

Important Plant Areas of Armenia: Research for Conservation

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Summary

Being located in the heart of one of the world hotspots for biodiversity Armenia is notable for huge biological, particularly plant diversity. About a half of species of the whole Caucasian flora grow here, on the area, which forms only 5% of the Caucasus. 217 of them are endemics, 387 are Red Data listed species.

Almost all the main habitats typical for the Caucasian region may be found on this area as well. The present condition of plant world of Armenia is alarming. The selection of the Important Plant Areas (IPAs) is the first and the most important step towards ecosystem conservation and creation of the protected areas network in Armenia.

The IPAs of Armenia project now on the early stage. Current activities include the collection and preliminary analysis of the appropriate data regarding botanically important areas of the republic.

Introduction

The Republic of Armenia is situated in the most south of the Caucasus and occupies the south-eastern part of vast highland area known as Armenian Upland. Ancient geographers called it "Mountain Island". The altitude fluctuations here are sensible – from 380m (in the Debed River Canyon) up to 4095m (the peak of Mnt.Aragatz). The climate is arid, fluctuations of temperature are sensible between seasons (from - 5-10 in a winter up to + 36-38 in a summer) and in a day as well.

Armenia occupies an area in the heart of one of the 25 world hotspots for biodiversity (R.Mittermeier, N.Meyers and others, 1999) and one of the Vavilov's centers of biodiversity for wild relatives of cultivated plants (Vavilov, 1992).

Flora and vegetation

Despite its small territory (30.000 sq km) Armenia is a habitat for about 3500 plant species from 150 families. Almost a half of species of the whole Caucasian flora grows here - on the area, which forms only 5% of the Caucasus.

The diversity of physic-geographical and soil-climatic conditions as well as geological past of the country formed very rich flora. Such floristic diversity is conditioned also by boundary botanical-geographical location of Armenia – it is situated on the junction of two sharply different humid Caucasian and arid Armeno-Iranian floristic provinces (A.Takhtajan, 1986).

Here one can observe also a huge diversity of plant communities. Almost all the main habitats typical for the Caucasian region may be found in this area. A miniature sandy desert, semi-deserts, mountain steppes and different bush types, open juniper forests and high-mountain meadows, forests (formed with oak, beech, hornbeam etc.) and alpine carpets, as well as wetlands (marshes, rivers and lakes) and numerous rocky habitats.

Under the threat

The global problem of landscape and biodiversity conservation is one of the most actual problems in Armenia to date. The impact of agriculture, as well as recreation and deforestation, particularly in conditions of the economic and energetic crisis of the last years led to sensible destruction and degradation of many ecosystems in Armenia. More than one third of the forests of Armenia has been destroyed for the last 14 years.

Needs of local people are unsustainable and uncontrolled and unlimited collection of wild flowers for sale is a serious threat for Armenian flora as well. Plants with large and bright flowers, such as irises, tulips, gladioluses, orchids and some others suffer the first.

387 species of Armenian flora are listed in the Red Data Book of Armenia (1988). Many of them are endemic species. Totally, there are 123 endemics of Armenia, some of which are extremely limited in their distribution and present in vulnerable ecosystems.

Conservation of these species first-hand should be directed to the conservation of their habitats, which implies the conservation of plant communities in which they grow.

IPAs in Armenia

The selection of the Important Plant Areas (IPAs) in Armenia is the first and the most important step towards the selection of ecosystems for conservation and further establishment of the national/regional network of protected areas.

The IPAs of Armenia project is on the early stage for the moment. The preliminary work towards selection of the IPAs in Armenia started in 2003 thanks to the support of the *Rufford Small Grants* facility, *The Whitley Laing Foundation*. Our current activities include collection and preliminary analysis of the appropriate data regarding botanically rich and exceptional areas in the republic as well as field studies in the areas of high botanical interest.

This research covers only vascular plants. The final IPAs selection will include all other plant groups: bryophytes, lichens, fungi and algae.

Here are some examples of natural habitats, which must be included in the Armenian IPAs list:

- a miniature sandy desert "**Gorovan sands**", located in Ararat Valley with very interesting flora, which includes some endemic and rare species -*Rhinopetalum gibbosum*, *Salsola tamamschjanae*, *Astragalus paradoxus*, *Allium akaka* and others);
- **salt marshes of the Ararat Valley** with a series of rare and endemic species adapted to specific conditions of this habitat - *Linum seljukorum*, *Inula aucheriana*, *Iris musulmanica*, *Sonchus araraticus*, *Orchis laxiflora*, *Merendera sobolifera* etc.;
- "**Erebuni Reserve**", located not far from the Yerevan City. The only reserve of wild cereals in the world it is a unique habitat of wild wheat such as *Triticum araraticum*, *T.boeoticum*, *T.urartu*, *Secale vavilovii*, *Hordeum spontaneum* and others;
- relict **Platan Grove** by the River Tsav in the Southern Armenia presents *Platanus orientalis*, *Juglans regia*, endemic *Pyrus zangezurica* and many varieties of *Malus orientalis*.

What do we need to do?

We need to adapt the available guidelines for IPAs selection in Europe (Palmer&Smart, 2001; Plantlife, 2002) to the Caucasus region as well as define what is an "exceptionally rich" botanical area and the "outstanding habitat" in a national/regional context.

Red Data Lists should be updated and revised in accordance with the new IUCN criteria and the species of global and regional conservation concern should be defined.

The additional species (subspecies) of the international conservation concern, where Armenia has a significant percentage (25% or more) of the regional population should be defined as well.

These and other related studies need to be done in close collaboration with colleagues from the neighbouring countries.

The project on the selection of the IPAs in Armenia touches the other important areas of plant conservation activities such as environmental education and community involvement with the perspective for ecotourism development in the country.



Fig. 1 *Alcea grossheimii* – endemic of Armenia.



Fig.2 *Iris lycotis* (Central Armenia)



Fig. 3 Salt marshes of the Ararat Valley (Central Armenia)



Fig. 4 *Papaver macrostomum* (Central Armenia)



Fig. 5 Rocky habitats in the Noravank Canyon (Southern Armenia).

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