
REGIONAL NATURE-PROTECTED FORESTS AS PART OF A PRESERVATION STRATEGY FOR BOREAL FORESTS IN THE CHITA REGION

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Abstract. The area covered by forests in the Chita region (Russian Federation – northern ecological region), is currently administered within the framework of Russian Federation (RF) legislation. Forests that need to be protected in the Chita region because of their natural significance were identified based on their status and use regime. The possibility of creating a regional network of “nature-protection forests” as a first step in the implementation of a boreal forest conservation strategy is discussed.

Keywords: boreal forests, nature-protection areas, strategy of conservation and management, frontier forests

The importance of forests for mitigating the consequences of climate change and conserving biological diversity on the Earth is evident (Strakhov and Borisov 2000). The exploitation of boreal forests has increased throughout the 20th century and is responsible for rising concern over their conservation (Koptuyug 1994). These concerns have driven the global community to consolidate their efforts to define and implement a long-term conservation and management strategy for boreal forests. These problems were considered at conferences of Forestry Management Ministers of European States in Strasbourg (1990); Helsinki (1993); Lisbon (1998); Vienna (2003); at the International Conference of Technical Experts in Montreal (1993), at the XI World Forestry Congress in Antalya (1997). A first step in this strategy is to define and differentiate nature-protection forests. The important role of forests in the ecological balance of the Earth provides an ecologically based justification for regulations to support the creation of a network of nature-protection forests in each region of the world (Ptichnikov 2000). Nature-protection forests (NPF) are those “specifically distinguished for purpose of protecting and sustaining biological diversity, and natural and correlated cultural resources as well, managed by legal or other efficient measures” (Ervin and Hockings 2001).

Forests and forest-protected areas of Russia are of global significance and represent a worldwide heritage (Ptichnikov 2000). In the 21st century there is a high risk of losing large tracts of forests from the relatively under-developed eastern regions of Russia that are harvested to meet an ever increasing demand for wood in Asia. Community and state management bodies have an opportunity now, before



Figure 1. Geographical location of the Chita region.

the forests' possible privatization, to bring the area and level of protected forests in these regions up to the ecologically justified guidelines of the World Wildlife Fund (WWF) program "Forests For Life" (Ptichnikov 2000). Therefore, organization of regional networks of nature-protection forests is a necessary first step towards a boreal forests conservation strategy for the Earth.

The Chita region forests are located in the coniferous forests zone of the northern environmental region (Figure 1). Of the 431.5 ths. km² (2.5% of the territory of Russia) in the Chita region, 286 ths. km² are covered with forests. 12% is East Siberia forest lands and 3.5% is Russia forest land. 70% of the forest area is occupied by light coniferous taiga and Dahurian larch (*Larix dahurica*) is the dominant tree species. The low population density of the Chita region (0.2 person per 1 km in the 18th–19th centuries; 3.0 in the 20th century) largely accounts for the lack of economic development in these forest areas. The annual economic value of environmental services from the Chita region forests was estimated using the methodology of Costanza (Costanza et. al. 1997) at 8400.89 mln. United States Dollars (USD) (Glazyrina 2002). Proximity of the Peoples' Republic of China provides a stable demand for Russian timber. This has resulted in a high share of illegal logging, and export of large quantities of high quality round timber. The stimulus and opportunities to protect forests against fire is low since it is far more profitable to harvest burned, rather than unburned, forests. All these factors

combined with the continual reorganization of the forest services have lead to catastrophic fires (2.46 ths. km² burned between 1997–2003) and the growth of illegal harvesting. Consequently, the risk is high of loosing the most ecologically significant forest resources in the Chita region.

The current system for the use and protection of natural resources in the Chita region does not recognize a category of 'nature-protection forests' although this type of forest is, in fact, present in the nature-reservation fund and the Chita region forestry system. At the Chita Institute of Natural Resources efforts are underway to create a regional Geographic Information System (GIS) – "Nature-Protection Forests of the Chita Region" – that includes information from existing management and nature protection organizations.

Results from our investigation show that currently the most effective form of forest protection in the region is the Natural Protected Area (NPA). State regulatory bodies ensure NPAs receive preferential protection and they are completely or partially removed from economic use. The state inventory of NPAs was used to assess the region's nature-reservation fund. As of January 1, 2002 NPAs included 2 biosphere reserves, 2 national parks, 2 centrally- and 14 locally-administered special nature reserves, 18 botanical and complex nature monuments, the Zabaikalien botanical garden, 3 resorts, and 3 medical-sanitation sites. The total area of forest communities, in NPAs as of January 2002, covered 17.2 ths. km² or 4% of the region.

A large part of the region's area is located in the Lake Baikal basin that is a World Heritage Site. The special status of the basin stimulated nature protection initiatives from the international community for NPAs establishment. An example is the Russia-USA "A Comprehensive Program of Land Use Policies for the Russian Portion of the Lake Baikal Region" (1993). Within this framework the state established the Ivano-Arakhley landscape natural Refuge (1995) and an initiative is underway to create the "Chikoy" national park. The implementation of biodiversity conservation projects in the Baikal region supported by the Global Environmental Facility in 1997–2001 allowed us to create a regional data base of nature-protection objectives that has aided in the development of recent environmental strategies.

Our investigations have shown that there is a large portion of forests suitable for classification as nature-protection forests under responsibility of the Chita regional Forest Service. These forests can be divided into 3 groups based on economic or ecological criteria. Differentiation of the forestry system into these 3 groups has laid the groundwork to establish a regional nature-protection forests network with recognition by the state of the importance of the forests' environment-forming role. The majority of the forest area occurs in Group 3 – merchantable timber designated for commercial harvest. Group 2 forests occur in the watershed-protection zone of Lake Baikal where commercial harvest of forests is restricted. The first group of these forests is designated to address nature-protection objectives. A portion of the Group 1 forests found in the forest fund of each region is a generalized indicator of ecologization level of the forestry. As of January 1, 2002 Group 1 forests in the Chita

region covered 32.046 ths. km² or 7.4% of the region's area. These forests can be divided into categories of protection depending on their location and environmental functions. Forest belts that protect spawning grounds of valuable fish is the largest category followed by watershed protection belts by rivers and lakes shores and then by the category of commercial walnut zones that contain cedar forests. Cedar forests are known to play a significant role in ecosystem function (Semechkin et al. 1986) and the eastern extend of the range of Siberian cedar passes through the Chita region. As the environmental significance of forested lands has increased, the area and number of protection categories for Group 1 forests has also increased. The area Group 1 forests occupy in the Chita region has increased from 7.9% in 1966 to 10.2% in 2002 and the number of categories has increased from 8 to 20.

We recommend that two new protection categories be added to the Group 1 forests: the "special protective forest sites" and the "frontier forests". "Special protective forest sites" are those forests that sustain the ecological balance of the region's natural areas. These sites are distinguished based on definitions in standard documents of the Federal and regional forestry service of the Russian Federation Forest Code. The code defines 25 different special protective forest sites. Our analysis determined that the area of special protective forest sites in the Chita region is about 40 ths. km² or about 10% of the region's area. The list of special protective site types in Chita includes preservation of basic forest-forming rocks, protection belts along watersheds' ridges and lines, protection belts along shorelines, forest sites with the presence of relict and endemic plants, buffer zones around reserves, and others. Mountain relief of the region determines the predominance of special protective forest sites areas on rocky placers. Regulation of special protective sites nomenclature, the list of which is affirmed by regional legislative bodies, can become one of the legal regulatory tools for the forests' use on an ecological basis that can accommodate conservation of the required level of biodiversity. For such sites a special regime of the forests' use may be established. In order to institute such a policy information about the forests' condition and location is required. This is one of primary reasons for creating the regional GIS network of nature-protection forests "Nature-Protection Forests of the Chita Region".

The second new category proposed for Group 1 forests is frontier (low-disturbance rate) forest areas. In the Russian Federation there is no special status for such forests. However, based on criteria designated in a report resulting from the five-year interdisciplinary project "Forest Frontiers Initiative – FFI" (Brayant et al. 1996), we suggest reclassifying reserve forests to frontier forest areas in the Chita region. Currently reserve areas are part of the Group 3 merchantable forests. An opportunity exists to conserve these forests since no plans are made for their development at this time because the forests are economically inaccessible. As of January 1, 2002, the reserve forests cover 44.5 ths. km² in the Chita region (10.3% of the region or 15.5% of the forest-covered area).

Frontier forests are well preserved in remote northern districts of the region. Although reserve forests differ by age structure, productivity, environmental and

economic significance, their primary importance to conservation efforts lie in their low disturbance rate that has resulted in the conservation of nature processes in an undisturbed state. Considerable thought must be given to evaluating the level of their importance and deciding their fate.

Our study indicates that a considerable portion of the forests in the Chita region have a legal status and regime of use, that would allow for reclassification to nature-protection forests. To date, compliance with the 6 main categories of The World Conservation Union (IUPN) has been met only by NPAs and Group 1 forests. Their combined area in the region is great and is estimated at 49.18 ths. km² (11.4% of the region's area and 17.2% of its forest-covered lands) that exceeds the ecologically justified regulations (10%), adopted in the program "Forests For Life".

On the basis of the data obtained and our analysis an electronic map "Nature-Protection Forests of the Chita Region" was produced. It represents the existing NPF network – a management object, and lays the groundwork for a forest nature-protection policy that is an essential element of a strategy for boreal forest conservation.

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