

FINAL REPORT

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Full title of the project: Research and Conservation of Rare and Threatened Plant Communities of Armenia*

The project duration and the dates: 17 months (26.10.2003 -30.03.2005).

Background

The Important Plant Areas (IPAs) program was conceived in Europe in response to the increasing rate of loss of the irreplaceable wealth of Europe's wild plants and habitats through the economic development, urbanization, habitat destruction and other factors. IPAs are intended to be areas of great botanical importance for threatened species, habitats and plant diversity in general, that can be identified, protected and managed as sites. The IPA program is intended to identify areas that are appropriate for site-based approach to conservation.

The IPAs program directly responds to the Target 5 of the Global Strategy for Plant Conservation adopted by the Parties of the Convention on Biological Diversity (CBD) in 2002. Target 5 of this strategy calls for the protection of the 50% of the most important areas for plant diversity by 2010. Targets 1.4, 1.5 and 2.14 of the European Plant Conservation Strategy are based on the identification, monitoring and management of IPAs.

* My application and ask for the continuation grant with this project title was submitted to The Whitley Laing Foundation a few months before my visit to the Royal Botanic Gardens KEW where I have been working on the project proposal related to the same topic. The project was submitted in a part fulfillment of the requirements for the KEW International Diploma in Plant Conservation Techniques. The title of that one was "Important Plant Areas of Armenia: Criteria and Strategy for Selection."

Thanks to the course and that wonderful opportunity I found out that in fact both "rare and threatened plant communities" and "important plant areas" mean the same, so, by changing a formal detail – the title- we will get an opportunity to join the European plant conservation network as Planta Europa is and thus be integrated into the implementation of European Plant Conservation Strategy. So the abbreviation IPAs used in the report means the alternative and more actual title for this project.

Being located in the heart of one of the world hotspots for biodiversity and the Vavilov's centers for origin of cultivated plants Armenia is notable for huge biological, particularly plant diversity. About a half of species of the whole Caucasian flora grow here (3500 species from 150 families), 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 is the first and the most important step towards ecosystem conservation and creation of the protected areas network in Armenia.

The IPAs project in Armenia runs for the first time and based on innovative approaches, which are used in some other European countries for the last years.

The main goal of the project was to compose the preliminary list of Armenian IPAs* and to carry out an assessment of their present condition. To do that the following objectives were stated.

1. Objectives:

- To study the available IPAs selection manual for Europe and to adapt it to our region.
- To study all the available literature data regarding potential IPAs, as well as put together non-published data through interviews, personal experience, manuscript research etc.
- To select the priority sites with more or less sufficient data;
- To visit the selected sites for fieldwork with the aim of their botanical description, also to check and rediscover populations of species of high botanical interest;

* On this stage we are studying only vascular plants. The data on lower plants will be added on the following stages of the project.

- To process the all available data and to determinate the criterion for each of the sites in accordance with the principles of IPAs selection;
- To study the negative environmental factors and the main threat for each of the sites visited; determination of the main threats and the needs in conservation - should be achieved through the field research, available and collected data processing and analysis.
- To transplant the rare and endemic species' specimens to the Center for Biodiversity Conservation of Armenia /Yerevan Botanical Garden;
- To present the papers to wide scientific community;
- To state the further activities needed for development of the IPAs project in Armenia.

2. Methodology

The work has been held in accordance with the Research Timetable (Annex 1).

Conventionally one can divide the work by the activities to three stages: 1- archival studies and preparation to the fieldwork, 2 - the fieldwork, 3 - data processing and analysis.

The corresponding data collecting has been held before starting the expeditions and included herbarium and literature studies as well as an interviews, personal experience processing etc. The investigation of flora and vegetation was done with the use of taxonomic and geobotanical methods through the studies of the herbarium collections and collected plants determination, as well as descriptions done during the fieldwork.

The determination of plants was done with the use of the following manuals: "Flora of Armenia", "The key for Caucasus plants determination", "Flora of the USSR", "Flora of Turkey", "Flora Iranica".

The principles given in the guidance for IPAs' selection in Europe (*Identifying Important Plant Areas. A Site Selection Manual for Europe, and a basis for developing guidelines for other regions of the world.*) produced by Plantlife International in 2002 was used as a basis for selection ones in Armenia.

According to that the IPA definition is given as a natural or semi-natural site exhibiting exceptional botanical richness and/or supporting an outstanding assemblage of rare, threatened and/or endemic plant species and/or vegetation of high botanic value.

The three basic principles of IPA identification are:

Criterion A

The site holds significant populations of one or more species that are of global or European conservation concern.

Criterion B

The site has an exceptionally rich flora in a European context in relation to its biogeographic zone.

Criterion C

The site is an outstanding example of a habitat type of global or European plant conservation and botanical importance.

Collaboration within the Planta Europa Network, which encompasses the countries, having an experience in selection of the IPAs was very useful during our work.

Thanks to the St.Catharine's College support and grant from the OSI Armenia I visited Cambridge University (Botanic Garden, Plant Science Department) in Aug 2004, also traveled to the Royal Botanic Gardens Edinburgh and KEW.

Some studies have been done in the libraries and herbariums of those institutions. These opportunities and also meetings with my British colleagues helped me to collect some additional data to use in this project as well as related to the previous one's subject (Rufford Small Grant) as well as to establish scientific contacts for further collaboration.

3. Difficulties

- 1) An adequate data deficient regarding both rare and endemic species and their populations and habitats in Armenia especially in conditions of very rich flora and huge habitat diversity.
- 2) Lack of published data, which might be useful in the sites selection.

- 3) Absence of the similar studies in neighboring countries – no data from other parts of the geographical area.
- 4) Difficulties in determination of the “floristic richness” (criterion B) in a national/regional context – more detailed studies needed.

4. Conclusions and outcomes.

All the objectives are successfully reached. The list of selected IPAs is given with the following information on each of them: habitat type, location, area, total number of species in flora, the list of plant species of national/regional/global conservation concern, main threats and criterion in accordance with the IPA selection principles.

Some new sites were explored, which may be considered as an IPAs. Some new populations of rare and endemic species were recognised and some were rediscovered. Unfortunately, some of the populations located in the recreational areas are lost. Recommendations on recovery of some species are prepared.

1. 26 sites are selected and included in the preliminary list of the IPAs of Armenia. Among them are 2 National Parks and 4 State Reserves (see Annex2).
2. Totally the selected IPAs cover an area about 3000 sq km – 10% of the republic’s area. 7 of them are less then 50 hectares, 10 have an area from 50 to 500ha and 9 are more then 500ha.
3. The total number of rare and threatened (Red Data listed) species, growing on these territories is 340 – 90% of all those listed in the Red Data Book of Armenia. At least 16 of the selected IPAs are sites with very high concentration of species of national/regional/global conservation concern.
4. 14 of the selected IPAs are listed under the criterion A, 7 – A and C, 4 sites respond to all the 3 criteria A, B, C and 1 site – A and B.
All 26 sites are habitats for threatened or endemic species, 5 of them are considered as botanically rich areas and 11 – as exceptional plant communities.
5. The selected sites encompass all the main habitat types in Armenia: sandy desert, semi-deserts, steppes, bushes and dry open forests, forests and meadows (both highmountain and subalpine) alpine carpets, wetlands (marshes, lakes, rivers) and rocky habitats.

6. 14 of the selected sites present more or less homogenous habitats, 12 are very mosaic.
7. The IPAs cover the populations of wild relatives of cultivated plants (many forms), thus including also genetic diversity.
8. The main threats for these sites are an impact of agriculture, recreation and deforestation.
9. Provisional listing of candidate sites (potential IPAs) has been developed. There are 16 sites identified by literature sources, our fieldwork and scientists expertise. Field studies needed to determinate the status of these sites.
10. Large territories, botanically poorly studied or non-explored at all indicate that there is a series of sites, which may be selected through the exploration field trips towards these areas.

A number of the selected sites include also an important animal, particularly bird areas thus presenting the ecosystems of regional/global conservation concern.

Presentation of the project materials

1. The materials on the IPAs project in Armenia were presented /The poster paper “Important Plant Areas of Armenia: Research for Conservation”/on the Planta Europa Conference on Conservation of Wild Plants in Europe held in Valencia, Spain in 17-21 Sept. 2004 (<http://www.nerium.net/plantaeuropa/Download/Proceedings/Asatryan.pdf>) (My participation was sponsored by the Conference Committee). The publication/ output of the previous Rufford Small grant (“Poppies of Armenia”) were also spread among the conference participants.
2. The abstract “Selection of the Important Plant Areas in Armenia – s Step Towards Their Conservation” is submitted to the Secretariat of the International Botanical Congress, which will take place in Vienna, Austria in 17-23 July 2005. In a case of grant approval (Young Scientists Support) I will present a poster paper on the congress.
3. The abstract “Contributing to the Biodiversity Inventorying, Monitoring and Conservation in Armenia through the Selection of the Important Plant Areas.” was

submitted to the secretariat of the First DIVERSITAS Open Science Conference to be held 9-12 November in Oaxaca, Mexico. Here I also applied to the Young Scientists Support Scheme to be able to attend the conference and present a paper on the results of this project there.

4. The reports on this project were submitted to the Planta Europa Secretariat (Plantlife International, Salisbury) at the beginning and now, after completing the project. Also sent to the IUCN office in Moscow.
5. The progress reports have been presented (with the follow-up discussions) twice during the project work in the Dept. of Geobotany, Institute of Botany.
6. The materials on the leaflet related to the IPAs project in Armenia are preparing for publication.

5. Use of the results and future developments

The results will be published in scientific periodicals and presented as conference papers.

Further studies will be aimed to complete the lack of specific data on the selected sites and to study the candidate sites to complete the list of the IPAs of Armenia. The research results will be used as a base for creation and management of the protected areas network in Armenia, successful management of which will ensure protection of ecological, genetic and organismal levels of biodiversity.

So far as finally the IPAs should include all plant groups: vascular plants, fungi, lichens, mosses and algae, the data on lower plants will be added to those on vascular plants.

All the efforts will put to continue the IPAs studies in Armenia to finish the principal phase by the 2007. There is a desire to present a full report on the next, 5th Planta Europa Conference to be held in Romania in 2007.

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