

## **Policy for the protection of forests and biodiversity**

Armenia, a country which has a history that dates back a thousand years, is characterized by rich biodiversity. For centuries, special care and attention has always been paid to the conditions of the nation's fauna and flora. Even in the 4<sup>th</sup> century, during the reign of the Armenian King Trdat, the nation succeeded in creating approximately 20,000 hectares of forests on its territories, on land not conducive to forest development, and the King issued a special decree that any person caught engaged in illegal logging was to be imprisoned for one year.

The geographic location of Armenia, its complex geological composition, and its vertical zoning have provided the conditions for its rich biodiversity and the evolution of its ecosystems. There are seven types of landscape, each with its own diverse species and forms of plants and animals.

The biodiversity of Armenia is extremely rich in economically-profitable types, and due to these it has for centuries been one of the region's centres for animal husbandry and agriculture.

Biodiversity serves as an important guarantee of the socio-economic development of any country, and the wealth of their population and provision of sustainable development are founded upon the diversity of native species and their quantifiable wealth.

However, the current state of biodiversity and landscape variety on the territory of Armenia is causing considerable concern. The various ecosystems are under the impact of a range of anthropogenic and technological pressures and threats. The population persists in the wide-scale exploitation of land, illegal logging and cattle pasturage; as well as unregulated tourist activities, mowing in prohibited areas, and the destruction of animals registered in the "Red Book" of endangered species. A rise in successive processes on logged forest land is leading to a considerable decline in biodiversity in general, and in the value of forest biodiversity in particular.

Armenia is one of the world's sparsely-forested countries, in which the forested area accounts for approximately 11% of its total territory.

Being a mountainous country, it is particularly dependent on the forests for their role in environmental protection: soil protection, water retention, and climate regulation.

We should also mention that Armenian forests are rich in biodiversity. There are about 260 types of trees and shrubs: of these, the main forest stock is made up of oak, beech, and hornbeam. These types cover approximately 80% of the total forest area and account for 97% of total timber supply.

From 1970 to 1990 Armenian forestry developed in a harmonious manner; the incidence of illegal logging fell each year, and there was a steady increase in total forested areas.

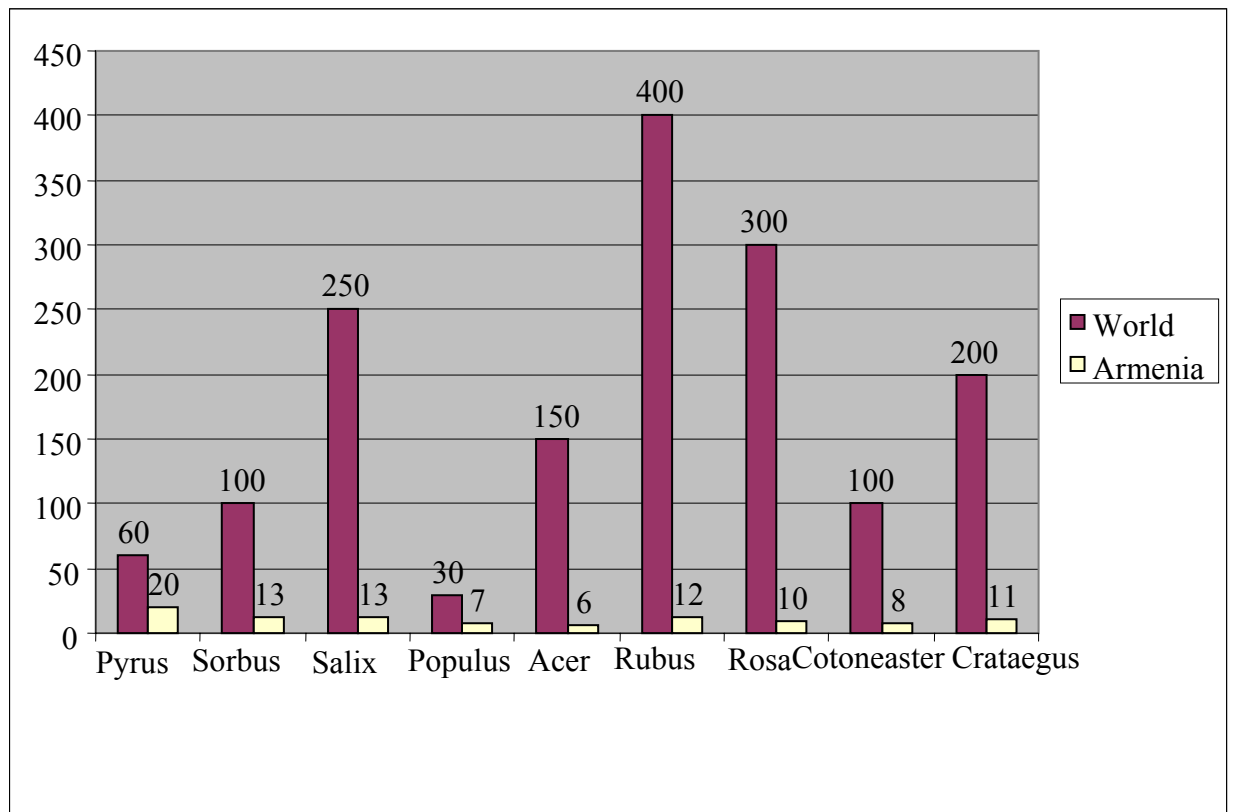
Under the conditions of the blockade of Armenia as well as a severe energy crisis and a worsening of the socio-economic position of the population in the 1990s, approximately 75% of the Armenian forests were subject to illegal and non-systemic logging, the volume of which was about 10 times more than the level of legal logging prescribed by the government.

As a result, tens of thousands hectares of land lost its forest coverage, either completely or partially; while as a result of the destruction of the forest eco-system, the main function of the forests disappeared, with undesirable changes to the species composition of the forests. High-value tall forests and beech gave way to short trunk, low-quality and low-value woods.

Today, the protection of environmental components is a task that cannot be postponed any longer. The issue of renewal of the forests is now of particular importance in the light of the continuous degradation of environmental resources, the depletion of biodiversity and the warnings of a global threat of desertification.

The country's forests have a unique strategic importance in ensuring an adequate level of socio-economic development for the population as a whole, and also in terms of national security, according to Professor J. Vardanian (2003). Forest biodiversity of the Republic comprises 323 species belonging to 54 families and 118 genus, including 9 gymnospermous species and 314 angiosperms. The leading role in forest biodiversity belongs to the family of Rosaceae, containing more than 100 species belonging to 18 genus. The Rosaceae are followed by Fabaceae, Salicaceae, and a number of other families (see fig. 1). The leading trees in the creation of forests are pear trees (20 species), dog-rose (18 species), mountain ash (13 species), willow (13 species), and hawthorn (11 species).

Fig. 1. Diagram showing the forest biodiversity characteristics of Armenia (by leading genus)



The forest biodiversity of Armenia is represented by 125 arboreal, 111 shrub, 30 bush, 48 semi-shrub and 9 wood-liana valuable species.

In the creation of different communities of forest plants, their roles and relative share in terms of quantity are completely different, and this is determined both by the conditions of the place where they grow and the character of the plant community, as well as the bio-environmental peculiarities of the various species. A more complete picture of the different types of live forms would show the sparse growth of coniferous and deciduous trees, the communities of deciduous forests, mainly covering the middle and partially-high mountainous belts, at the altitudes of 1200-1600 m above sea level, the sparse growth and also deciduous forests found at more than 2200-2400 m above sea level. As the aridity of these places of growth increases, so the volume of shrubs and semi-shrubs increases correspondingly, while the relative volume of woods, in contrast, falls.

The evolution of forest dendron diversity is currently in the process of dynamic change and development.

Historically, it has undergone considerable changes in the wake of active anthropogenic influences. If in a given geological period, the changes of the landscape eco-system and biodiversity took place over a considerable period of development (lasting millions of years), now in a specific

historical interval more visible changes are taking place much more quickly and right in front of our eyes, in just a few years or a decade at most.

The main factors threatening forest biodiversity directly or indirectly arise from myopic economic policy and thoughtless human activity.

The key threats are as follows:

- Climate change
- Decrease and change in habitat
- Over-exploitation of vegetation reserves
- Impact of introduced species

All of these threats decrease the quantity of forest plant species, animals and their populations, and are also a cause of the extinction and depletion of forest eco-systems.

The problems of protection of biodiversity, in particular of valuable wood and shrub species, are defined in the Convention on Biodiversity, and Armenia, as a signatory, has taken on its due responsibilities for the protection of biodiversity.

Primary guidelines towards solving the problem of environmental protection and the reproduction of forest biodiversity are set out in the program Strategy and Development of Biodiversity of the Republic of Armenia (2003), where specific importance is attached to the development of Specially Protected Natural Territories (SPNT).

SPNT provides:

- In-situ protection of biodiversity, and of especially rare and endangered species
- Favourable conditions for the rehabilitation and renewal of ecosystems and species
- Opportunities for research into ecosystems and biodiversity, and the gathering of important scientific information
- Protection for recreational resources, including historically valuable monuments, and environmental education as well as opportunities for regulated tourism.

Over the past five years, with the help of financing from the World Bank, Armenia has implemented a “Program for Natural Resources Management and Poverty Reduction” and a “Sub-Program for the Institutional Development of Forests” (SIDA).

Within the framework of these programs, the government of Armenia has developed a number of core documents, which are designed to assist in the renewal and development of the forestry of the Republic during the period 2005-2010. Among these core documents, those particularly worthy of note are the ‘Program for the support of activities aimed at curbing illegal logging’, the Forestry Code, the ‘National Forestry Program of Armenia’ and the ‘National Forestry Policy and Strategy of the Republic of Armenia’. Implementing the guidelines set out in these documents will assure the improvement of the forests and the protection of forest biodiversity.

The last program documents present:

1. The tasks of forest biodiversity:

- decrease in biodiversity in the forest eco-systems,
- degradation of forest landscapes,
- drastic decrease in the natural habitat of rare and endangered species of value (walnut, yew, *Corylus colurna* and others),
- absence of monitoring and information basis for biodiversity,
- absence of professional knowledge in the sphere of biodiversity protection among people employed in the forestry sector,
- irregularities in carrying out scientific research on the topic of biodiversity

2. Strategic aims

- Provision, monitoring and maintenance of information databases on biodiversity,
- provision of reliable and productive protection for biodiversity,
- renewal of the depleted forest landscapes and provision for their safety

1. Strategic measures:

- training of forestry personnel in the sphere of biodiversity security,
- creation of complex monitoring measures and information database on biodiversity
- development of eco-tourism
- renewal of depleted forests, which would facilitate an improvement in the position of the endangered species, their populations and the state of the ecosystems,
- application of safe forest management procedures to avoid harm the environment

The National Forestry Program has defined the timetable of carrying out the measures, as adopted by the government of Armenia.

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