

DOI: <http://dx.doi.org/10.15679/bjwr.v1i1.11>**NUMBER DYNAMICS AND PRESENT-DAY RESOURCES OF MAJOR GAME ANIMALS IN RUSSIA***Vaisfeld, M.A.<sup>1</sup>, Pushkaryov, S.V.<sup>1</sup> Gubar Yu. P.<sup>2</sup>*

*Summary:* 250 species of mammals and over 620 species of birds reside in Russia. 208 of them are game species. The most valuable ones are even-toed ungulates, fur species, middle-sized and big predators and dozens of bird species. Russian hunting ground occupies 1475834 hectares. During the period 2008-2013, the number of moose, roe deer, red deer and musk deer has increased, in the country as a whole (44, 21, 20 and 76 % , respectively), whereas the number of wild boar and reindeer has decreased. Moose, reindeer and roe deer population make 73 % of the number of all Russian ungulates. In Russia, the number in 2013, and the size of legal extraction in 2012 were as follows: for elk – 871500 and 10882 heads respectively, boar – 398530 and 57980, roe (European and Siberian) – 966600 and 30101, red deer – 22500 and 4180, wild reindeer – 958000 and 23859, musk deer – 230000 and 5485, brown bear – 210000 and 4085, lynx - 22510 and 254, wolf - 44400 and 8361, sable – 1.2.- 1.3M and 174 - 206K, red fox – 660.7K and 150K; ducks – 25M and 500K, geese - 3.5M and 100K, hazel grouse – 20.6M and 212K, black grouse – 15M and 64K, capercaillies – 3M and 26K. At present, the cost of extracted production of valuable mammal species is estimated at 54 billion rubles, present-day resource - 80-87G, the potential one – 580G. The estimate for extraction of wildfowl birds is 50-60 billion rubles. According to expert estimates, the potential ungulate and fur species' number in our country is 5-10 times higher than the actual stock. Therefore, one of the most important tasks is increasing land productivity in accordance with its ecological capacity.

*Key words:* game species, game animals, Russia, number dynamics, resources, mammals, birds

**Introduction**

Game is the natural resource, which should be considered an essential part of the national heritage of a country. For centuries in Russia, hunting was the traditional occupation of the population; it held an important place in the economics of the country and played a significant role in the development of the Russian state. At the end of XVIII - early XIX century, about 10 million people (now about 4 million), in Russia, were engaged in hunting and the annual income from the sale of furs reached 300 million rubles -- noticeable revenue at that time (Silant'ev 1898). And in the early XX century, in some years, the export of Russian furs brought 60.3 (1925) - 82.1 (1928) million gold rubles to the treasury, being exceeded only by export of timber, oil and grain (Generozov 1930). For some indigenous peoples during a long time, hunting (along with fishing and gathering wild plants) was almost the only source of livelihood. At present, it plays a significant role not only in the existence of the indigenous population of the Far North, Siberia and the Far East, but also in the life of a large part of the rural population, particularly in "the Russian hinterland". The paper highlights the current state of resources of the Russian game species.

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## Material and Methods

In this paper, we used data from the official census of the game species in Russia. The main method of accounting was winter itinerary registration (WIR), which was held annually on unified, well-established procedures. For animal species for which WIR was impossible, other techniques specifically developed for these species (otter, beaver, bears, etc.) were applied. In the cases, when field data was not sufficient for the representative assessment, further expert assessments were performed by specialists. Over the past 23 years, the population numbers and harvests have undergone considerable changes. Data have been adduced for the main types of artiodactyls, large predatory and fur-bearing mammals.

## Results

Out of 250 mammal species and over 620 bird species living in Russia, the hunting resources include 208 species. The most valuable ones are even-toed ungulates, fur species, medium and large carnivores and several species of birds.

Hunting grounds of the Russian Federation cover 1,475,834K ha (State management 2011). More than half of them are open to general use, while the rest is assigned to various organizations, including public ones, or those rented for a long time. The majority consists of forests (888,507K ha), tundra (266,636K ha) and agricultural lands (152,183K ha). The latter are located mainly in the European part of the country.

The current population number of many hunt resources in Russia is quite stable. It grows for some species and falls for others (Table 1).

**Table 1.** Abundance and harvest of some ungulates, sable, wolf, brown bear and lynx in the Russian Federation during 2008-2013 (Volodina, Solokha 2014).

Animal species	Abundance, thousand individuals						Hunters' bag		
	2008	2009	2010	2011	2012	2013	2009/10	2010/11	2011/12
Red deer	183.2	187.0	189.5	195.5	225.3	222.3	4985	4677	4180
Wild reindeer	948.3	911.1	939.5	932.8	985.9	958.8	35007	31066	23859
Boar	363.5	402.7	404.3	401.0	437.8	398.5	63953	60712	57980
Musk	130.7	132.4	137.1	190.0	214.0	229.8	4235	4793	5485
Roe	802.4	866.5	845.5	860.1	907.5	966.6	30854	31455	30101
Elk	618.6	626.8	664.9	711.9	792.2	871.5	19882	21395	24246
Sika deer	19.6	20.2	20.2	20.3	22.7	20.3	646	755	710
Chamois	4.2	4.2	4.5	4.3	3.5	4.1	15	9	14
Siberian ibex	12.5	13.6	13.4	13.4	12.1	12.1	202	106	115
Bighorn sheep	59.4	59.3	59.6	73.2	70.7	78.4	225	121	249
Caucasian turs	29.0	26.2	25.6	24.4	26.3	26.6	212	174	203
Sable	1459.5	1481.9	1163.8	1224.5	1288.9	1346.3	255143	173798	20623
Wolf	48.6	49.1	50.0	50.2	58.2	44.4	7047	7652	8261
Brown Bear	168.8	179.7	182.9	181.1	210.9	214.3	4273	4345	4085
Lynx	21.2	22.1	20.7	22.5	26.2	22.5	340	268	254

The total population number of all harvested animals in the decade 2003-2013 increased by almost half. The moose, reindeer and roe deer population make 73% of all Russian hoofed ungulates. The legal harvest is very low and is usually only a few percent of the population. In Russia as a whole, during hunting season

2011-2012, legal boar harvest was 14.5% of the population number, moose - 3.4%, roe - 3.5%, reindeer - 2.6%, musk deer - 2.9% (Volodina, Solokha 2014).

Resources of fur species are not stable, as many of them (ermine, polecat, hares, squirrels, etc.) have periodical fluctuations in abundance, sometimes with large amplitude (Table 2).

**Table 2.** Abundance of some fur-bearing mammals in Russia (Volodina, Solokha 2014)

Animal species	Abundance, thousand individuals					
	2008	2009	2010	2011	2012	2013 y.
Beaver	550.8	613.8	633.2	642.9	677.7	679.9
Otter	76.5	79.8	80.0	80.0	101.3	103.9
Squirrel	10507.3	8065.2	5894.7	5737.5	5383.5	5495.6
Ermine	686.4	670.7	695.5	648.6	584.1	545.2
Polar hare	4291.9	4089.2	3272.0	2769.0	3091.9	3321.7
Brown hare	825.1	847.0	838.6	853.2	866.3	793.6
Siberian weasel	136.9	128.5	150.8	154.8	149.7	129.0
Corsac fox	36.1	39.6	34.8	38.3	40.4	38.3
Martens	243.9	247.9	226.1	219.4	238.3	236.9
Fox	697.9	755.9	742.7	769.3	717.7	660.7
Wolverine	20.5	19.5	19.7	18.6	19.7	17.9
Polecats	70.3	70.0	61.5	64.5	68.3	58.8

The legal harvest of most fur animals also rarely exceeds a few percent of the stocks. But illegal harvest, according to some experts, exceeds the legal one for certain species by several times.

Of the 620 bird species in Russia, only about twenty major game species are important. Their population number totals approximately 105 million individuals (Table 3).

**Table 3.** Abundance of game birds in the Russian Federation in 2011-2012 (Volodina, Solokha 2014)

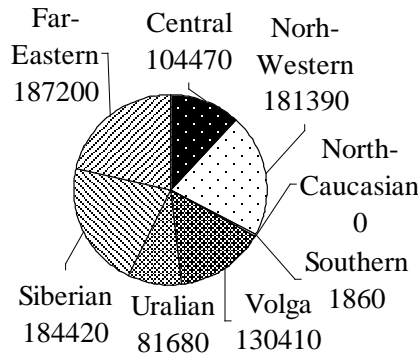
Species	Number	Species	Number
Siberian capercaillie	553,071	Partridges undefined	159,700
Common capercaillie	2,490,014	Chukar	2,311
Capercaillies undefined	402,065	Caucasian snow-cock	3,047
Willow grouse	8,590,197	Pheasant	584,421
Alpine ptarmigan	28,656	Quail	1,094,733
Ptarmigans undefined	22,021,034	Crake	4,000,000
Hazel grouse	20,535,239	Geese	3,200,000
Grouse	10,936,831	Ducks	25,000,000
Common partridge	1,801,808	Coot	3,000,000
Daurian partridge	505,093	Total	104,908,220

Of all game birds, waterfowls make more than 70%, and upland wild fowl only 12%. It should be noted that a significant part of resources of resident birds (mainly of grouse group) lives in sparsely populated boreal regions of the country, especially in Siberia and the Far East, and remains largely untapped.

### **Dynamics of the most important resources of game fauna of Russia and their use from 1991 to 2013**

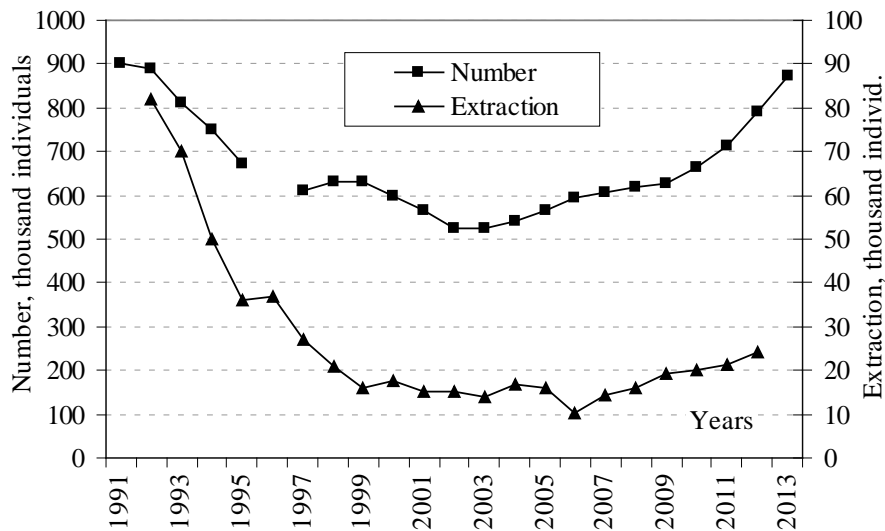
**Elk.** Of Russian ungulates as game resources, this species is of the greatest interest. Its distribution covers a huge part of the country. Almost everywhere, it is the main "meat" hunting species. Its resources are distributed almost equally between the European and Asian parts of the country. The highest absolute

supplies are in the Siberian, Far-Eastern and North-Western federal districts (Fig. 1). In Russia as a whole, on the 1st of March, 2013, the population number was 871.5K individuals (Lomanova, Baranov 2014).



**Figure 1.** Distribution of resources of the elk (individuals) by federal districts in 2013

The analysis of the dynamics of elk in a 23-year period is very revealing. A sharp and deep drop in the population number as a result of "socially forced poaching" was observed during the economically difficult 90s (Vaisfeld et al. 2008). There is still no explanation for the same process observed in 1999-2002 (Fig. 2). Growth of the population number of elk in almost all regions of the country began in 2002 and continues till now. And, in the last years, it is particularly intense. So, according to Lomanova and Baranov (2014), the population number in Russia in 2013 has increased by more than 40% compared to 2008. The highest growth of the species abundance in terms of percentages over the period under review was in the Far East, Central and North-West federal districts (64.1%, 51.1% and 50.5%, respectively). The cause of it is perceived in favorable weather conditions and more effective local fight against poaching (Lomanova 2011; Lomanova, Baranov 2014).

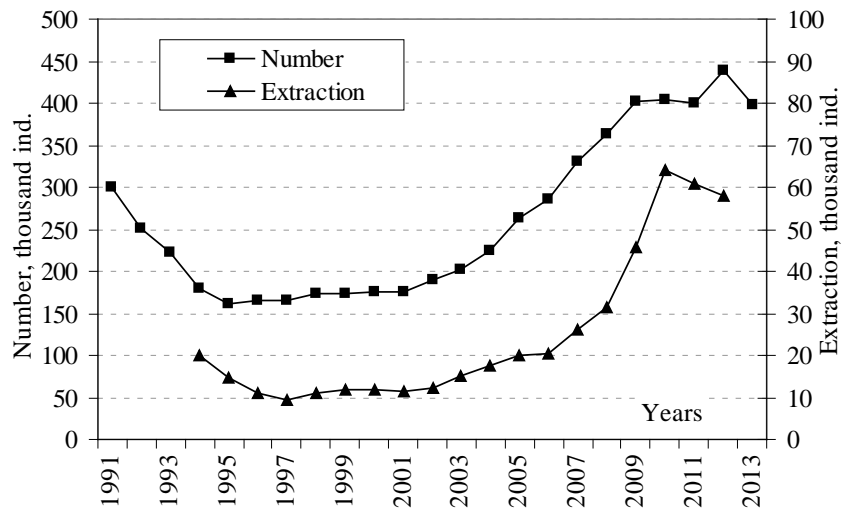


**Figure 2.** Dynamics of the population number and harvest of elk in Russia (Lomanov, Lomanova 1996, 2000, 2004; Lomanova 2007, 2011; Lomanova, Baranov 2014).

Legal harvest of elk grows. During the season 2009/2010, it was 19882 heads. The extent of illegal harvest is unknown. Some experts believe it is much higher than the legal one (Lomanova, Baranov 2014).

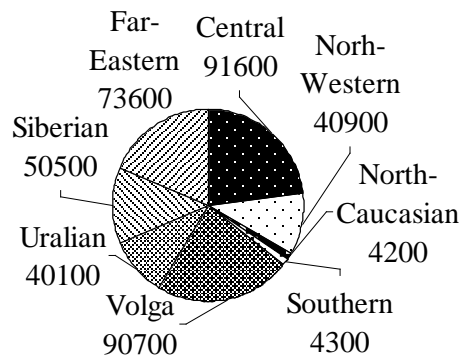
**Wild boar** is the second most important ungulate (in European Russia). Its abundance (and harvest) in 2012 reached the highest values in the last 30 years of observations (Fig. 3): 404.4K individuals (Volodina 2014). Falling population number of wild boar in the 90s of the last century (Fig. 3) is due to the same reasons as elk: large-scale "socially stimulated poaching". Surveys in 2013 showed that the abundance of

species decreased by 8% compared with 2012. The positive trend observed earlier in most regions of Russia in 2013 was replaced with negative one. This was caused by purposeful shooting in order to prevent the spread of African pig plague.



**Figure 3.** Dynamics of population number and harvest of wild boar in Russia (Ovsyukova 1996; Lomanov 2000; Lomanov 2004; Tsaryov 2007; Volodina 2011, Volodina 2014).

The total number of boars in the country in 2013 is estimated to be 398.53K individuals. Of them, 271.77K individuals are in the European part, and 76.25K in the Far East, while in Siberia there are 50.51K individuals (Fig. 4).

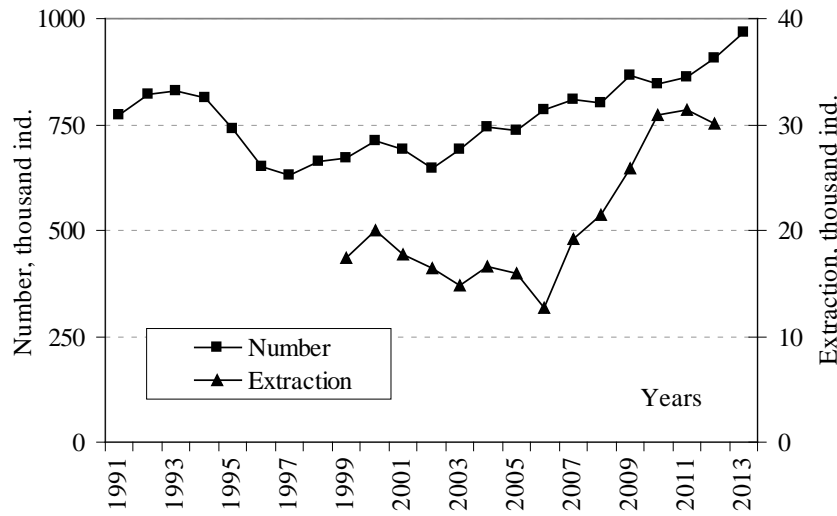


**Figure 4.** Distribution of the wild boar resources (individuals) for federal districts in 2013 (Volodina 2014).

The welfare of the boar as a resource for the foreseeable future is unlikely to be alarming, except, perhaps, for the repetition of a few predictable epizootic situations.

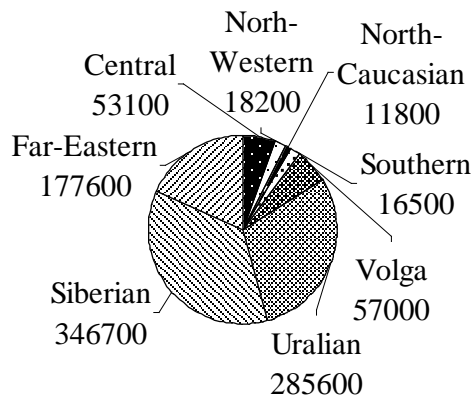
**Roe deer** (European and Siberian) are important hunt object in Russia. For twenty-three years, there have been no considerable fluctuations in the populations' numbers. The highest value (966.6K individuals) was observed in 2013 (Fig. 5). The decrease in population numbers in the mid 90s was caused by the same factor that influenced the populations of elk and wild boar. Since the habitats of European and Siberian roe largely overlap, the registration data cannot always be distinguished and therefore roes are considered as a whole. Altogether in the country, at the beginning of 2013, there were 966.6K roe deers. The population number remains high and has been growing steadily since 2002. However, in the last three years, the

abundance of European roe deer fell in the Central and North-West federal districts.



**Figure 5.** Dynamics of population number and harvest of roes in Russia (Mirutenko 1996; Mirutenko 2000; Mirutenko 2004; Mirutenko 2007; Komissarov 2011; Komissarov 2014)

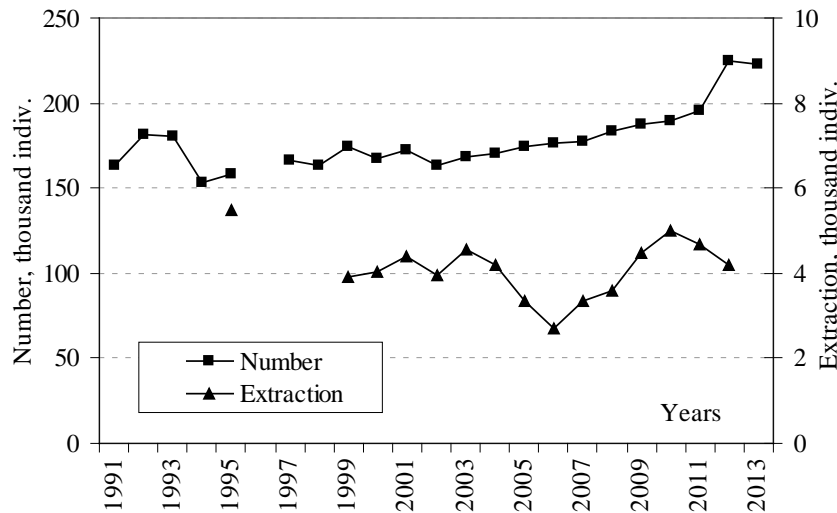
The maximum stocks of the Siberian roe are in Ural, Siberia and Far East federal districts (Fig. 6). The highest population density of European roe was observed in the Kaliningrad region in 2013: 23 ind./1000 hectares of inhabited land, as for Siberian roe – the highest population density was observed in the Kurgan region: 19.8 ind./1000 ha (Komissarov 2014).



**Figure 6.** Distribution of resources of roes (ind.) for federal districts in 2013 (Komissarov 2014)

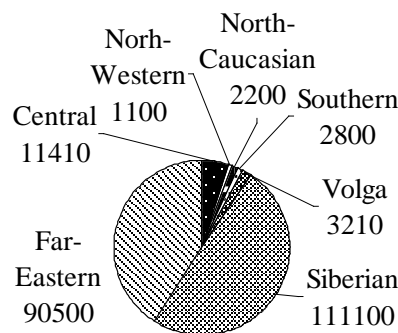
The legal roe harvest in Russia rarely exceeds 3-4% of the population. Harvest has increased in recent years (Fig. 6). However, the illegal harvest is believed to significantly exceed the legal one: possibly, by more than double (ibid.). The small size of the roe allows poachers to quickly cut the carcass, hide and take it away from the place of poaching. However, according to Komissarov (2014), "... some confidence in the future well-being of the species can be resulted from the fact that the roe generally responds positively to the "soft" human change ecosystems. It is no coincidence that population density of the species is usually higher in areas with a higher proportion of agricultural land."

**Red deer.** Based on registration data, the red deer abundance in Russia is calculated to be 225K individuals (Mosheva 2014) and it is increasing almost everywhere (Fig. 7).



**Figure 7.** Dynamics of population number and harvest of red deer in Russia. In 2012 and 2013 abundance is shown on the materials of the state monitoring of hunt resources (on: Mirutenko 1996a; Mirutenko 2000a; Mirutenko 2004a; Mirutenko 2007a; Mosheva 2014a).

Maximum resources are concentrated in two federal districts: Siberian and Far East (Fig. 8).

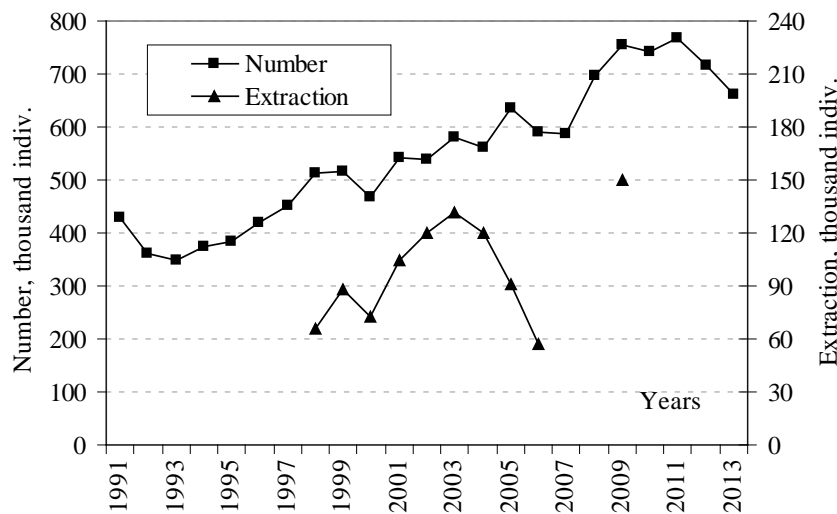


**Figure 8.** Distribution of resources of the red deer (individuals) by federal districts in 2013 (on: Mosheva 2014).

**Red fox** is one of the most popular hunting species. It is a fur-bearing species. From time immemorial, this predator was the coveted trophy for hunters: both professional and amateur. Huge distribution, covering almost all the landscapes of the country (except high Arctic and alpine), the ability to easily get along with the men next door, and sometimes obvious inclination to them, i.e. obvious tendency to synanthropization, incredibly high diversity of lands inhabited by this predator (the fox is strongly pronounced eurytopic species), high reproductive potential, high abundance, a lot of interesting ways of hunting (from hunting with hounds, with flags and so on to hunt with traps), beautiful and varied in color fell, led to a high hunting load on the fox.

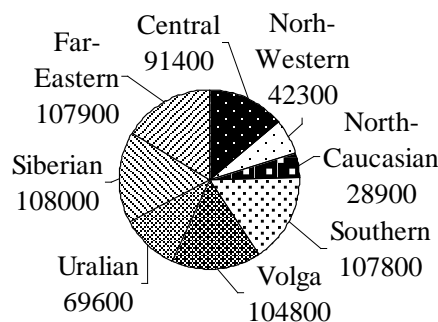
In recent years, increased attention to this species is also connected with the fact that fox, along with other burrow mammals like raccoon dog, wolf and badger are, plays a crucial role in maintaining natural nidi of rabies. For example, in the Pskov region in 2010, 10 foxes, 10 raccoon dogs and 2 wolves were discovered to be infected with rabies. Obviously, monitoring the size and density of fox population, as well as the above mentioned species, is important not only for hunting-trade purposes, but also for the control of rabies nidi. This task is of particular relevance because cases of rabies have become more frequent in the country, and especially in the European part, in recent years. In many regions of Russia, intensive measures are taken to regulate the abundance of the predator. These, however, are not always crowned with success.

The abundance of the species has increased steadily from 1993 to 2011 (Fig. 9). Having reached its maximum at 769.3K individuals in 2011, while in 2013 it decreased to 660.7K individuals (Komissarov 2014).



**Figure 9.** Dynamics of population number and harvest of red fox in Russia (Gubar 1996c, 2000c, 2004c, 2007c; Komissarov 2011c, 2014b)

Resources of the fox are distributed almost equally by federal districts, except the North-West and the North Caucasus, where they are significantly smaller (Fig. 10).

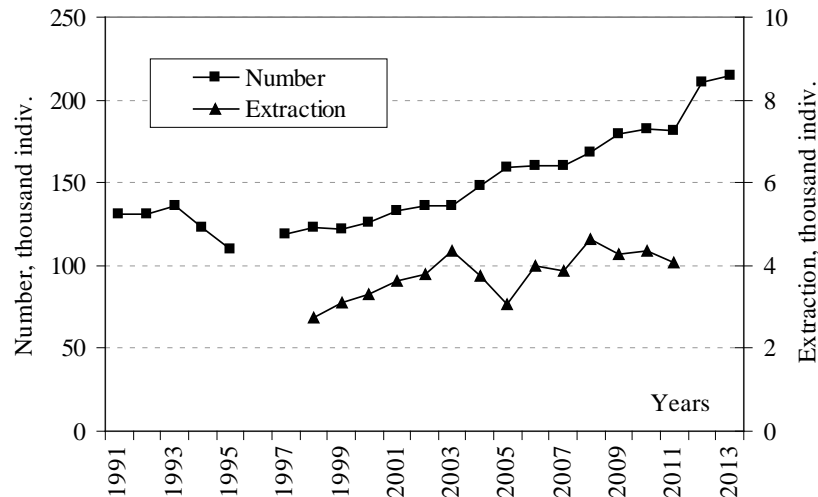


**Figure 10.** Distribution of resources of the red fox (individuals) by federal districts in 2013 (Komissarov 2014).

There are no reliable data on the harvest of foxes in the last years. On careful expert evaluation, in the season of 2009/2010, about 150K individuals were extracted in Russia. For comparison, according to the data of the State Hunting Census, the harvest of the predator in the late 90s of the last century in Russia was about 83K individuals, in the hunting season of 2002/2003 it was 132K and 2003/2004 it was 120K (Komissarov 2014).

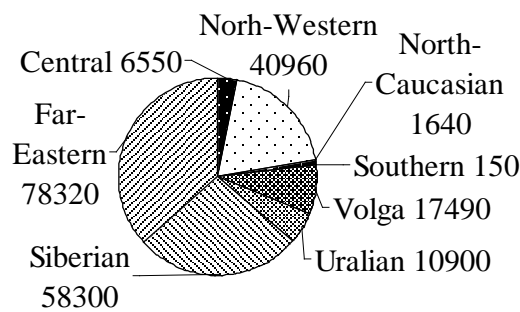
**Brown bear** is a traditional and very valuable game object in Russia since ancient times. The abundance of the predator in Russia changed. It has grown since the end of the 90s of the last century (Fig. 11). For the last decade, the southern boundary of the bear distribution in the European Russia is moving to the south. The species steadily secures a grip on new territories (Vaisfeld et al. 2008).





**Figure 11.** Dynamics of population number and harvest of the brown bear in Russia (Gubar 1996a, 2000a, 2007a, 2011a; Komissarov, Gubar 2014)

The total number of brown bears in Russia in 2013 is estimated to be 210K individuals (Komissarov, Gubar 2014). Maximum resources are in the Far East (78320), Siberia (58300) and the North West (409,60 individuals) federal districts (Fig. 12). According to the same authors, the greatest number, in 2013, has been recorded in Yakutia and Kamchatka (20K), Krasnoyarsk krai (19K) and Arkhangelsk region (18K).

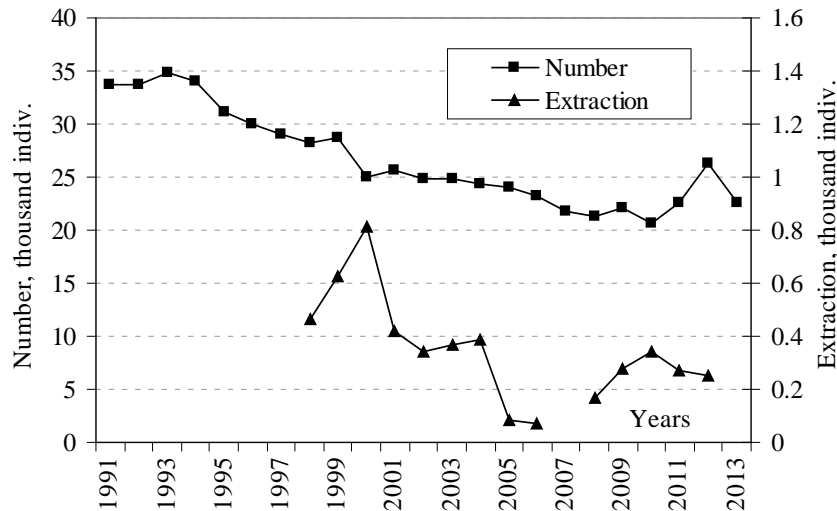


**Figure 12.** Distribution of resources of the brown bear (individuals) by federal districts in 2013 (Komissarov, Gubar 2014).

Legal harvest of brown bear is a little over 2.5% of its population number and is considered to be insufficient. It is believed that this level of harvest of the predator could be raised up to 15% without fear of damage to the population (Komissarov, Gubar 2014). In the future, one can probably expect further growth of the brown bear population number in Russia. On the one hand, the country still has large areas of boreal and taiga forests sparsely populated by man. On the other hand, the continuing growth of non-cultivated lands, excluded from agricultural use and being overgrown with secondary forests, will provide bears with new and often productive habitats.

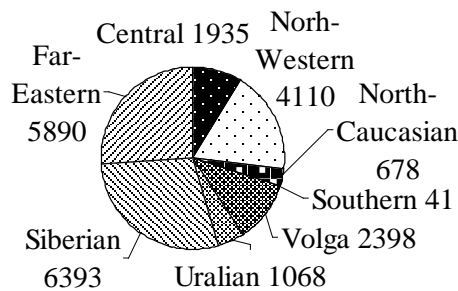
**Lynx** is as valuable hunting resource as the bear, but with some more interesting features. This beautiful cat is extremely difficult for visual observation due to its secretive lifestyle and high caution. Luxury lynx pelt has always been on very high demand, including on the foreign fur market. Therefore, the economic significance of the lynx as a resource is difficult to overestimate. Furthermore, lynx is a very beautiful animal, and is of undoubted aesthetic interest.

According to Mosheva and Gubar (2011, 2014), lynx abundance in the country fell since the beginning of the 90s (Fig. 13).



**Figure 13.** Dynamics of population number and harvest of the lynx in Russia (on: Mosheva et al. 1996; Mosheva, Naumova 2000; Mosheva 2004b; Gubar et al. 2007; Mosheva 2011b, Mosheva, Gubar 2014). Note: "Splash" in lynx abundance in 2012 is accounted for by a different registration type: not WIR, but monitoring: it gave biased results (ibid.).

Since 2003, it has been observed in almost all federal districts; except for the Far East (Fig. 14). Population number of the predator has been particularly reduced in the North-West federal district: from 2003 to 2010 it has been reduced by almost 40%. In 2013, the greatest resources were in Siberia (6393), the Far East (5890), North West (4110) and Volga (2398 individuals) federal districts (Fig. 14).

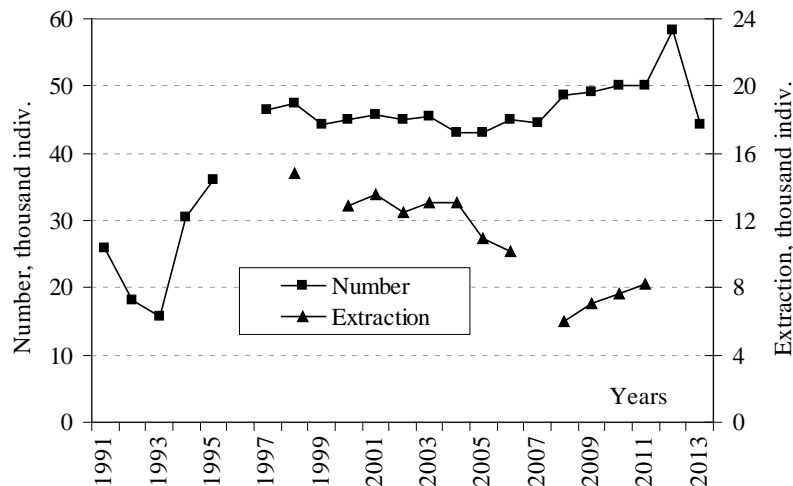


**Figure 14.** Distribution of resources of the lynx (individuals) in 2010 in the federal districts of Russia (Mosheva 2011b; Mosheva, Gubar 2014).

Some researchers attribute the reduction in resources of the species almost in the whole area mainly to long-term depression of the hare population number. Hare is the main diet of lynxes in most regions of the country. In our opinion, the reasons are more complex. In the European part of the country, one of the leading factors for the depression of the predator's abundance is poaching. Now, the number of lynxes in Russia is estimated to be 22,510, the harvest in 2011/2012 was 254 heads, and the limit was 972 (ibid.). It must be emphasized that in many regions of Russia, lynx is a game species, but in others, it has been included in the regional Red Books (Bryansk, Vladimir, Moscow, Ryazan, Yaroslavl, Samara, Omsk, Murmansk regions, the Republics of Ingushetiya, North Ossetiya, Adygeya, Mordoviya, Karachay-Cherkessiya, Chuvashiya, Stavropol and Krasnodar krais).

**Wolf** as a game species should be considered in a particular aspect. This predator with a huge distribution is reputed by many zoologists as extremely harmful: above all for game objects. Russian hunt scientists found, in the middle of the last century, that the number of wolves in the country rises sharply in times of political, social and economic hardship and turmoil. It occurred during the Second World War, and

then during the difficult economic and social reforms in the 90s of the last century. Since then, the population number of the predator remains at that high level (Fig. 15). This is a very alarming phenomenon.

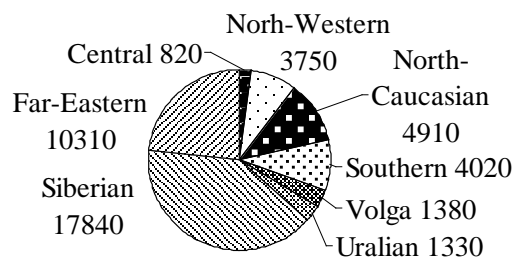


**Figure 15.** Dynamics of population number and harvest of the wolf in Russia (Gubar 1996b, 2000b, 2004b, 2007b, 2011b; Gubar et al. 2014)

Many zoologists and hunt scientists are convinced that wolves now extract more hunting animals than all the hunters of the country (including poachers) together (Management of game resources... 2011). Indicative estimates of damage to hunt objects from wolves show that wolves annually consume about 34K elks, 20K red deer, 140K reindeer, 123K roes, 77K beavers, at least 2.7M hares and a lot of smaller animals. Annual consumption of animal food by wolves in Russia exceeds 35K tons. The summary cost of the destroyed hunt resources by wolves is about 7G rubles. The total cost, including the loss of farm animals, is close to 10G rubles (Bersenyev, Kulpin 2011). It is believed that the reduction of the number of wolves will provide a substantial increase in the number of ungulates, which in turn will bring positive economic effect in the amount of at least 4G rubles per year (ibid.).

Sure, one needs to take into account the role of wolves in maintaining the nidi of rabies. Rabid wolves represent a special danger to humans. At a close range meeting, a wolf almost always attacks man, often inflicting injury resulting in death.

The total number of wolves in Russia in 2013 is estimated to be 44.4K (Gubar et al. 2014). Currently, the maximum resources of the wolf are concentrated in the Siberia (17840) and the Far East (10310 individuals) federal districts (Fig. 16).



**Figure 16.** Distribution of resources of the wolf by federal districts in 2013 (Gubar et al 2014)

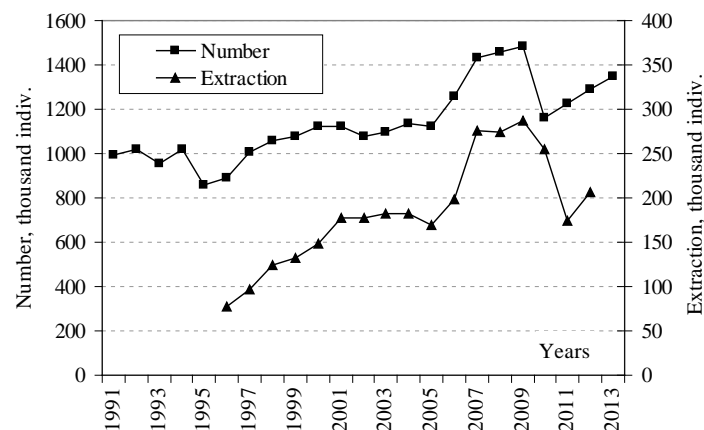
Despite the fact that wolf is obviously a harmful animal, attitude towards it cannot be unique. Discussion on the role of the predator in natural ecosystems has been simmering for more than 40 years, but there is no consensus yet among zoologists. The huge damage that wolf causes to hunting objects leaves no doubt now: its abundance in hunting areas and areas of intensive livestock production should be reduced to a minimum,

while in protected areas, especially in large reserves, it must be regulated in accordance with the specific environmental conditions.

**Sable** is one of the most valuable fur-bearing species in the country. For centuries, this animal was, and till now remains a true national symbol of Russia. Moreover, the pursuit of sable fells was one of the main motivations for the development of the Urals, Siberia and the Far East. The history of the species in the country is extremely interesting and instructive: from truly high abundance in the old days (up to the 18th century) and subsequent almost complete extermination by the beginning of the 20th century in the whole distribution, to the energetic and sometimes literally desperate measures, which have proven successful in restoring the population number to the commercial level. Recall that these measures were initially taken by the tsarist government in Russia, and then continued in the Soviet period.

According to hunt scientists, by now, sable resources have been restored to the level corresponding to the ecological capacity of the land (Sinitsyn 2012). Now sable is leading in the fur harvesting business in the country, and in taiga regions of the Urals and the Far East, it is generally the basis of the hunt trade of the local human population and, consequently, of their material well-being. In these regions, the so-called taiga backwoods, hunting sable is often the only source of subsistence for hunters' families. The monetary share of sable runs up to 80% of the value of all produced furs (ibid.). According to Sinitsyn (2012) now, the overall production of sable for the season, including the skins illegally leaving for China, reaches 500K individuals. According to others data (Borisov 2011), in the season 2009/2010 in Russia, 255,143 sables were legally harvested, which is about 17.1-19.7% of the pre-hunt abundance.

Now, one can say with complete certainty that the auctioning sable skins has been revived. Growth of auctions has been taking place in the country with increasing intensity since 2000. 182.8K sable skins were for sale in the St. Petersburg auction. In 2006, 391K pelts were sold for 56M US. dollars. In 2011, almost 460K sable skins were sold for more than \$71M (ibid.). By the way, besides St. Petersburg, since 2000, fells of "Russian sable" are displayed for sale in auctions in Copenhagen. In February (2012), the cost of one skin topped \$175 at the fur auction in St. Petersburg.



**Figure 17.** Dynamics of population number and harvest of the sable in Russia (Borisov 2011; Komissarov, Borisov 2014)

The growth of the population number and, consequently, harvest of the sable has been observed in Russia since 1996 (Fig. 17). In the 4th quarter of 2009 it was estimated at 1.4-1.5M individuals, in the 1st quarter of 2010 it was 1.16M (Borisov 2011). Sable population number growth is observed in most federal districts. Decline was observed in the Far Eastern district in 2008-2009. However, according to expert estimates of FGBU "Tsentrkhotkontrol» (Borisov 2011), the abundance of sable in the last few years has a tendency to fall, which is associated with natural processes and, in some places, with over-harvesting, because of lack of control over production in the field. It is likely that illegal hunting also influenced the abundance of sable.

## Conclusion

Currently, the implementation of the unusually high potential to increase the productivity of hunting lands could be an important task for Russia. According to expert estimates, the possible ungulate and fur-bearing species population number in our country exceeds the actual supplies by many times. Approximate estimations show that in Russia, the cost of products manufactured only from the most valuable game species of mammals is estimated today to be 54G rubles, their modern resources -- 80-87G, and potential stocks of this group of animals – 580G rubles. Approximate evaluation of wildfowl resources is close to 50-60G rubles (Dezhkin et al. 2011). Thus, it is clear that the resources of the game fauna of Russia have enormous potential. According to zoologists and hunt scientists (Bersenyev, Kulpin 2011; Bolshakov Korytin 2012.), the major causes of under-productivity are changes of the ecosystems caused by humans, poaching which is unprecedented in scale and ingenuity (level of poaching is now comparable to the official level of production in a relation of approximately one to one, or more) and the predatory activities of wolves.

Another reason is the actual collapse of hunting management in the country. At the turn of the 20th-21st centuries, as a result of hasty, not conceived reforms, this effective and well-established economic structure - hunting management - was destroyed at all levels. According to well-known and highly reputable hunt scientists and zoologists (Dezhkin et al. 2011); the hunting management as an economic structure meant to protect and rationally exploit the hunting resources of Russia is now in decline and the recently adopted Federal Law on Hunting only aggravated the situation. And the recently formulated recently project by Hunt Department of Ministry of Nature of Russia which is entitled "Development Strategy for hunting management of the Russian Federation until 2030" is not encouraging.

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