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Ways to optimize the forest complex of Primorsky Krai of Russia

Abstract

For example, Primorye Territory, an attempt is made to summarize scientific results for optimization problems, forest management and conservation of biological diversity, as a prerequisite for maintaining optimal structure of vegetation-management fundamental for achieving sustainable development in the region. Provides specific suggestions for optimization of forest complex of Primorye Territory.

Forest vegetation, forest complex, sustainable forest management, sustainable development of territories, anthropogenic dynamics of forest biodiversity.

Forest vegetation, forest complex, sustainable forest management, sustainable development, human-induced dynamics of forest, biological diversity.

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Introduction

Forest management in Primorye Territory - necessary condition of sustainable development of the territory

Sustainable development of the territories in the regions with a high proportion of forest cover can only be achieved through sustainable forest management (Ull). Ull serves the purpose of sustainable development of territories and has three components - environmental, economic and social, each of which represents a range of different requirements implies a cost profitable, environmentally responsible and socially oriented forest management taking into account the long-term conservation of various values and the forest ecosystem for present and future generations at the local, national and global levels.[1] Ull concept provides multipurpose and sustainable forest management, consistent with the principles implementing zonal-geographical system of forest management.[2]

State and anthropogenic dynamics of forest vegetation Primorye Territory

A necessary step in the implementation of the principles of Ull is the analysis of the state of forest vegetation dynamics. Unique forest vegetation Primorye Territory significantly degraded due to industrial logging is practically unmanageable and destructive forest fires. During the economic development of Primorye area of pine forests halved.[3] Restructuring of forest cover in connection with man-made and reflected pressure map Primorye forests, where a large proportion accounted for explicitly derivatives forests with predominance Mongolian oak, various species of birch, aspen, and others.[4] A detailed analysis of anthropogenic changes in forest vegetation Primorye Territory is contained in a monograph of the author.[5]

To the greatest extent anthropogenic impact on the pine forests of southern Primorye. According to LM Dolgaleva,[6] always evident in Lazovsky district for the last 50 years - up to 35% reduction in the share of indigenous pine forests and an increase in deciduous; increased patchiness of vegetation. Registration of the forest fund in 1988, the previous ban on felling (1990), also showed a reduction in forest area with a predominance of pine - 3.04 million ha.. The negative dynamics of pine forest and is marked after the ban on felling the breed.

In addition to forest fires, unsustainable felling (such as shareware solid, bonded-sampling) on a negative trend and the degradation of the forest complex, of course, influenced the adoption of the Forest Code, approved in late December 2006. As a result completely destroyed by decades of Marshall and time-tested control system through the forest complex forestries-specific forest vegetation, their raw materials, environmental and social role, which was reflected in the division of forest wood into 3 groups s in their economic application. Virtually abolished and rules felling, cedar harvesting bans Korean (Korean cedar pine) and three kinds of lime trees growing in the Primorsky region - Amur, Manchurian and Tacke. Only in November 2010.

Ways to optimize the forest complex of Primorsky Krai

To optimize the forest complex, first of all, requires the regulation of the main ecological and destabilizing factors - felling. In this respect, noteworthy proposals YI Manko and AS Zhiltsova,[7] the need to organize pobasseynovogo calculating the size of final felling. The authors believe that in order to implement the principles of sustainable and permanent use of wood and all biological resources in the central Sikhote-Alin (CSA) requires to form a "protective ecological framework" (RECA) area using the basin approach. These authors believe that the basis of the protective frame of CSA should be specially protected areas (reserves, national and natural parks, kernel production zone, particularly the protective strips for different purposes), where forest use is prohibited or severely restricted. In connection with the need for urgent RECA is to develop scientific bases of optimal deployment of forests, which provide the optimal balance of functioning forest forests for economic purposes in the particular natural and economic area.

This problem is largely correlated with the ideological concept of "optimal balance of landscape" (ARS), considered ES Zarkhin.[8] Under ARS ES Zarkhin realizes such a relationship type of vegetation and land species (quantitative, spatial, functional), which provides maximum stability and bioproductivity all prirodohozyaystvennogo complex specific area as a whole.

Of great importance is the implementation of felling on the basis of new methods for calculating the size and turnover of logging. Optimal cutting speed must be calculated on the basis of tables of

growth progress. In this technique can be used for calculating the age and a rotation, the approximation stroke of growth based on the use of stands Gompertz equation.[9,10].

Of great importance for the implementation of the multipurpose, sustainable and sustainable forest management, conservation of forest vegetation is a transition to the principles of landscape and environmental planning of sustainable forest management (LEP).

The main advantage of the landscape and environmental planning of sustainable forest management is a more complete and comprehensive identification, assessment and taking into account the structure and dynamics of the relations of elements of forests and landscapes of different levels. This makes it possible to take into account as much as possible the natural basis of the specific forest area, its role in the landscape and multiple forward and backward linkages with the landscape elements at different levels.

Prerequisite to optimize the forest complex is the creation of a strong information base: forest inventories and maps, geographic information systems specialist. Forest inventories should include indicators that characterize not only the silvicultural characteristics and growing conditions, but also the economic evaluation of the various functions of forests or forest lands, bare wood, but may be possible to restore the original vegetation.[11]

Such an understanding of the content of forest inventory is completely fulfills the basic tasks multipurpose forest and one of the central concepts Wood Complex - Forest Resources (HR). According to AS Sheyngauzu,[12] under the LR understood territorial single set of two closely interrelated parts: biocenosis providing actual and potential production of forest cover in the shapes and sizes, making it possible to organize the forest and land intended for direct and indirect service production of forest cover for a period of not less than one rotation period (the period of the cycle of forest growth and development). Regulatory and reference materials on environmental issues of forest management and assessment methodology combining functions of forest resources as the basis for the organization of multi-purpose forest management are reflected in the article A. Sheyngauza and AP.[13]

Utmost importance to optimize the operation of the forest complex is the monitoring of the forest, it occupies a key position in the forest inventory, forest protection. Monitoring of forest vegetation should be a service similar to forest management.

Already the first attempts to remotely monitor shrinks fir-spruce forests in the Primorsky region showed a promising company in Primorye forest monitoring.[14] Especially great value of forest vegetation monitoring for early detection of foci of forest fires, causing great damage to the forest resources of the Primorsky Territory.[15] Particular attention should be paid to the implementation of environmental proposals for the forest complex, made in the resolution of the VIII International Ecological Forum "Nature without Borders" (Vladivostok, 2014). Great resonance in the Forum received a statement of the problem of conservation of pine forests. In the resolution, the Forum recommended to give the remaining areas of intact cedar-broadleaf forests in Primorsky Krai protective status (high-value); forbid them any type of logging to ensure the stability of public and state control; organize cedar-broadleaf forests environmental management system focused primarily on the use of non-timber resources; conduct targeted conversion of secondary forests, pine forests formed on the spot, aimed at increasing the role of the Korean pine edificator intense thinning or planting forest crops; assess the state of existing forest cedar cultures in Primorye Territory; develop a long-term program of conservation of cedar-broadleaf forests.

By around multipurpose forest tasks it has a direct bearing on the use of non-timber resources. According to AG Izmodenova,[16] the total value of 10 species most marketable products (Khabarovsk, Gassinskaya kernel production zone) - pine nuts, honey, lemongrass, grapes, Actinidia, blueberries, birch sap, bracken, roots Eleutherococcus and aralia exceeds the cost of wood 7, 8 times. There is every reason to believe that the inclusion in the list of many other equally valuable products will further increase this figure. In Primorye, with its higher compared to the rest of the region's biological diversity of forests, mainly coniferous-deciduous, economic performance of non-wood products will be even higher in comparison with the wood-resource. Great prospects for the use of non-wood raw materials are opened in recent years, thanks to research YG Tagiltseva and RD Kolesnikova.[17]

The principles of modern management development areas include the inadmissibility of the loss of biological biodiversity. World practice has shown that the most effective form of protection of the gene pool of the biota is the organization of protected areas. According to the number of protected areas of Primorsky Krai, perhaps the most well-being in comparison with other regions of the country.

There is a need of systemic organization of the protection of biota, including flora, through the creation of specialized geographic information systems, issues of regional newsletter, stating the condition of the flora and especially rare and endangered species. In this regard, it may be useful world experience using GIS software for the conservation of biodiversity.[18,19]

Primorsky Krai, which occupies about 5% of the entire Far East, accounting for about 50% of vascular plant species. The total list of vascular plants Far East has about 4 th. Species in the seaside edge of about 2 thousand. In the Red Far book contains 96 species, most of them are concentrated in the Maritime region.

The reserves: Sikhote-Alin, Lazovsky them. LK Kaplanova, "Cedar Pad" and Ussuri them. VL Komarova protected 35 species of the 62 listed in the Red book, and found in the Primorsky region.[10,17] Thus, about 42% of the species is not protected in reserves. The number of rare species, many of which, apparently, can be transferred to the status of a "Red List" of species is much wider.

But this list can already be used for the organization of environmental protection measures. In our view, it is first necessary to make their habitats. In some cases, depending on the population status, size and location of the area it is possible to organize a botanical nature sanctuary. In other cases, the only effective way possible, as the organization of botanical reserve, or other types of protected areas. Identify these places is possible only on the basis of identifying "clusters", places the maximum intersection habitats of rare species.

The greatest safety in vivo, of course, is provided in the reserves, less due to less stringent requirements and restrictions, - reserves. The preservation of flora and specifically some rare species of its botanical monuments of nature is not higher than outside of them.

Conclusion

In summary, we can say that the current status of the forest

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resources of Primorye Territory is very poor, especially in connection with the current Forest Code, in fact legitimize the current forest management, leading to forest degradation. Virtually announced the latest Forest Code for half a century (or rather up to 49 years), rent the best forest areas of the country, including and the Primorsky Territory, promotes further degradation of forest resources. Most of the tenants does not own the basics of Forest, forestry and other forest sciences.

In this regard, necessary research and development to optimize the forest complex of Primorsky Krai, which to some extent reflected in the monograph of the author of this article.[14] based on the Long-Term Program for Conservation of Nature and Natural Resources of Primorye Territory.[11]

The first priority is to prepare the "Program of conservation and restoration of cedar-broadleaf forests." .. It seems appropriate to include in the program block "Creating a database and geographic information systems (GIS)" In this prerequisite is the reflection of the state of forests and biodiversity of elementary catchments, starting with the lowest order in characteristics within small watersheds should include the following information: Quantitative indicators of occurrence of vascular plants; density habitat of Red Book animals, evaluation of major anthropogenic factors causing forest degradation and a decrease in biodiversity, the degree of degradation (disturbance) of forest vegetation.

Scientific research should be carried out according to the agreed program with forest management organizations. Experience in analyzing the vast array of forest inventory data showed the feasibility of the model managed forest forming process, mathematical and cartographic modeling and mapping of forest vegetation, the compilation of environmental passports of forest species, forest types, forest formations,[14] which is necessary for the preservation and restoration of native forests of Primorye Territory.[20–24]

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Conflicts of interest

Author declares that there is no conflict of interest.

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