



**MINISTRY OF ECOLOGY, NATURE MANAGEMENT AND
FORESTRY OF THE SAKHA REPUBLIC (YAKUTIA)**



**Perspectives of regional governments on
conservation of biodiversity in conditions of
industrial development of the Arctic**

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The Republic of Sakha (Yakutia) is the largest constituent entity of the Russian Federation (area **3.1 million km²**), located in the zone of continuous permafrost, more than 40% of the territory is located above the Arctic Circle.

Yakutia is distinguished by natural landscape diversity, determined by the development of latitudinal zonality (**Arctic deserts - tundra - taiga**) and vertical zonality (**2/3 of the continental part is occupied by mountains**).



Verkhoyansk Range - the longest mountain range of Yakutia



Arctic deserts



Tundra



Taiga

Yakutia is one of those rare places on the planet where the pristine purity of nature and the diversity of flora and fauna are currently preserved.

Red Book of Yakutia

"Rare and endangered species of plants and fungi" (2017):

flower (249 species), gymnospermae (3), fungi (11), pluriform (1), mosses (21), ferns (13), algae (1), liverworts (17), lichens (21).

"Rare and endangered animal species" (2003):

- 16 types of insects;
- 6 types of fish;
- 3 types of amphibians;
- 2 types of reptiles;
- 68 species of birds;
- 17 species of mammals.



Siberian sturgeon (jansky population) *Acipenser baerii*
Red Book of Yakutia



Black brant *Branta bernicla*
Red Book of Russia and Yakutia



Apollo Ammosova *Parnassius arcticus* The Red Book of Yakutia



Ryazinokizilnik Pozdnyakova
Sorbus aucuparia Red Book of Russia and Yakutia

The Arctic zone of Yakutia is characterized by an abundance of lakes and marshes, occupying up to 50% of the land area, which plays an important role in the lives of many representatives of the bird kingdom.

70-99% of the world populations of Siberian Cranes, gulls, curlew babies, Siberian and spectacled eider, teal-clotuna, endangered in other countries are concentrated here.

The Arctic zone of Yakutia is distinguished by a high species diversity of avifauna, being the nesting place of **170 bird species**, including:

- ✓ **4 million** ducks,
- ✓ **1,5 million** gulls,
- ✓ **150 thousand.** geese,
- ✓ **40 thousand** swans,
- ✓ **20 thousand** cranes.



White geese *Anser caerulescens* with offspring

During the implementation of the section of the State Target Program "Inventory of Key Habitats of Birds" in the Arctic zone of Yakutia, the existence of, **which are the site of the mass concentration of wetland birds, was established.**

The tundra zone of Yakutia is characterized by a slow decrease in the population of geese, especially the squirrel, taiga and tundra Humenniki, and the Asian population of the black brant.

Over the past 30-50 years in the Kolymo-Indigirskoy lowland, there are negative trends in the movement of the humpback-bearing turpan and sea-wolf.



Squeaky *Anser erythropus*



Canadian crane *Grus canadensis*

In the group of birds that are protected by the Red Book of the Russian Federation and the Republic of Sakha (Yakutia), there is an increase in the number of tundra swan and whooper, Canadian crane, teal-cloak, American Black Goose, Siberian Crane, white goose, mallard is observed. Among the birds of prey, there is an increase in the number of peregrine falcons and a decrease in the settlements of gyrfalcon.

Main threats
for bird populations :

- ✓ Intensive hunting
- ✓ Economic development



Suggestions to improve the situation:

- ✓ Inclusion of a tracking system for hunting wetland birds in the state hunting registration system of the Russian Federation
- ✓ Creation of a federal bureau for coordination and compilation of accounting data, adjusting the timing and trophy norms
- ✓ Development of an analogue of AEWA (Agreement on the protection of waterbirds migrating along the Afro-Eurasian flyway) for flyways connecting the Far Eastern regions of the Russian Federation with America and South-East Asia

The Siberian Crane is a rare, endangered species of the world fauna, **is listed in the Red Books of the International Union for Conservation of Nature, the Russian Federation, the Republic of Sakha (Yakutia)** and other regional lists of rare animals.

Protected in accordance with the agreement on the protection of migratory birds and their habitat, concluded by the Russian Federation with the People's Republic of China, Memorandum of Understanding on measures taken to preserve the Siberian Crane under the Bonn Convention on the Conservation of Migratory Species of Wild Animals.



In Yakutia, the Siberian Crane is represented by the eastern population, comprising **99%** of the total number of the species.

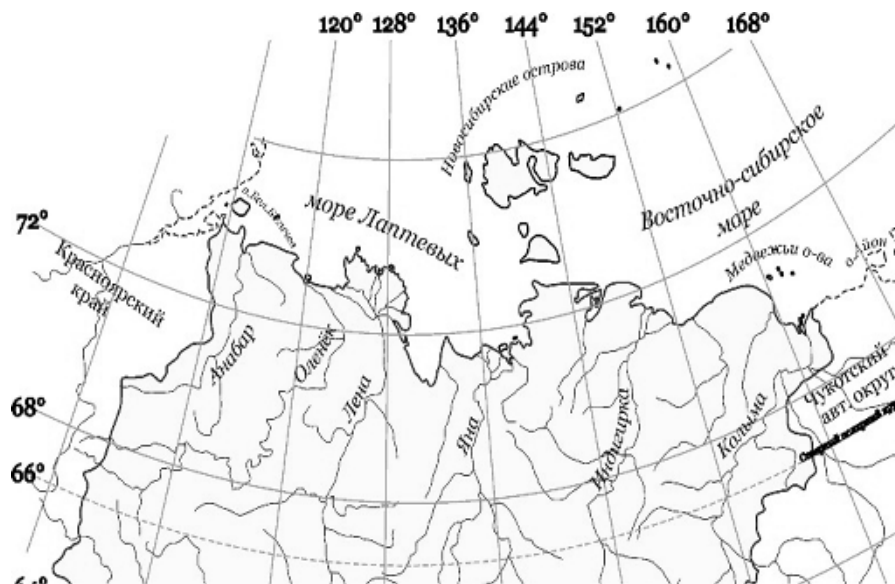
The nesting places of the eastern population are **concentrated in the tundra between the Yana and Kolyma rivers** in the northeast of the Russian Federation, and the wintering sites are located at Poyang Lake in southeast China.

Thanks to the conservation efforts of Yakutia and China, **the Siberian Crane population** are increasing: according to wintering data, in the years **1985-1990** it was **1800-2000 cranes, currently over 4000 cranes**. The Siberian Crane is protected in 19 specially protected natural territories, the most important of which is the Kytalyk State Nature Reserve (Allaikhovsky Ulus), which occupies an area of 16,070 square meters. km

Despite the significant amount of work done, the scientific and practical aspects of the conservation and restoration of the Siberian Crane remain underdeveloped, and the number of the species continues to be in a critical condition.



The Arctic marine environment is the distribution of such unique species as **polar bear, narwhal, walrus and white whale.**



Walrus (Laptev subspecies)
Odobenus rosmarus



Narwhal ал *Monodon monoceros*

MONITORING WHITE BEAR



Polar bears in Bear Island

Since 2005, regular **monitoring of the polar bear in the Nizhnekolymsky and Allaikovsky districts** has been conducted. In 2008, Yakutia participates in the WWF-Russia project “Bear Patrol”.



In 2012, an orphaned white bear rescued on the Bear Islands



In the fall of 2017, a white bear entered the taiga zone in the Srednekolymsky district. The animal is captured and transferred to the Moscow Zoo.

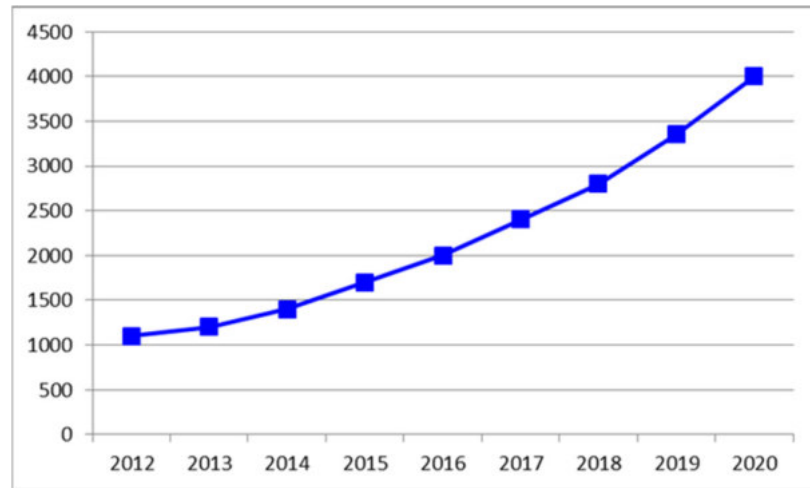
The dynamics of the population of animals in the Arctic zone of the RS(Y) is multidirectional in nature and is determined by their conservation status. Among hunting species there are negative trends. In the 80s of the last century there were 310-320 thousand wild reindeer in Yakutia, 196 thousand in 2012, while the number of the Jano-Indigir population decreased by 3.8, and the length of its migrations - by 2-3 times.



www.dersu.gallery.ru

The main reason for the decline in the number of wild reindeer is considered to be unregulated hunting, which led to a violation of gender and age structure and reproduction. At the same time, **the processes of global climate change bring its own negative changes in the dynamics of the number, range and change of the migration routes of the species.**

Musk oxen's settling



Dynamics of growth of livestock of musk oxen by years



The release of musk oxen in Bulunsky district

Since 1996, a population of musk oxen has been formed, settled from the Taimyr Peninsula. Research results testify in favor of successful adaptation of the species to new habitat conditions.

According to estimates, the number of musk oxen in the tundra zone of Yakutia reached 3,000 heads.

The whole tundra zone, including sea islands, is suitable for habitat of the species, their potential capacity allows **grazing in their natural habitat for up to 150 thousand musk oxen.**

Реакклиматизация лесного бизона в Центральной Якутии

Project's objectives:

- Restoration of the natural-historical range of bison in the North-East of Russia";
- Enrichment of the biological diversity of the fauna of Yakutia;
- Creating an international reserve gene pool of wood bison.

Forest bison - one of the largest ungulates of the northern hemisphere, lives in boreal forests, is listed in the IUCN Red List.

The Canadian forest bison is a descendant of the ancient bison inhabiting the territory of Yakutia. In the Quaternary, four species of bison existed on the territory of Yakutia. – *B. schoetensacki*, *B. priscus*, *B. deminutus* and *B. athabasca*. successively replacing each other and representing a single stem of the evolution of the genus Bison.





On the territory of Yakutia there is an extensive ecological niche, represented by small-valley meadows, practically free from large herbivorous ungulates of wild fauna.



In 2006, the first batch of forest bison (30 bisons - 15 males and 15 females) from the Canadian Elk Island National Park was brought to the territory of Yakutia. In the following years, two more deliveries were carried out - in 2011 and 2013, also in batches of 30 heads each.

In 2008, the first offspring was received - 6 calves. With the birth of calves in 2012 from bison born in Yakutia, it can be stated that the adaptation was successful.

The current number of wood bison in Yakutia is 184.

Currently, bison are kept in two nurseries that have a network of enclosures and the corresponding infrastructure.

In November 2017, the experimental batch of forest bison (30 of them) was released into the wild nature of Yakutia. In July 2018, the second release in the amount of 30 goals was implemented.

SPECIALLY PROTECTED NATURAL TERRITORIES OF YAKUTIA



The leader in Russia by area of the system of protected areas from the entire territory of the region is Yakutia - 37.15% (114.5 million hectares)

Federal Protected Areas:

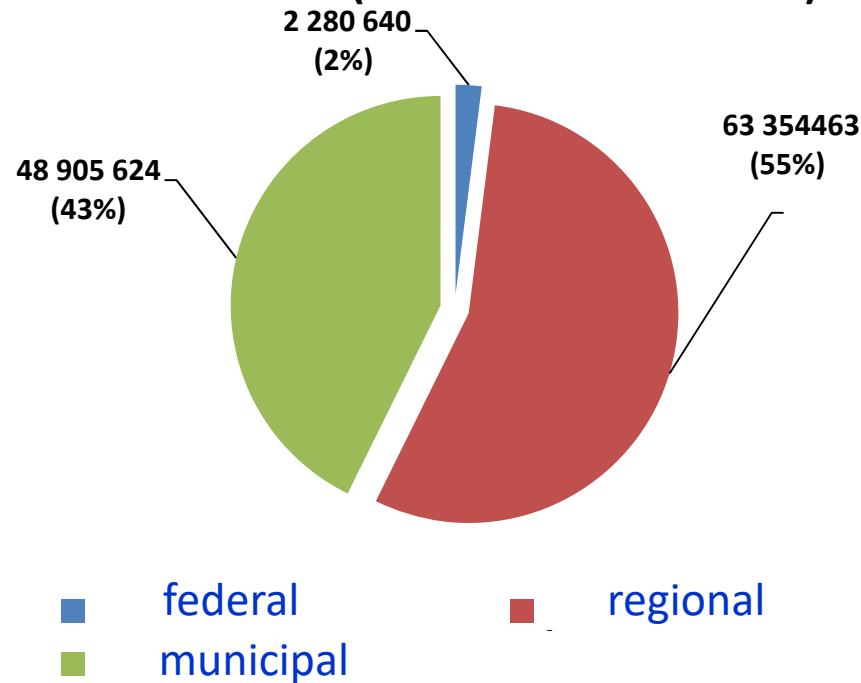
- Nature reserves - 2
- Botanical Gardens - 1
- State Nature Reserve - 1
- National Park - 1

Regional Protected Areas:

- Natural parks - 5
- State Natural reserves - 14
- Resource Reserves - 62
- Unique lakes - 26
- Monuments of nature - 17
- Protected landscape - 1

Municipal Protected Areas:

- Resource Reserves - 47
- Rest zones - 16
- Protected landscapes - 2
- Children's ecological parks - 3
- Unique lakes - 4
- Territories of traditional nature use - Square, reserve areas for nature monuments - 23



Chabda
Ust-May District



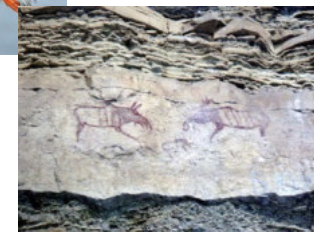
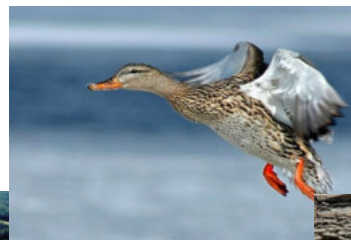
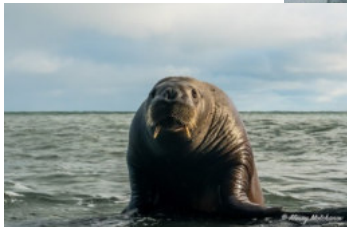
Amma
Amginsky district



Lena Delta
Bulun district

The purpose of the creation of protected areas in Yakutia

- ✓ **Conservation of biological and landscape diversity**
 - ✓ Preservation of ecosystems and natural processes
- ✓ **Maintaining ecological balance**
 - ✓ Preservation of natural cultural heritage
- ✓ **Preservation of natural resource potential for future generations**
 - ✓ Preservation of traditional forms of economic activity of the population



In the Republic of Sakha (Yakutia), industrial development is proceeding at an accelerated pace. At the same time, given the vastness of permafrost, low self-recovery of northern ecosystems, etc., the intensive development of the mining industry without due care of the Arctic nature can cause irreparable damage.

The main factors of negative impact on the environment :

- ✓ Mining operations
- ✓ Production and distribution of electricity, gas and water
- ✓ Large settlements



437 points of accumulation of non-ferrous and ferrous metal scrap are installed on the territory of the republic, out of 84% of the total volume located on the territory of the Arctic zone of the republic. ”

In 2017, enterprises in the Arctic zone of Yakutia carried out work to clean up the area of scrap metal, all removed scrap metal was about 2,830.5 tons.

