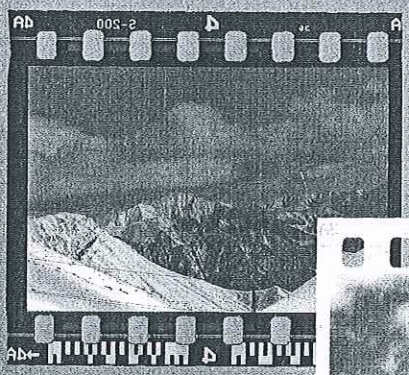
ANNUAL CONFERENCES OF THE REGIONAL ENVIRONMENTAL CENTRE FOR THE CAUCASUS

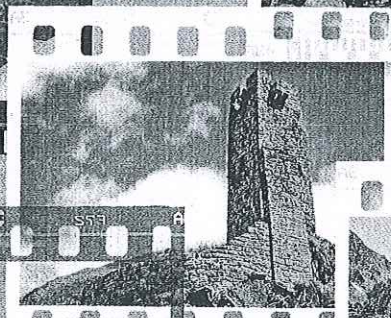
REC Caucasus III Annual Conference

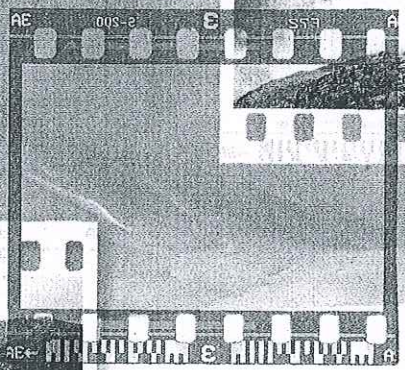
Sustainable Development of Mountain Regions of the Caucasus

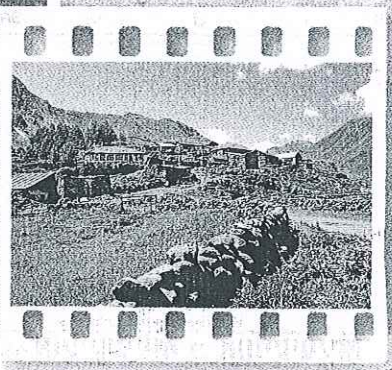
July 11-12, 2003

Agenda









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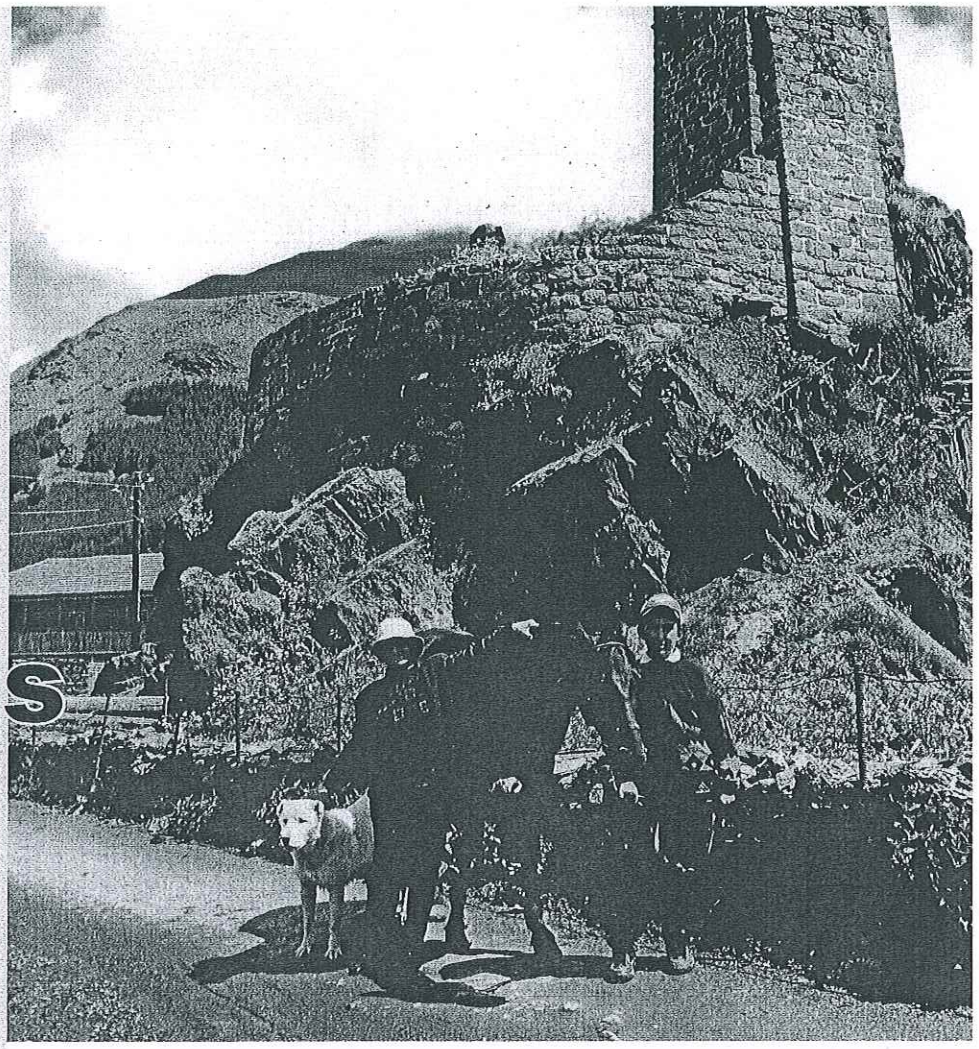

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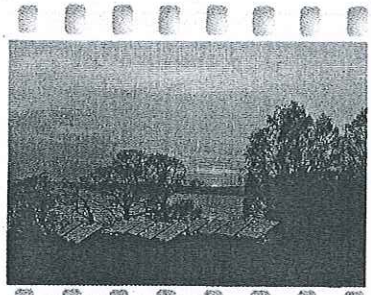


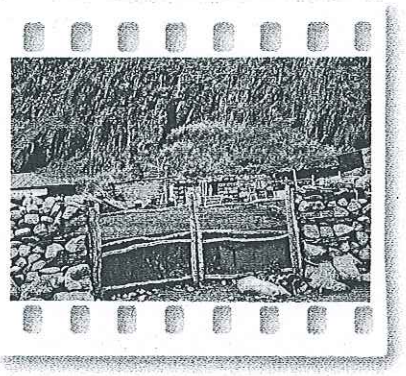
AGENDA

Third Annual International Conference of REC Caucasus

Sustainable Development of Mountain Regions of the Caucasus

July 11-12, 2003,

Tbilisi, Georgia



Round Table No. 1: Nature Protection and Conservation of Biodiversity.

Water, natural resources, disasters, desertification and change of the climate - these are the topics to be discussed at the round table where leading experts will talk about the natural potential that exists in the mountains, about natural and anthropogenic disasters and their impact on the environment; also about tendencies towards desertification, change of the climate and the results generated by these processes.

It is common knowledge that mountains are the source of fresh water and contain prodigious amounts of minerals, forests, etc. Mountains also preserve biodiversity of intact nature. Proper utilization of natural resources and pursuance of a relevant policy in this respect will guarantee preservation and increase of the bounty that the Greater Caucasus Mountains still contain.

"The strategy of sustainable development implies rational utilization of natural resources and protection of the environment whose combination contributes to social and economic development. However, preservation of healthy ecology and rational use of the gifts of nature are undermined by natural and anthropogenic factors that impede sustainable development of some areas (including mountains) and the country as a whole. Among the untoward natural factors are earthquakes, mudflows, active mud volcanism, processes that lurk in the mountain slopes whose consequences may be eliminated by improving the system of combating emergencies. At the same time, anthropogenic factors promote such negative ecological processes as desertification, soil degradation and deforestation. All these processes are interconnected and produce a pernicious impact on the future of not only Azerbaijan, but the whole region."

Talyat Kangarli
Cand. of Biology

All the above factors are major components of the process of sustainable development.

Round Table No. 1 is expected to elaborate a strategy together with a number of recommendations aimed at improving the situation in the sphere of protection of natural resources and biodiversity.

DAY TWO

SEVENTH SESSION

Round Table Discussions - Work in Separate Groups

09:30-16:30

Round Table No. 1: Nature Protection and Conservation of Biodiversity

Chairpersons:

Gohar Oghanezova	Vice-President of the NGO "Armenian Botanical Society". International Advisory Council of the REC Caucasus
George Dzamukashvili	President of the NGO "Genius Loci". International Advisory Council of the REC Caucasus

Speakers and their reports - time-limit 10 min

Forecastable Changes of the Climate and their Possible Impact on the Natural Ecosystems of Armenia
George Faivush — Institute of Botany, National Academy of Sciences of Armenia

Conservation and Rational Use of Natural Resources within the Framework of Securing Sustainable Development of Mountain Regions of Azerbaijan
Talyat Kangarli — NGO "Chevra", Azerbaijan

Sustainable Development of Forestry
Merab Machavariani — World Bank Programme, Georgia

Conservation of Biodiversity in the Highlands of the Caucasus
Nugzar Zazanashvili — WWF, Regional office

Ecosystems of the Caucasus Mountains
Levan Butkhuzi — NGO NACRES, Georgia

Changes of the Climate, Natural Disasters and Problems of Sustainable Development of Mountain regions of Georgia
Zurab Tatashidze — Academy of Sciences of Georgia

Nature Protection and Biodiversity of Mountain Regions
Ozgur Eminagaoglu — Qafqaz University, Turkey

Major Challenges in the Field of Protection of Wild Nature of the Republic of Adygheia
Andrew Rudomakha — Independent Environmental Agency for the North Caucasus

Forest Ecosystems as Essential Part of Sustainable Development
Valery Brinikh — Lecturer at the Maykop State Technological Institute, Russia

Tracing of Climate Changes in the Mountain regions of Azerbaijan
Mirzakhan Mansimov — Institute of Radiology, National Academy of Sciences of Azerbaijan

Eco-Geomorphological Charting of Mountain Landscapes Based on Space Photomaterials
Hasiyet Ismatova — Azerbaijanian National Aerospace Agency, the National Academy of Sciences of Azerbaijan

Potential of Artificial Reproduction of Salmo Ischchan in Lake Sevan
Aykaz Rubenyan — NGO "Environmental Survival"

Problems of Nature Management and their impact on the Environment
Otar Kalandadze — Ministry of the Environment and Natural resourses of Republic of Adjaria, Georgia

11:30-12:00 **Coffee break**

14:30-15:30 **Lunch**

3rd Annual International Conferences of the REC for the Caucasus,
Tbilisi, Georgia, (2003)

NATURE PROTECTION AND BIODIVERSITY OF MOUNTAIN REGIONS

Asist. Prof. Dr. Özgür EMİNAĞAOĞLU
Kafkas University, Artvin Faculty of Forestry, 08000, Artvin-TURKEY

Abstract: Turkey has several distinct biogeographic regions, each with its own endemic species and natural ecosystems. These include Caucasian mountain mixed temperate rain forests and alpine ecosystems of the North East Black Sea Coast; steppe grasslands of the Central Anatolian plateau; and the European and the Mediterranean regions, which, respectively, include probably the largest remaining stands of pristine alluvial forests. With approximately 10,000 vascular plants, Turkey has the richest flora in the temperate zone. Approximately on third of its flora (34.4%) is endemic to the country. Along with its rich flora, it also has a wide diversity of habitats. Turkish biodiversity is of major international importance but is under threat from a variety of unsustainable land and natural resource use pressures, which have been exacerbated by the sixfold increase in population that has taken place in the country over the last 60 years. These include: overgrazing and other unsustainable agricultural practices; unsustainable use of forests; conversion of wetlands and other critical natural habitats to agriculture or other land development; interference with the hydrological regime of wetlands for agriculture, municipal and industrial use of water; pollution, hunting and unsustainable harvesting of wild plants and tubers.

Key Words: Caucasus, Biodiversity, Nature protection, Mountain

INTRODUCTION

The combination of a moderate climate, rugged topography, varied geology, and geographic proximity to both Europe and the Near East help account for the uniqueness and complexity of plant life here. The region functions as a biogeographic corridor between the Mediterranean region and Central Asia. Endemism is high throughout in the Caucasus alone up to twenty percent of the flora is considered endemic. Yet the region retains its biological significance due to a high level of plant endemism and the occurrence of many relict species, especially along the coasts. The variety of flora is estimated at over 25.000 species, of which over half are endemic (Olson et al. 2000)

Turkey has 75% of the number of plant species that occur in the whole of Europe. One third of Turkish flora, which is more than twice as diverse as those of neighboring countries, is found only in Turkey. The country has several distinct biogeographic regions, each with its own endemic species and natural ecosystems. These include Caucasian mountain mixed temperate rain forests and alpine ecosystems of the North

East Black Sea Coast; steppe grasslands of the Central Anatolian plateau; and the European and the Mediterranean regions, which, respectively, include probably the largest remaining stands of pristine alluvial forests. In addition, one of the three major flyways for millions of migratory birds, which move between the Western Palearctic and Africa each year, passes through Turkey. Since the country is predominantly semi-arid, Turkish wetlands are of crucial importance for many of these migrants, and also for many breeding species of water birds. Furthermore, Turkish flora includes many wild relatives of important domestic species (e.g., wheat, barley, chickpea, lentil, cherry, pear, apricot, chestnut, pistachio) and many commercially important timber species, and medicinal, aromatic, industrial and ornamental plants. Also, since domestication of plants took place in the region, there are a wide variety of land races of domestic species, whose genetic resources could be of immeasurable economic value (Davis 1965-85; Muthoo & Onul 1996).

With approximately 10,000 vascular plants, Turkey has the richest flora in the temperate zone. Approximately on third of its flora (34.4%) is endemic to the country. Along with its rich flora, it also has a wide diversity of habitats. Several floristic and vegetation studies were carried out in the northeast Black Sea Region by Anşin (1979, 1980), Düzenli (1988), Vural (1996), and Eminağaoğlu (2002, 2003). According to the Flora of Turkey (Davis 1965-1985) many Turkish and foreign researchers have visited and collected plant specimens from this area. Albov, Andronakai, Anşin, Bornmüller, Davis, Düzenli, Grossheim, Handel-Mazetti, Henderson, Koch, Komarov, Krause, Louis, Maleev, Radde, Sauer, Stainton, Vvedensky and Woronow have made some collections in this region (Davis 1965-68; Davis et al. 1988; Güner et al. 2000). In the Black Sea Region, 2239 taxa belonging to 693 genera and 163 families were determined (Anşin 1980). Endemism is 16% and included 386 endemic taxa (Anşin et al 2002; Ekim et al 2000).

Turkish biodiversity is of major international importance but is under threat from a variety of unsustainable land and natural resource use pressures, which have been exacerbated by the sixfold increase in population that has taken place in the country over the last 60 years. These include: overgrazing and other unsustainable agricultural practices; unsustainable use of forests; conversion of wetlands and other critical natural habitats to agriculture or other land development; interference with the hydrological regime of wetlands for agriculture, municipal and industrial use of water; pollution,

hunting and unsustainable harvesting of wild plants and tubers. Designated protected area coverage is only 1% of the country; furthermore, since the traditional focus of national parks management has been provision of recreational facilities for the public, often to the detriment of the ecological integrity of internationally important sites, there is a need to improve the effectiveness of conservation management of many of these last remaining critical ecosystems. This will entail addressing the threats to biodiversity from regional development and natural resource use within the context of integrated conservation and sustainable land use plans for protected areas and the lands surrounding them (Olson et al. 2000).

Conservation International (CI), World Bank and Global Environment Facility (GEF) identified the Caucasian region as one of the Earth's 25 biologically richest and most endangered terrestrial eco-regions. The region is one of the most important refuge and relict areas of the Arctotertiary forests in West Eurasia, and is also cradle of the much younger postglacial forests of Central Europe. Its forests are in a natural and very often even pristine state and they are much older, richer in species diversity, and healthier than the deciduous forests of Central Europe. The global conservation significance of the area has also been recognized by World Wide Fund for Nature (WWF) that was identified the temperate forest of the Caucasus as one of the 200 priority ecoregions on the Earth Eco-region is an integrated system from the point of view of its origin, geoecological and biodiversity typology. Therefore, it is clear that efficient biodiversity conservation and sustainable use could be visualized only on the whole eco-regional scale.

The area has a unique flora and is a relictual refuge for many plant species that are remnants of an ancient Mediterranean flora. Disjuncted spreading between the Caucasus, the Mediterranean and Western Europe is characterized by species such as *Betula medwediewii* Regel, *Quercus pontica* C.Koch, *Rhododendron ungernii* Trautv., *R. smirnovii* Trautv., *Epigaea gaultherioides* (Boiss.&Bal.)Takht., *Osmanthus decorus* (Boiss.&Bal.) Kasaplıgil, *Ruscus colchicus* P.F.Yeo etc., which are specific to Colchic habitat. Outside of Colchic section these species are in a condition of dying relicts, when in the Colchic ecosystem they are in a condition of progressive relict. This is the peculiarity of mezophyle evergreen dendroflora (Gagnidze 2000; Gegechkori 2000).

The Caucasus region has been inhabited and affected by human communities for tens of thousands of years, but several pristine areas remain in the hotspot, mostly in

remote high-altitude areas. The Caucasus hotspot is home to 6,300 plant species, 1,600 (0.5% of the world's 300,000 plant species) of which (25.4%) are restricted to the region. More remaining habitat in the Caucasus hotspot needs to be formally protected to ensure the long-term survival of the region's biodiversity (Zazanashvili et al 1999).

Ecoregions, recognized as conservation units rather than national territories, are relatively large areas of land that share many of their species, dynamics and environmental conditions. Most of the biologically outstanding regions of the world are shared by several nations. Rivers and forests do not recognize borders; the diversity of species and ecological communities continues beyond national boundaries. Working on an ecoregional level implies a focus on biologically important sites, ecological processes, conservation policy issues and threats that are most important for the eco-region as a whole, rather than for a country within it. This approach will lead to more effective and lasting impact on biodiversity conservation, in particular in regions where resources are being shared by more than one country (WWF-Turkey 2001).

Transborder Protected Areas, also known as Transfrontier Parks, International Peace Parks, or Border Parks are tools for international cooperation in biodiversity conservation. 136 "Transborder Protected Areas" have been established in 98 countries, such areas are not found in the Caucasus (WWF-Turkey 2001).

DISCUSSION AND CONCLUSION

Today, biodiversity and ecological integrity of the forests in the area are severely threatened by various factors: aggressive forestry techniques, including clear cutting and replanting with alien species, spread of alien plant species, overgrazing, recreation, development projects, overharvesting, illegal logging and trade, poaching, construction of roads and dam, etc. The rivers and streams are continuously being damaged. Dams have altered the hydrology of many of the rivers in this region and planned projects are expected to continue to drastically change the environments in which many native species have evolved. There is great concern about the ability of the many localized endemics to survive these changes. Uncontrolled bulb collection and its trade, touristic developments on the highlands threaten natural habitats.

Transborder Protected Areas are not found in the Caucasus. A joint initiative from thr neighboring countries in the region can make a difference. Resources, common

values and problems shared by these countries make cooperation across the borders inevitable. Transborder Protected Areas can be set up among the countries located in the region and be cooperate in the ecoregion Conservation Initiative for the Caucasus. Development of joint projects in order to strengthen conservation of Colchic Forests in border areas. Transboundary projects are important conservation priorities in the region for protecting species on the verge of extinction.

Much of the remaining land in the region is owned by governments, meaning that protection could be much easier and quicker. As market economies gain strength in the region, land ownership will pass to private owners, and the opportunity to easily create new reserves will be lost.

Aforementioned and additional recommendations that would help in conserving biodiversity in the region can be summarized as below:

i. Transborder Protection Areas should be established where international corporation is necessary to protect habitats essential for biodiversity conservation.

ii. A Gap Analysis should be done in the region to determine additional areas to be protected for an efficient biodiversity conservation effort.

iii. Master plans should be made for all existing and proposed protection areas.

iv. Areas with exceptional botanical richness and/or supporting an outstanding assemblage of rare, threatened and/or endemic species and/or vegetation of high botanic value should be determined and designated as Important Plant Areas.

v. The region includes many economically and medically important woody and herbaceous plant species. These may be subjected to intensive collection due to low-income level of native people. This would lead to extinction of such species.

   a. Therefore, such species in the region should be determined and surveyed.

   b. To ensure these species would not go extinct their genetic variation should be studied.

   c. To help to improve financial situation of local people propagation and cultivation of these species should be studied.

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