his cubs from a den and translocated them to his sister's neighbouring pack after the male's other family members were killed by hunters. A hunter also gave explanations of how wolves adapted their behaviour and taught acquired habits to their offspring. Referring to his observations, a hunter suggested that an adult pair of experienced wolves would walk with their offspring and teach them until the cubs are about eight months old. At the end of the autumn, the adult pair would separate from the youngsters and go their own ways. Before this time, the adult wolves would introduce the youngsters to their sisters and brothers, and sometimes to cousins. Doing so, the mature pair seeks to stimulate cooperation between relatives so that young wolves could learn and share survival skills with others. Such a

web of wolf relations could provide support during times of human pursuit. Another example of wolf adaptivity came from a wolf hunter's account of how hunters could not catch a large wolf pack. During the hunt wolves skilfully passed the red flags fixed to string which the hunters used to fence off a large territory and capture the wolves inside, a method frequently practised in Russia. By observing wolf tracks the hunters revealed that the whole pack was driven by a mature pair of experienced wolves, who had quickly comprehended the hunters' intentions. The young less experienced wolves followed behind and learned from these adult animals. A wolf hunter explained that the adult wolves had probably been caught in fenced area before, but had managed to escape, thus understanding what to do. Such knowledge on wolf behaviour was more intrinsic to Indigenous hunters, who hunted wolves along with their other activities such as reindeer herding or hunting game for Soviet farms. However, this knowledge had little effect on the planning of systematic wolf extermination by game managers, who viewed wolves from a biological perspective rather than as individuals living in socially diverse packs.

WOLVES AS SOCIAL PARTNERS

Before the Soviet period, Eveny and Evenki hunters and herders perceived their relations with predators as coexistence based mainly on reciprocity, respect, relatedness, trust, familiarity and even partnership (see on wolves in Brandišauskas forthcoming, see on bears in Shirokogorov 1929: 42–44; 1935: 79). Of course, the killing of wolves, especially those that significantly threatened the subsistence of people, has always been part of the daily relations between Indigenous people and wolves in Yakutia, although killing some wolves did not contradict the ethics of taiga conviviality between wolves and hunters.

The assumption of engagement between Siberian Indigenous hunters, herders and wolves in social relations derives from the perception of wolves as interactive, conscious non-human beings that can have intentions, communicate with humans and respond adaptively to human actions (see also Brandišauskas 2017; Oehler 2022). The coexistence of humans and wolves on the shared taiga landscapes was established through mutual awareness of intentions as well as maintaining spatial respect. For instance, Eveny and Evenki reindeer herders avoided areas densely occupied by wolves by drawing reindeer away to other pastures, rather than shooting, poisoning or trapping them (for Tofalars see also Petri 1927). Indigenous herders and hunters used non-lethal methods to warn predators not to approach domestic places and attack reindeer: shooting into the air, burning fires during the night, leaving traces and smells of human activity. Likewise, wolves also sometimes refrained from livestock attacks assuming that humans would respond by shooting them. Therefore, wolves were treated not as harmful pests, but as social neighbours. For instance, according to Evenki elders, wolves living near the reindeer herds treated reindeer as domestic (see more in Brandišauskas forthcoming). Some Evenki said that herders who were reluctant to take care of reindeer and didn't guard them, gave the chance for wolves to take care of the herd by killing some of the sick or slow animals (ibid.). In addition, some Evenki also believed that by killing sick reindeer, wolves improved the health of the herd. If herders took all reasonable

measures to take care of the herd, these wolves would not cause any substantial harm. Moreover, wolves were seen as, so to say, natural herders preventing the dispersal of large herds of reindeer, which, frightened by the presence of the wolves, stayed in a dense group. It was not rare that wolves established dens next to a reindeer herding area, although herders were sure that the wolves would rarely touch familiar reindeer (ibid.). Eveny and Evenki reindeer herders believe that local wolves defend territory by preventing unknown wolves from entering. Eveny reindeer herders from Tomponskiy district who own small herds of about 100 head, also consider that it is better to share a few reindeers with the "local", or "our", wolves than to kill the wolves and thus vacate the area for new wolves that are roaming in search of prey and a new territory. Talking about neighbouring wolves, the herders said that even a thief does not violate his own household, and such a notion underlines the principle of trust and familiarity between the human and wolf. Among Eveny and Evenki herders the idea that the struggle with predators should be "on equal terms" persists (for Evenki see also Brandišauskas 2017). Local wolves were thought to realise the same taiga ethics of balance and wouldn't take too many reindeer as there was a risk that people would then kill the predators in exchange. Eveny reindeer herders thought it would be dishonest to take away the wolf's prey, and that if they did so the predators could, in revenge, grab the hunter's prey next time, especially in times of scarcity when people might starve.

Reindeer herders and hunters experiencing daily encounters with wolves associated the agency of wolves with their ability to act vindictively against humans. This notion seems to have derived from the intelligence of the predators and their intentions to act cunningly and deliberately. Moreover, Eveny and Evenki hunters and herders perceived wolves to share many qualities with people, such as sociability, family bonds, stamina and hunting skills. Killing wolves was associated with a risky act that could be followed by the wolves' revenge. Usually, reindeer herders considered this revenge to be a purposeful attack on the livestock owned by the certain humans responsible for wolf killing. The Eveny and Evenki believed that wolves could trace a wolf-killing man and harm his property in revenge, for example excessively killing reindeer by attacking the prey and discarding the carcasses. Thus, the hunters and reindeer herders refrained from killing predators without urgent need, and even more so from killing wolves in excess. This way of thinking, common among the locals of Yakutia, was especially prevalent during the pre-Soviet period and was widely described by ethnographers working on Siberia (Cherkasov 1867; Malykh 1924; Shubin 2007: 256; Sleptsov 2015).

Indeed, based on archival materials from the 1929–1934 period (F. R50, Op.10, D.190 [1929–1934]), local inhabitants from some districts of Yakutia rarely hunted wolves, thus the YASSR government was supposed to take care of the extermination of predators, as well as taking measures to educate local hunters and herders about wolf extermination methods (for example poisoning, setting traps, killing wolf cubs in the den). According to a game manager, Eveny reindeer herders often refused to cooperate with wolf hunters sent by the YASSR authorities to exterminate wolves on the farm areas. Furthermore, some Evenki kept the migration routes of the wolves secret, as well as the locations of wolf dens, claiming that they did not want to "betray their wolves".

Although the Soviet ideology of wolf extermination was propagated and encouraged by the state through high financial and infrastructural investment, there were also persistent vernacular perceptions among Yakuts, Evenki and Eveny about wolves as

conscious non-human persons with whom people could establish neighbourly interaction on a daily basis. Similarly, Nikolay Alekseyev (2008: 211), who investigated the material and spiritual culture of Yakuts, stated that despite the local belief system of the Yakuts fading into the background under the dominance of the new Soviet atheistic ideology and culture, it was not completely absent (see also Anderson 2011: 87–92).

CONCLUSIONS

Our aim was to describe how the Soviet ideology of modernisation, collectivisation and "mastering the North" was reflected well in the policies of wolf extermination. According to Soviet ideology, wolves were seen as pests and enemies of the Soviet state, challenging the development and productivity of the Soviet rural economy of the North. In this context, the built northern infrastructure (airports, vehicles, communication networks, Soviet farms, the poison industry, game management institutions) as well as financial and human resources were allocated to accomplish wolf extermination. In socialist Yakutia, wolves were shot from helicopters, trapped and poisoned with strychnine and barium fluoroacetate. In addition, the Soviet authorities applied a system of awards and introduced socialist competitions that included various bonuses, prizes and bounties for killing wolves. Thereby, all kinds of hunters, herders, land managers and specially established institutions of professional wolf hunters were provided with various means and incentives for wolf extermination.

However, in practice, in most areas of the vast territories of the Yakutia, wolves were never eradicated. Wolf extermination campaigns in Soviet Yakutia were concentrated mainly in livestock breeding territories and hunting grounds, reducing wolf populations in those localities. Meanwhile, in remote taiga and mountainous areas, intensive wolf hunts were organised less frequently due to difficult terrain and resulting problems with helicopter access, which led to the proliferation of predators there. Furthermore, wolf exterminators quite often used resources and the available infrastructure for their own purposes instead of shooting wolves, therefore the pretence of wolf extermination activity was not uncommon. Thereby, misuse of resources, human negligence and even bureaucratic obstacles sometimes made the extermination of wolves in Yakutia unsystematic in practice. Furthermore, while hunting and poisoning wolves during the Soviet period, Eveny and Evenki also retained their vernacular patterns of interaction with these non-human beings and were bound by a history of coexistence in the shared landscapes of Yakutia. Thus, the ideological claims of the Soviet state about the modernisation of the Arctic environment, which foresaw the elimination of wolves in Yakutia, could hardly be fully achieved.

Finally, the wolf, as a highly intelligent, ecologically persistent, highly mobile and reproductive species, managed to adapt to the poisoning and aerial shooting, even in the areas where extermination was most actively organised and accomplished.

NOTES

1 For instance, Bibikov (1985: 7–8) proposed the rational control of wolves, suggesting that nature reserves be established to protect predator species. This attitude contributed to the creation of a law for the protection and use of wildlife fauna, which came into force in Russia in the 1980s and limited the extermination of large predators (mainly bears and wild feline species).

2 According to a game manager from the Ministry of Ecology, Nature Management and Forestry of the Republic of Sakha, wolf census in the Soviet period mainly consisted of a questionnaire for hunters, reindeer herders, horse breeders, hunting ground managers and hunting inspectors, based on observation of wolf footprints in the districts of Yakutia. The game manager also said that this wolf census method did not represent the real population size because most of the data was gathered near domestic areas. Most of the wolves counted lived near human settlements and farm areas. Meanwhile, wolves that occurred in the mountains and deep taiga usually remained unseen by respondents and were therefore uncounted. Thus, the estimate of the number of wolves in Soviet Yakutia should be regarded as approximate due to the limitations in the methodology of census.

3 For instance, in Sakkyryrskiy district in north Yakutia in 1951, the monthly salaries of *kolkhozniks* in the Victory *kolkhoz* was about 266 roubles (12.66 roubles per work day) and in the *kolkhoz* named after Stalin, about 136 roubles (6.45 roubles per work day) (see Boyakova 2012: 99).

4 Examples of rewards in Siberian farms to encourage high production results were given by Caroline Humphrey's (1983: 110–111) studies in socialist Buryatiya. Rewards included declarations of commendation, prizes, valuable presents, a diploma of honour, mention on the honour board or in the honour book, and the titles Merited *Kolkhoznik* and Honoured *Kolkhoznik*.

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