

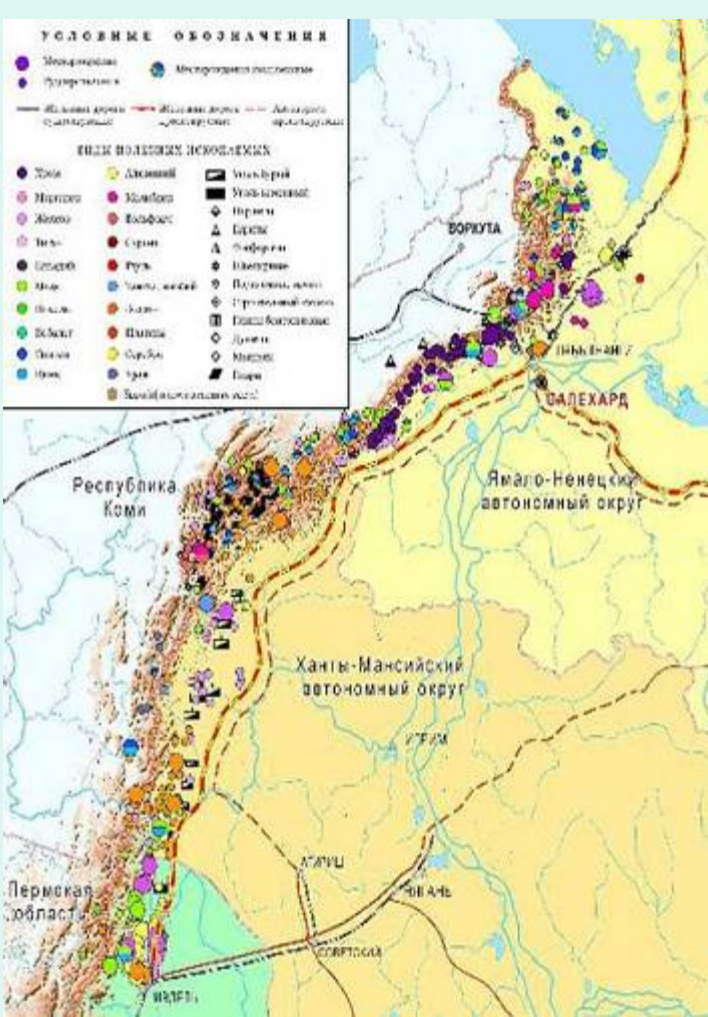
The opportunities to establish protected areas in the Polar Urals

E. Kulyugina , S. Degteva , E. Patova

Institute of Biology, Komi Scientific Center, Russian Academy of Sciences, kulugina@ib.komisc.ru

Protected areas are established to preserve biodiversity in the most valuable and vulnerable natural landscapes, the mountainous regions being one of the most important to protect. They occupy more than 40% of Russia ,traditional use of land as well as mining are highly developed on these territories. Recently, the Government of the Russian Federationstarted to pay great attention to the development and establishment of the protected areas, especially in the North, due to severe lack of the protected territories in the region.

The Polar Urals are a mountain range in the northern Eurasia, the most northern part of the Ural Mountain, covering area of about 25,000 square kilometers. The mountains were formed on the border between Asia and Europe under the influence of complex historical, geological and climatic factors. The region is thus unique with distinctive flora and fauna. The mountains have explicit altitudinal vegetation zones, inhabited by many rare and relict species.

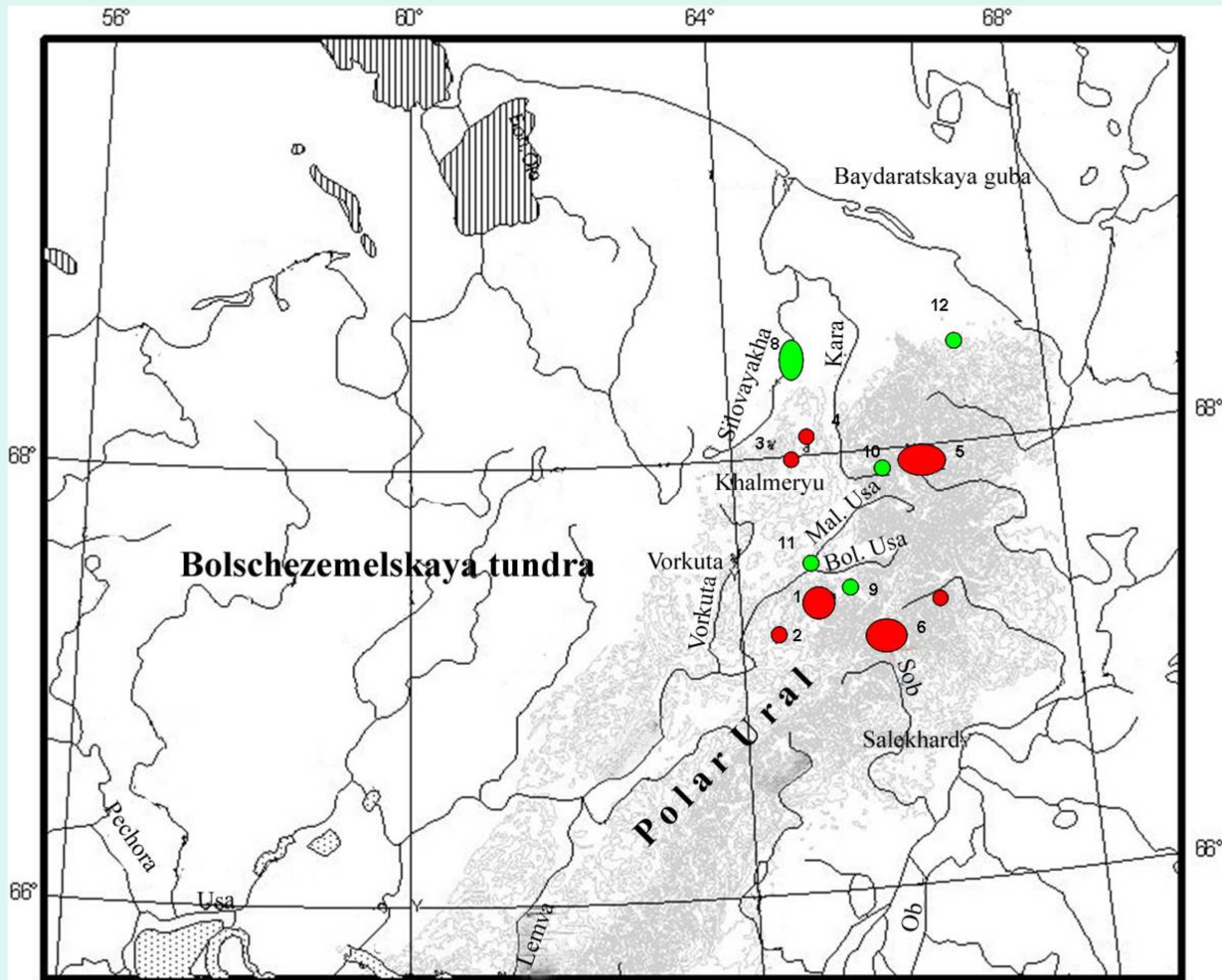


During last years, an intensive exploration of minerals began in the region, the usage of renewable natural resources increased – the reindeer overgrazing. The establishing of protected areas in northern hemisphere is crucial and important due to vulnerability of the ecosystems to external influences as a result of poor environmental management.



Existing protected areas

The part of the Polar Urals, belonging to the Komi Republic, includes only fourprotected areas, only two of which are reserves with small areas. The other protected areas are natural monuments, one hydrological and one geological. Furthermore, these protected areas are mainly concentrated on the northern part of the Polar Urals, in the Vorkuta region. The three protected areas (figure) on the eastern slopes of the Polar Urals belong to Yamal-Nenets Autonomous District.



№1-7 - Existing protected areas of the Polar Urals; № 8-12 – Future areas for protection

The network of protected areas in the Polar Ural region is not sufficient: situatedfar from each other, its parts do not form a continuous area. Only 2.2% of the segment is under protection and is included in the net of the reserves. Moreover, the Polar Urals do not have protected territoriesof federal level. The areas under protection are too small to save unique and vulnerable mountain ecosystems of the Polar Urals with high variety of climatic conditions, thus, new protected areas have to be established in the region. Expanded network of protected areas will contribute to landscape conversation as well as it will help to protect coenosis, species diversity, and populations of rare species.

Future areas for protection

The research on coenosis, species and population diversity of the ecosystems in key plots was conducted to mark future areas for protection. As a result of the **project "Evaluation of natural ecosystems of East European sector of the Arctic to highlight areas of high conservation value"12-4-7-006-Arctica**, carried out by a research group from Institute of Biology, Komi Science Centre, data was obtained on the biodiversity of terrestrial and aquatic ecosystems of unexplored or poorly studied plains and mountain landscapes of the Eastern European Arctic sector. The classification of vegetation and soils was done and data on distribution of rare plants' populations and their state was updated

Silovayakha (8) River basin
(East Bolshezemelskaya tundra)



Studied territory is promising to be included in protected areas network as a model of typical lowland tundraand habitat of rare species fromKomi Republic list of threatened species. It is recommended to establish landscape reserve in Silovayakha River basin.

Canyon in downstream of Niya-U
(basin of Usa river) (9)



30 rare species of vascular plants, protected on the territory of Komi Republic (List of threatened species of Komi Republic, 2009) and one from list of threatened species of Russian Federation (2008) inhabit the territory of the canyon. The protection area covers 300 ha.

Lake Big Lohorta (10)



Key area, located in the mountain-tundra and barren high-altitude zone of the Polar Urals, near Lake Big Lohorta, is recommended as potential protected area (Landscape Reserve) of regional significance.

Confluence of 2 rivers,Bolshaya Kara and Malaya Kara, Ochenyrd ridge region (11)



Vegetation and soils of the area possess considerable diversity. The area, located in the upper parts of Kara River, is promising to preserve typical landscapes and plant communities, flora and fauna complexes, as well as populations of rare species of vascular plants, mosses, birds, and insects. The area should be protected as complex reserve.

Konstantinov Kamen' (Manyasey ridge, near LakeManyaseyto) of Northern Polar Urals (12)



Evaluation of ecosystems identified habitats that have significant role for maintenance of high species diversity of tundra terrestrial and aquatic ecosystems and conservation of rare species. Numerous buttes are present on the territory with complex flora composition, common for bedrocks in canyons of Polar Ural rivers. Sacred places for Nenets people, indigenous people in northern Arctic Russia, could be found. The area should be included in network of protected areas of Polar Urals as complex reserve and an object of natural, historical and cultural significance.

Conclusion

Evaluation of existing protected areas and future areas for protection of the western slopes of the Polar Urals showed high diversity of flora and fauna, conservation of natural landscapes, aquatic and terrestrial ecosystems. It was found that they matchthe protected area status and have high scientific and esthetic value (fig.)

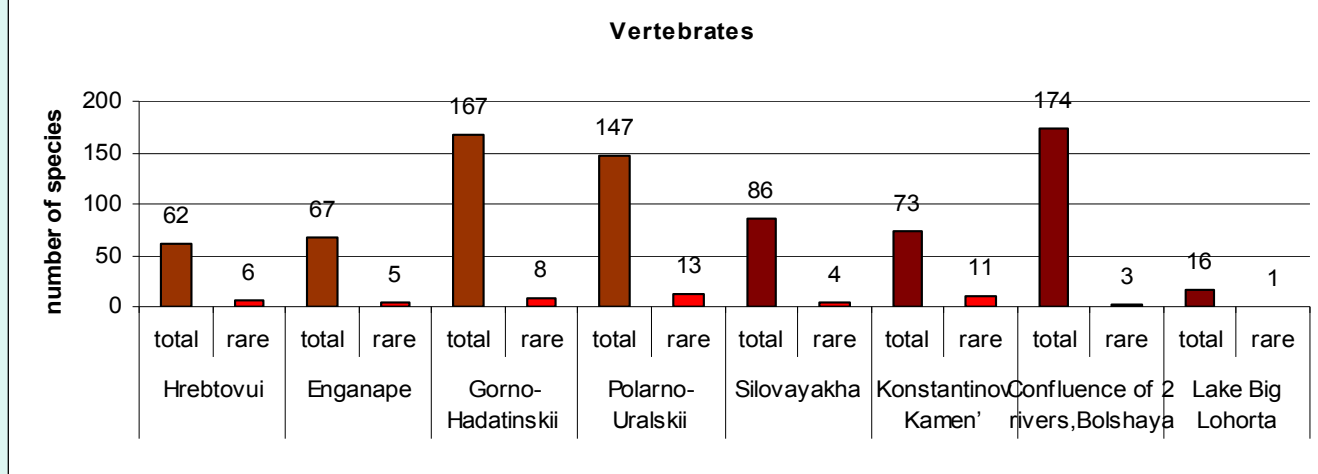
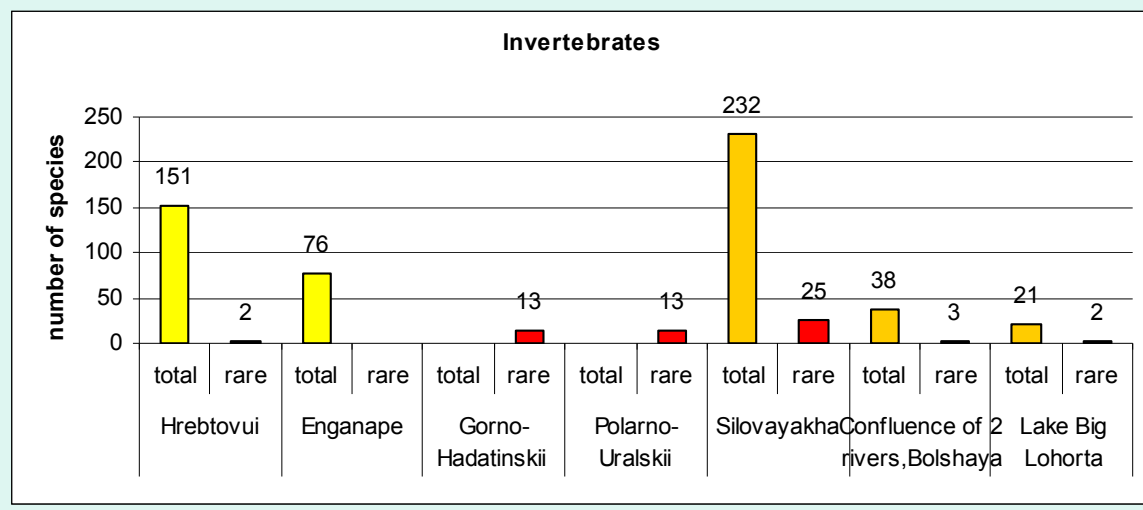
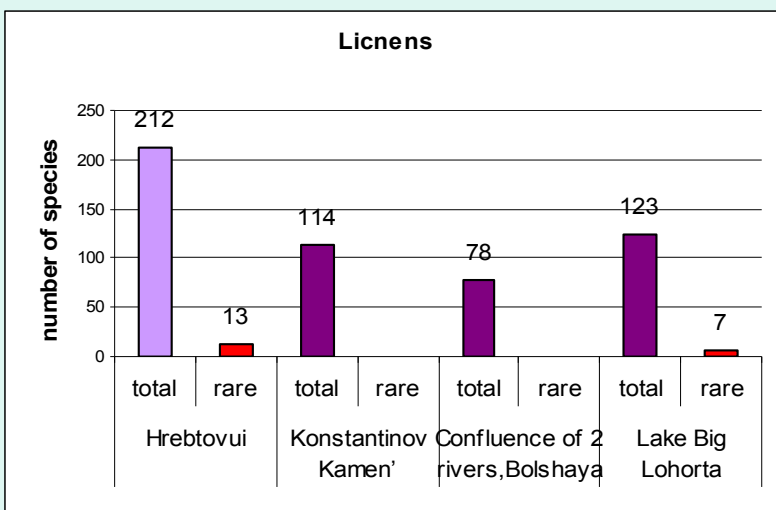
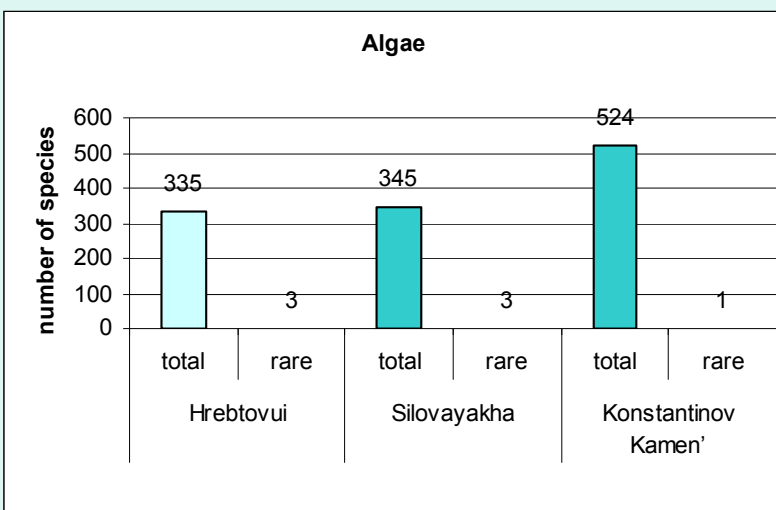
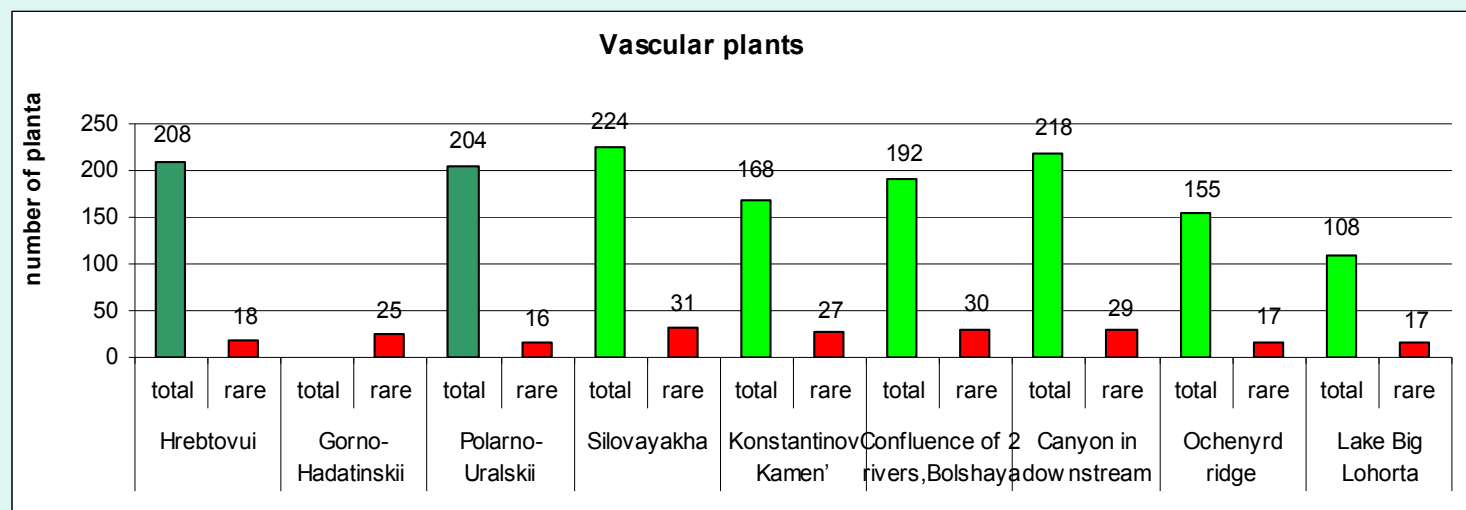


Fig. The total diversity of flora, fauna and rare species in protected and future areas for protection of the Polar Ural

Maintaining a network of protected areas on the western slope of the Polar Urals, the creation of new reserves in the undisturbed mountain-tundra landscape is particularly important, according to the development strategy of protected areas in the Russian Federation (protected areas ..., 2009, The concept of ... 2011). The protection of natural ecosystems of high-latitude regions of Russia is significant for environmental sustainability, preservation of the environment for present and future generations of northerner people. The scientists have been suggesting for many years in scientific publications and presentations the need of large protected area in the Polar Uralsin order to preserves its nature undisturbed.