DOI: 10.15838/esc.2018.5.59.11
UDC 338.43, 502.31 LBC 60.59

Impact of Socio-Economic and Environmental Changes on the Use of Hunting Resources by the Autochthonous Population of the Arctic*

Vladimir V. ANUFRIEV
N. Laverov Federal Center for Integrated Arctic Research, RAS
Arkhangelsk, Russian Federation, 109, Northern Dvina Embankment, 163000
E-mail: vvanufriev@yandex.ru

Galina V. MIKHAILOVA
N. Laverov Federal Center for Integrated Arctic Research, RAS
Arkhangelsk, Russian Federation, 109, Northern Dvina Embankment, 163000
E-mail: g.mikhaylova23@yandex.ru

Ruslan A. DAVYDOV
N. Laverov Federal Center for Integrated Arctic Research, RAS
Arkhangelsk, Russian Federation, 109, Northern Dvina Embankment, 163000
E-mail: nordhistory@mail.ru

Stanislav B. KISELEV
St Petersburg University
Saint Petersburg, Russian Federation, 199034, 5, Mendeleevskaya Liniya
E-mail: stak0607@list.ru

* The paper is prepared in the framework of FANO subject no. *AAAA-A*17-117122990042-2 "Environmental and socio-cultural factors in biodiversity conservation and traditional nature management in the European North and in the Arctic".

For citation: Anufriev V.V., Mikhailova G.V., Davydov R.A., Kiselev S.B. Impact of socio-economic and environmental changes on the use of hunting resources by the autochthonous population of the Arctic. *Economic and Social Changes: Facts, Trends, Forecast*, 2018, vol. 11, no. 5, pp. 171-181. DOI: 10.15838/esc.2018.5.59.11

Abstract. The state and possibilities of use of hunting resources are of great cultural and socio-economic importance for the indigenous population of the North; they also affect the safety of people living in sparsely populated Arctic territories. The paper considers the historical experience of organization and legal regulation of hunting as a type of economic activity in the Arkhangelsk Governorate [*Arkhangelskaya guberniya*] in the 19th – early 20th century; it also provides the quantitative and cost characteristics of hunting resources. We present the results of sociological surveys of hunters from Nenets Autonomous Okrug and the Arkhangelsk Oblast conducted in 2015–2016, the data on the population status of game animals hunted by people in the Arctic territories. Hunting in the Arkhangelsk Governorate was most developed in Pinezhsky, Pechorsky, and Mezensky counties [*uezdy*]; there was almost no government intervention in this activity until the end of the 19th century. It was assumed that a small number of hunters (less than 3% of the population of the Governorate) can not cause irreparable damage to the population of game animals. Currently, amateur and sports hunting and hunting tourism are developing in the Arkhangelsk Oblast and in Nenets Autonomous Okrug. The number of registered hunters is about 4% of the total population of these territories. Hunting resources are used more often for own consumption. Geese and ducks for a quarter of respondents become the main food in their families for several days a year. To rural residents, hunting is determined by both basic needs (food production) and socio-cultural goals (continuation of family tradition, lifestyle). To urban residents, hunting is mainly their hobby. The development of hunting tourism, according to one third of respondents, does not benefit the local community. The number of hunters and their specialization are determined by organizational and legal conditions and by the opportunities for the sale of hunting products. The problem of underutilization of some types of hunting resources and the risk of depletion of others is aggravating.

Key words: Arctic territories, socio-economic conditions, natural and climatic changes, rational nature management, autochthonous population, hunting resources, tourism.

Introduction

The state and use of hunting resources is closely connected with the general problems of environment protection and social development. Maintaining the population of economically important mammals and birds and preserving endangered species is the goal and result of social development within a certain system of environmental prohibitions and imperatives. The degree of people's involvement in environmental management determines the differences in their perception of environmentally necessary and socially acceptable approaches to nature protection. In today's global community, the discussion about hunting remains active: "on the example of people's significantly different attitude towards hunting animals and birds, which some glorify and others furiously curse, we can see how heterogeneous are our views on environmental ethics" [1].

The processes of urbanization and shift of human activities towards the virtual sphere tend to estrange people from nature more and more. Destructive changes in the traditional hunter community pose threats including loss of knowledge and experience of nature management as an important component of culture and a mechanism for adaptation to the changing natural environment. Studies in Europe and the US mark a decreasing number of hunters capable of controlling the number of wild animals [2, 3]. In Russia, against the

gradually increasing population engaged in amateur hunting, a decrease in hunting activity is recorded due to registered hunters who rarely or never hunt during the year, the number of professional hunters is reduced [4, 5]. In modern society hunting becomes an active form of recreation, changing the social structure of the hunter community, the hunters' attitude to nature and interest in hunting [6, 7, 8, 9]. The importance of measures to preserve the traditions of hunting in rural areas where this activity remains part of people's lifestyle [3, 10], as well as to form the social mechanisms of inclusion of population groups in hunting in order to manage ecosystems is increasing [10, 11].

The modern structure of the hunter community distinguishes the following groups: (1) rural residents represented by traditional hunters whose interest in hunting is formed within a family; (2) residents in cities with rural origin, the so-called rural immigrants; (3) hunters whose hobby of hunting is formed and supported by the media and social networks; (4) hunters motivated by the desire to benefit through regulation of ecosystems; (5) followers of a certain lifestyle interested in consumption of natural products of hunting; (6) residents from the outskirts of cities with the motives typical for other groups [9]. The given classification reflects the differences between groups of hunters in their place of residence, in relation to hunting traditions, and in their dominant interests. The resource component of hunting in this case is not taken into account, although it can be assumed that the structure and volume of hunting resources for the selected groups of hunters may vary significantly.

Hunting is one of the types of traditional nature management of indigenous population living in the North of Russia significant in cultural and socio-economic terms [12]. According to the results of recent surveys of indigenous peoples of the North, the preservation of all traditional forms of management including hunting is of the greatest importance since they remain the basis of existence [13]. Production of hunting resources here is still based on the principles of subsistence farming where hunting for hunters themselves is a source of products used for domestic consumption [14]. In Arctic sparsely populated territories characterized by transport inaccessibility hunting plays a special role in ensuring the safety of human habitation. Measures to control the population of carnivores, wolves that affect the number of reindeer remain relevant. The termination of organized Arctic fox and fox hunting in the 1990s was one of the reasons for complicated epizootic situation with rabies in the Nenets Autonomous Okrug today [15].

The use of animal resources and hunting rules go beyond the local framework of regional problems and in recent decades are on the arena of international interests. In 2008, Russia ratified the Agreement on international standards for humane capture of wild animals and thus banned the use of leghold traps. As a result of twenty years of activity of the International Fund for Animal Welfare (IFAW) in Russia, in 2009 the fishing regulations for the Northern fisheries basin were made, prohibiting Greenlandic seal pups hunting. Currently, there are requirements for Russia's accession to the international intergovernmental structure for conservation of African-Eurasian migratory waterbirds (AEWA). Along with rare bird species, the Agreement protects birds whose number is large enough to hunt in different countries within their flight route [16]. The likely consequence of adopting this international agreement is the introduction of a ban on spring hunting in Russia.

Setting environment related objectives based on the priorities of the environmental policy of universal and global importance is designed to ensure consistency and predictability of environmental actions, comparability of results of decisions with global trends. However, there is currently no global governance regarding natural resource management and environmental protection. In fact, each international organization creates an autonomous management regime for both natural resources and international environmental problems [17]. Decisions on a particular environmental problem are usually made amid absence of sufficient scientific information and knowledge of the causal nature of phenomena and processes. The issues of compensatory measures for population groups dependent on natural resource management are not sufficiently studied.

In territories where features of traditional nature management are preserved, where legislative acts contradict with traditions and needs of local communities, mass violations of rules arise, that is, the created laws do not work [18]. The use of hunting resources based on uniform rules, regardless of the economic and socio-cultural situation, are resisted if they conflict with the established patterns of behavior and habits of communities. The institutionalization of socio-cultural characteristics of territories as a permanent element of environmental management, that is, the use of socio-cultural methodology [19], is the basic principle of environmental management through which the state's international law on the use of natural resources for developing and meeting the needs of its citizens should be implemented.

The purpose of this research is to identify the impact of socio-economic and environmental conditions on the possibility to meet the interests of the autochthonous population in use of hunting resources in the Arctic (for example, the Arctic zone of the European North of Russia).

Methods and materials

The study applies an interdisciplinary approach to understanding the nature of hun-ting as a type of economic activity and environmental management of the autochthonous population at present and in historical retrospect; what it does for the population of the Arctic territories, and how it develops in the changing socio-economic and environmental conditions. The implementation of the stated approach is provided through using the historical and genetic method in studying the historical experience of organization and legal regulation of hunting in Russia in general and in the European North in particular in the 19th-early 20th century; sociological methods to analyze the opinion of people engaged in hunting; and monitoring the state of hunting resources.

In order to characterize the hunting resources by the population of the Arkhangelsk Guberniya (province) in the 19th – early 20th century, documents from funds of the state archive of the Arkhangelsk Oblast published and the "all-submitted reports" of Arkhangelsk governors to the Emperor published in the 1870s–1910s, annexes thereto, reviews of the Arkhangelsk Guberniya, and reports of the Arkhangelsk Guberniya Statistics Committee were used. The information on the number of people engaged in hunting, number of animals and "bird pairs" is analyzed, as well as sales from fishing in rubles. It should be noted that during this historical period information from hunters was collected using the method of questioning by officials, then the information was processed by the Arkhangelsk Guberniya Statistics Committee and the Office of the Arkhangelsk Governor.

In order to analyze the current situation we use the method of secondary analysis of materials of expert interviews on the regulation of hunting and surveys on the socio-environmental aspects of extraction of resources of migratory birds. In particular, we use materials of 26 expert interviews conducted in 2015 among the representatives of the authorities and operating enterprises interested in the development of tourism, experienced hunters and local residents of the Nes village in the Nenets Autonomous okrug. Materials of surveys among the residents of rural settlements of the Nenets Autonomous okrug and the city of Mezen in the Arkhangelsk region in 2016 were also used. The survey involved 236 hunters, including 145 villagers and 91 citizens. The method of "snowball" was used for selecting the respondents, that is, the search for respondents engaged in hunting was carried out with the help of respondents themselves. The state of hunting resources was considered based on available data on the performance of the number and qualitative changes in the structure of animals and birds that are objects of human take in the Arctic territories.

Results

The Russian legislation regulating hunting as a type of economic activity did not limit it on the territory of the Arkhangelsk Guberniya until 1892. It was assumed that a small number of hunters dispersed over large areas of the province cannot cause irreparable damage to exploited bioresources. At that time, the Arkhangelsk province was the largest province in the European Russia, which included large areas of the present republics of Karelia and Komi, the Arkhangelsk and Murmansk oblasts, and the Nenets Autonomous Okrug.

Hunting was not an "exclusive" activity of any uyezd (county) or separate locality. It was most developed in the Pinega, Mezen, and Pechora uyezds. The gradually declining interest in hunting in the Guberniya was facilitated by the increased volume of logging from year to year, development of sawmilling and woodworking, reduction of forest areas in general and in the territories adjacent to the settlements. Timber works became more attractive for the population in comparison with other types of activity because of higher profitability. According to data for 1913, the value of animals taken by hunters in the province comprised 180.1 thousand rubles. The taken 94.9 thousand species included squirrels (59.9 thousand species), stoats (21.5), ice foxes (3,9), as well as foxes, martens, bears, and "other wild animals". Production of birds recorded in pairs amounted to 509.6 thousand pairs – hazel grouse (369.4 thousand pairs), partridge (60.9), black grouse (41.5), and "other forest and water birds" (37.8). According to statistical reports, revenues from bird hunting in the province in general was comparable to revenues from animal hunting and amounted to 187.7 thousand rubles. A significant share of all revenues from hunting in the province belonged to hunters in the Pechora uyezd (3.9 thousand people) and in the same 1913 amounted to 144.9 thousand rubles. Unlike other uyezds, most revenues were derived from animal hunting (114.4 thousand rubles), rather than from bird hunting. The average income from hunting per hunter of this uyezd comprised 37.5 rubles per year (compare: similar indicators of income from fisheries reached almost 60 rubles)[1].

The total number of hunters in the Arkhangelsk Guberniya in the late 1890–1910s varied, reaching maximum values in 1891 and 1913 (13.0 and 12.7 thousand people respectively), minimum – in 1893 and 1915

[1] Review of the Arkhangelsk Guberniya for 1913. Arkhangelsk, 238 p.

(6.2 and 6.6 thousand people). The share of hunters in the pre-war 1913 amounted to 2.7% of the total population of the guberniya. A sharp decrease in the number of hunters in 1893 and 1915 was caused not by environmental and biological, but also by socio-political factors[2].

The decrease in the number of hunters in 1915 relative to the previous 1914 was caused by mobilization measures in connection with Russia's entering the First World War. The reduced number of hunters in 1893 needs a more detailed explanation. At the beginning of 1892 in Russia, "Rules of hunting"[3] were "highly approved" and adopted. The document was short, extremely abstract, it almost did not take into account the specific features of the outskirts of the Russian Empire. The language was ambiguous. Article 18 of the "Rules of hunting" completely banned the use of traps (noose, drag net etc.) for hunting upland game. Its practical application in the Arkhangelsk Oblast caused sharp discontent of hunters and members of their families with the actions of the authorities. The developers of the "Rules" did not take into account that the use of simple and cheap traps in the Arkhangelsk Guberniya was much more common than hunting using firearms, which requires more money. Police officers who were now assigned to prosecute those responsible for hunting in traditional ways were unable to perform their duties due to the fact that the hunting areas were far from populated areas. The "Rules of hunting" also did not take into account the situation in the domestic market in Russia, where meat and bird feather were in stable and growing demand: "clean" game, i.e., pressured, not stained with blood, is valued more than fresh. There were no penalties provided for buyers of game; no legal and organizational procedures for confiscating, storing and selling game. As a result, statistics characterizing the take of upland game and the number of hunters in the Arkhangelsk Guberniya decreased in 1893 and the next few years. However, there is also evidence of massive violations of hunting rules; game buyers continued to deliver dozens of partridge carts, including illegally obtained ones, to the fairs[4]. Only in the 1900s the situation with hasty and ill-considered introduction of the "Rules" in 1892 was stabilized through a series of events conducted by the authorities – stimulation to buy cheaper firearms and ammunition and their persistent spread among hunters[5].

Hunting in the territory of the Russian Federation is currently regulated by Federal law "On hunting and conservation of hunting resources" (2009) and the Hunting rules approved by Order of the Ministry of Natural Resources and Environment of the Russian Federation (2010). These legal acts are peculiar in a way that they are related to the laws of the Russian Federation, which guarantee the rights of indigenous peoples of the North, Siberia and the Far East, as well as the population living in places of traditional economic activity of these peoples. Thus, in order to ensure the traditional way of life and implementation of traditional economic activities of the indigenous peoples of the North, in addition to the common list of wildlife objects classified as hunting resources, loons, gannets, gulls, terns, and auks are also included in this list. According to the rules of hunting (2010), in hunting grounds located

[2] Review of the Arkhangelsk Guberniya for 1915. Arkhangelsk, pp. 6–7; Annex to the all-submitted report of the Governor of Arkhangelsk on the state of the Arkhangelsk Guberniya for 1893. Arkhangelsk, 1894. Pp. 26–28.

[3] Full collection of laws of the Russian Empire. Collection 3. Vol.12, no. 8215–9216 and annexes. Saint Petersburg, 1895. Pp. 81–82. No. 8301.

[4] State archives of the Arkhangelsk Oblast. Fund 4 – Arkhangelsk guberniya Government. Series 10. Vol. 1. Files 479, 425; Vol. 2. File 689.

[5] Review of the Arkhangelsk Guberniya 1902. P. 34.

on the isles of Kolguev, Vaigach in the Arctic Ocean and its seas, hunting geese in spring is prohibited. This rule, according to Federal law on hunting and conservation of hunting resources, does not apply to indigenous peoples of the North, Siberia, and the Far East, as well as to population not belonging to them but living in places of their traditional economic activity.

The modern period of using hunting resources in the Arctic zone of the European North of Russia is characterized by cessation of hunting fur animal species. Loss of interest in hunting these species was the result of the post-Soviet socio-economic reforms in Russia at the end of the 20th century, elimination of the system of public procurement of fur skins, and depreciation of fur products. The termination of hunter societies significantly reduced the number of hunters specializing in hunting large predators. The problem of regulating the increased number of brown bears and wolves, which negatively influences the elk population is aggravated. Thus, in the Arkhangelsk Oblast, according to the winter route statistics, the elk population decreased from 53 thousand species in 2016 to 39 thousand in 2018, and the number of wolves during the same period, on the contrary, increased from 1.1 thousand to 1.3 thousand species. At the same time, there is a growing demand for economically important mammals and birds that make up the meat diet of the autochthons.

The species and quantitative composition of hunted birds and mammals is closely related to the natural population dynamics of these species. This can be most clearly seen in isolated Arctic island territories, such as the Isle of Kolguev. The abundance of anseriformes on the island in the period from the end of the 19th century up to the present has significantly fluctuated. The most numerous species of Kolguev geese and the main objects of island's residents' take in the late 19th– early 20th century were brant geese and bean geese. Currently, brant geese can only be found off the coast of the island when they fly by; the number of bean geese significantly reduced. The population of white-fronted geese in the past was the third highest among geese, three times less than that of bean geese. Now white-fronted geese are the most numerous species not only among geese, but also among waterfowl on the island. Cases of hunting barnacle geese on the Isle of Kolguev in the 1980s were isolated; they were rare and were listed in the Red Book of Endangered Species of the USSR (1984). However, in the first decade of the 19th century, the share of white barnacle geese in the total number of anseriformes hunted on the island during the hunting season (about 9.5 thousand species) was more than 30% [20]. The exponential growth and the increased range of barnacle geese helped ornithologists talk about the invasion of this species in the Western sector of the Russian Arctic.

On the territory of the Arkhangelsk region and the Nenets Autonomous Okrug amateur and sports hunting takes place, hunting tourism is developed. According to data provided by the Media center of the Government of the Arkhangelsk Oblast, the total number of registered hunters of these two territories in 2014 amounted to about 48 thousand people[6] or 3.9% of the total number of residents there.

Hunting is one of the most popular ways of nature management. According to the survey participants, almost all adult male population is engaged in hunting in rural settlements,

[6] Media center of the Government of the Arkhangelsk Oblast. Ministry of natural Resources and Forestry of the Arkhangelsk Oblast. August 22, 2014. Available at: http://dvinanews.ru/-71t4tdh4 (accessed: 09.07.2018).

women are also among hunters. The population of the Arctic territories traditionally starts hunting from early age. Most of the surveyed hunters in Mezen got their first hunting experience at the age of 15.

The number of respondents' days spent hunting varies from one to sixty or more days a year. At the same time, 1–10 days are usually spent hunting by almost a quarter of respondents; 11–30 days – more than half of the total sample; 31–60 days – less than a quarter of respondents; more than 60 days a year – one-twentieth of the respondents. In spring they mostly hunt geese during their migration to breeding grounds. Among waterfowl the main objects of hunting, according to the results of a survey of hunters in Mezen (sample – 91 people) were: barnacle goose (705 birds taken by the surveyed hunters per year), white-fronted goose (700), bean goose (471), mallard (338), European teal (208), brant goose (117), and pintail (108). The greatest share of birds taken during the year is comprised by partridge (1294).

Hunting resources are taken by the autochthonous population most often for their own consumption. Thus, in Mezen, a significant part of respondents (3/4) gave a negative answer to the question "Have you ever had to buy, sell, barter birds taken?". Almost a quarter of respondents agreed with the statement that the geese and ducks they hunt become the main food in their families for several days a year. The products of hunting prevail in the diet of rural residents. According to the subjective assessment of the inhabitants of the village of Nes, 40–70% of the consumed meat products are goose and partridge meat, the rest – venison.

Interest in hunting, however, is not limited to the need of the indigenous population to obtain resources. This is confirmed by the answers to the open question "Why do you consider yourself a hunter?" which deals with the problem of respondents' socio-cultural self-identification. For some respondents (about 20% out of 236 respondents), their identification as a hunter is determined by the fact of hunting for resources, the social role of a breadwinner: "because I'm a breadwinner", "I get food for the family". The answers mark the necessity to hunting for life support: "it is necessary to hunt as we live by hunting", "for me it is a source of livelihood, living". Among the respondents there is a common idea that they consider themselves hunters due to a family tradition: "all ancestors were hunters, and I have been doing this since childhood", "this goes our tradition, my father is a hunter". Hunting acts as a basis for self-identification with the inhabitants of the North, with a particular way of life: "in the North, any worthy man considers himself a hunter, a breadwinner", "...in the North, without hunting I do not consider myself a northerner", "...this is part of the way of life". Respondents consider themselves hunters because hunting is their favorite pastime", "the dictates of the soul", their passion; it is a hobby that brings "a sense of satisfaction, pride", "rest to the soul". The feeling of love and belonging to nature also underlies the attitude to oneself as a hunter: "I love nature", "I like: nature, rest", "I love nature; the main thing is not hunting, but being with nature, relaxing"; "... I consider myself involved in nature: food, communication with nature".

The self-identification of hunters living in the city and in rural settlements differs. Urban residents prioritize hunting as a favorite hobby. Rural citizens consider themselves hunters as they are engaged in hunting and maintain traditions and lifestyle; hunting is rarely mentioned as a hobby. As a rule, the answers

reveal several grounds for respondent's self-determination as a hunter.

The majority of proposals and comments on the questionnaire, which respondents could express in free form, reflect the interests of the population to create more favorable organizational and legal conditions for hunting and taking resources. Almost half of the respondents suggested that the spring hunting period should be brought in line with migration periods of geese. Some hunters spoke about the need to strengthen state and public control over observance of rules of hunting, including the activity of tourist hunters "...who vandalize the nature".

The dependence of hunting efficiency on natural and climatic conditions is currently of particular relevance. Changing snow/ice regime makes traditional hunting areas inaccessible. The participants of expert interviews name early snowmelt one of the main reasons why periods of transit are reduced and flight routes of geese are shifted in spring. More frequent climatic deviations increase the probability of discrepancy between the periods of goose transit and the period when hunting in spring is allowed. In this case, pre-set hunting dates become an obstacle for hunting migratory birds.

The socio-economic transformation of the Arctic territories, the development of tourism potential and hunting tourism creates prerequisites for competitive relations in the hunter community. There are conflict situations due to the limited number of available places for successful spring hunting, when traditional hunting areas of the autochthonous population are used for commercial purposes to create tourist recreational centers there. The projected development of the transport infrastructure and the road network of the Arctic territories will increase the availability of hunting resources for tourist hunters. According to the opinion of the participants of expert interviews, this may have a negative impact on the state of hunting resources and the possibility of hunting for the autochthonous population. According to more than one third of respondents, the development of hunting tourism is not beneficial to the local population; they comment that "the creation of tourist zones limits population's access to hunting areas", tourists "interfere", "use hunting resource of the local population".

Discussion and conclusion

Thus, the population of the Arctic zone of the European North of Russia associates hunting with the interests of different levels – from meeting basic needs (food production) to socio-cultural goals (continue tradition, lifestyle). The importance of hunting as a business has been lost; the resources are procured by the population for their own consumption. Hunting itself becomes a commodity in the market of tourist services.

The results show how hunters' specialty and the structure of the hunting community change. On the one hand, these changes are explained by natural factors, where processes of natural population dynamics of hunting species have a significant impact: for example, with an increase in the population of barnacle geese the number of birds of this species increased and exceeded the rest traditionally hunted ones. On the other hand, organizational and legal conditions and opportunities for selling hunting products are important. Thus, the elimination of the system of public procurement of furs, as well as changes in market conditions of fur materials led to the fact that fur animal species ceased to be hunted in the European North. As a result, hunters have to adapt to a complex combination of natural and socio-economic conditions. Such adaptation is achieved through hunting other permitted and available animal species. As a result, the

problem of underutilization of some types of resources and risks of depletion of others is exacerbated, which generally affects the state of the biosystems of the Arctic.

The revival and development of commercial hunting amid economic globalization and strengthened environmental requirements is an pressing challenge for the regions with hunting resources. The historical experience of organizing and regulating hunting in the European North demonstrates the influence of the state on the performance of extraction of bioresources in different institutional conditions. Currently, there are possibilities for rental relations in the hunting sector and the development of hunting tourism. At the same time, there is still the need for guaranteed sales of hunting products, which is necessary to ensure the profitability of hunting as a traditional type of economic activity and environmental management of the autochthonous population of the Arctic.

References

1. Shtil'mark F.R. Absolute defense as the highest form of environmental ethics. *Gumanitarnyi ekologicheskii zhurnal=Environmental Journal for Humanities*, special edition, 2001, vol. 3, pp. 127-128. (In Russian).
2. Decker D.J., Stedman R.C., Larson L.R., Siemer W.F. Hunting for wildlife management in America: Shifting perspectives and future outlook. *The Wildlife Professional*, 2015, no. 9 (1), pp 26-29. Available at: https://lrl.people.clemson.edu/WebFiles/Decker.etal.2015_TWP-HuntinginAmerica.pdf (accessed: 30.05.2018)
3. Milbourne P. Hunting ruralities: Nature, society and culture in 'hunt countries' of England and Wales. *Journal of Rural Studies*, 2003, vol. 19, no. 2, pp. 157-171. Available at: https://doi.org/10.1016/S0743-0167(02)00054-2 (accessed: 30.05.2018)
4. Andreev M.N. Hunters population in the European Russian and the Urals. *Agrarnaya nauka Evro-Severo-Vostoka=An Agrarian Science of Euro-North-East*, 2005, no. 6, pp. 124-128.
5. Vinober A.V. Hunting sector: is there Renaissance to come? *Gumanitarnye aspekty okhoty i okhotnich'ego khozyaistva=Humanitarian aspects of hunting and the hunting sector*, 2016, no. 1, pp. 5-16. (In Russian).
6. Velichenko V.V. *Voprosy ekologo-ekonomicheskoi otsenki prirodnykh resursov okhotnich'ego khozyaistva* [Eco-economic assessment of natural resources in the hunting sector]. Yakutsk: Izdatel'sko-poligraficheskii kompleks SVFU, 2010. 128 p.
7. Erofeeva I.V., Bocharnikov V.N. Hunting as person's reflection in conceptualized sphere of specialized magazine discourse. *Gumanitarnyi vector=Humanitarian Vector*, 2018, vol. 13, no. 1, pp. 144-152. (In Russian).
8. Ericsson G., Heberlein T.A. "Jägare talar naturens språk" (Hunters speak nature's language): A comparison of outdoor activities and attitudes toward wildlife among Swedish hunters and the general public. *Zeitschrift für Jagdwissenschaft*, 2002, no. 48, supplement 1, pp. 301-308. Available at: https://doi.org/10.1007/BF02192422 (accessed: 30.05.2018)
9. Larson L.R., Decker D.J., Stedman R.C., Siemer W.F., Baumer M.S., Enck J.W. Hunter recruitment and retention in new york: a framework for research and action. *Human Dimensions Research Unit Series Publication 13-04*. Department of Natural Resources, Cornell University, Ithaca, New York, 2013. 72 p. Available at: https://docviewer.yandex.ru/view/279138482/?*=eYCGrhbN8qgnUAdcSicCTHdjmQx7InVybCI6InlhLW1haWw6Ly8xNjU1MDcyODYzMDU4NzYwMDIvMS4zIiwidGl0bGUiOiJIRFJVUmVwb3J0MTMtNC5wZGYiLCJ1aWQiOiIyNzkxMzg0ODIiLCJ5dSI6IjMwNTk0NDY3MTE1MTE3NzQ0NjAiLCJub2lmcmFtZSI6ZmFsc2UsInRzIjoxNTI0MjMwMDc3Mzg3fQ%3D%3D (accessed: 30.05.2018)
10. Stedman R.C., Heberlein T.A. Hunting and rural socialization: contingent effects of the rural setting on hunting participation. *Rural Sociology*, 2001, vol. 66, no. 6, pp. 599-617. Available at: https://doi.org/10.1111/j.1549-0831.2001.tb00086.x (accessed: 30.05.2018)

11. Larson L.R., Decker D.J., Stedman R.C., Siemer W.F., Baumer M.S. Exploring the social habitat for hunting: A comprehensive view of factors influencing hunter recruitment and retention. *Human Dimensions of Wildlife*, 2014, no. 19 (2), pp. 105-122. Available at: https://www.tandfonline.com/doi/abs/10.1080/10871209.2014.850126
12. Syroechkovskii E.E., Klokov K.B. Using the questionnaire method for studying the influence of hunting waterfowl in the Russian Arctic. *Kazarka: byulleten' rabochei gruppy po guseobraznym Severnoi Evrazii=Brants: Bulleting of the Working Group on Anseriformes in the North Eurasia*. Moscow: MGU im. Lomonosova, 2010, vol. 13, pp. 76-103. (In Russian).
13. Koptseva N.F. Expert estimation of the environmental situation in areas of indigenous minorities in the Siberian Arctic (material of Krasnoyarsk Krai). *Ekologiya cheloveka=Human Ecology*, 2017, no. 6, pp. 30-35. (In Russian).
14. Trudov Yu.N. Assessment of the tourist potential of the region's hunting sector (case study of the Vologda Oblast). *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast*, 2013, no. 6(30), pp. 113-118. (In Russian).
15. Romanenko T.M., Anufriev V.V., Vylko Yu.P., Laishev K.A., Ivkina M.V. On the epizootic situation with rabies in deer breeding in the Nenets Autonomous Okrug. *Vestnik GAU Severnogo Zaural'ya=Bulletin of State Agrarian University of the North Trans-Urals*, 2016, no. 1(32), pp. 91-98. (In Russian).
16. Dereliev S. Afro-evraziiskoe soglashenie po vodno-bolotnym ptitsam: pochemu Rossii neobkhodimo prisoedinit'sya k dogovoru? *I All-Russian Ornithological Congress: reports abstracts* (Tver, January 29– February 4, 2018). Tver: Tverskoi gosudarstvennyi universitet, 2018. Pp. 94-95.
17. Kopylov M.N., Kopylov S.M., Mokhammad S.M.A. International regimes of international environment management: stating the problems. *Vestnik Volgogradskogo gos. un-ta=Bulletin of Volgograd State University*. Series 5. Law, 2015, no. 2 (27), pp. 138-150. (In Russian).
18. Balyan M.G. Environmental Doctrine of the Russian Federation amid addressing global issues of environment protection amid globalization. *Zakon i parvo=Law and Justice*, 2008, no. 7, pp. 98-99. (In Russian).
19. Fomenko G.A. *Upravlenie prirodookhrannoi deyatel'nost'yu: osnovy sotsiokul'turnoi metodologii* [Environmental Management: the Framework of the Socio-Cultural Methodology]. Moscow: Nauka, 2004. 390 p.
20. Anufriev V.V. The resources of game animals on the islands. Kolguev and Vaigach. *Russkii ornitologicheskii zhurnal*=The *Russian Journal of Ornithology*, 2016, vol. 25, express-issue 1259, pp. 860-865. (In Russian).

Information about the Authors

Vladimir V. Anufriev – Candidate of Sciences (Biology), head of laboratory, N. Laverov Federal Center for Integrated Arctic Research, RAS (109, Northern Dvina Embankment, Arkhangelsk, 163000, Russian Federation; e-mail: vvanufriev@yandex.ru)

Galina V. Mikhailova – Candidate of Sciences (Pedagogy), Senior Researcher, N. Laverov Federal Center for Integrated Arctic Research, RAS (109, Northern Dvina Embankment, Arkhangelsk, 163000, Russian Federation; e-mail: g.mikhaylova23@yandex.ru)

Ruslan A. Davydov – Candidate of Sciences (History), Leading Researcher, N. Laverov Federal Center for Integrated Arctic Research, RAS (109, Northern Dvina Embankment, Arkhangelsk, 163000, Russian Federation; e-mail: nordhistory@mail.ru)

Stanislav B. Kiselev – Senior Lecturer, St Petersburg University (5, Mendeleevskaya Liniya, Saint Petersburg, 199034, Russian Federation; e-mail: stak0607@list.ru)

Received July 16, 2018.