

# MRI Newsletter 6: Global Change Research in Mountain Biosphere Reserves of the Russian Federation



## Mountain Biosphere Reserves in the Russian Federation

Mountains and highlands occupy more than 50% of the territory of the Russian Federation. In 2005, Russia had 36 Biosphere Reserves (BRs), of which 15 are Mountain Biosphere Reserves (MBRs). The MBRs represent different environmental and economic zones of Northern Eurasia; they lie far apart from one another (Figure 1). Laplandskiy MBR on the Kola Peninsula (No 1) is an example of a reserve located in the arctic belt and affected by the mining industry, while Kavkazskiy MBR (No 2), 2500 km further south and located on the border with Georgia, represents eastern Mediterranean ecoregional features.

### From biosphere *zapovedniki* to biosphere reserves

The protected areas network in Soviet times was based on *zapovedniki*: strictly protected areas not subjected to human activity, except research and monitoring. The first *zapovednik* was created in 1916. By 2005 there were over one hundred.

In the mid-1970s the USSR adopted the UNESCO Man and the Biosphere (MAB) Program. This action drove the development of new approaches and a transition of some *zapovedniki* to biosphere reserves (BRs). BRs are terrestrial and coastal ecosystem areas where managers promote solutions that reconcile conservation of biodiversity with sustainable use of resources. In a first wave, for example, Sikhote-Alinskiy (No 12) and Kavkazskiy (No 2) were nominated as BRs in 1978. In 2005, 31 *zapovedniki* had BR status. The original protected areas are now defined as “core zones.” Surrounding them are the buffer and transition zones, which allow for sustainable human use.

Many of the Russian BRs are classified as reserves but do not yet function as such.

## Global change research in Russia's protected areas

Research institutes played a leading role in defining the scientific programs in protected areas. These often included global change topics, even if they were not explicitly identified as such. Many *zapovedniki* developed multidisciplinary research strategies in ecology and biogeochemistry. Paleogeography, tree line migration, biogeography of rare species, and background monitoring of pollutants were traditional “global change” studies. A state-supported system of monitoring stations is still functioning in some of the *zapovedniki* (for instance, in Kavkazskiy) but is not very reliable, owing to the lack of financial and logistic support.

The traditional cooperation between reserves and research institutions could have been an asset in planning future global change research, but the economic and administrative weaknesses of the early post-Soviet era prevented its use. While research had previously had a close connection with conservation policy, there was never a strong link between research and development policy, sustainable or otherwise.

### Towards a national global change research program in mountains

#### Goals of the program

In 2004 the MAB-6 group at the Institute of Geography of the Academy of Sciences in cooperation with the Federal Ministry of Natural Resources in Moscow initiated a long-term National Global Change Research Program in Mountain Biosphere Reserves (NGCRPinMBR). The goals of the program are:

- Sustainable management of natural resources;
- Conservation of biological and cultural diversity;
- Definition and creation of mech-

anisms for the integration of research outcomes into the development agenda on local and regional levels;

- Adaptation of livelihoods to global change;
- Development of recommendations for adapting the UNESCO-MAB Seville principles to Russian MBR practice.

#### Background

The MAB-6 group is the driving force behind the program. It has been influenced by the International Human Dimension Program (IHDP), the International Geosphere Biosphere Program (IGBP), the Mountain Research Initiative (MRI), and the Russian National Committee of MAB, all stressing the need for and importance of coordinated global change research. They also recommend restoration of traditional cooperation between biosphere *zapovedniki* and the research institutes in the Academy. The Federal Ministry of Natural Resources (State Departments of Environmental Policy and of International Relations) supports the initiative financially and politically—an initial success.

#### Building the program's foundations (2004–2006)

In 2004 and 2005, Yuri Badenkov and representatives of the Katunskiy (No 15) and Teberdinskiy (No 3) MBRs participated in workshops at the GLOCHAMORE Open Science Conference, organized by MRI. They ensured that the Russian initiative was linked to and inspired by other global change research.

The first phase of the research program began in 2005 and will continue throughout 2006.

This phase will:

- Develop recommendations for the modernization of MBRs according to the UNESCO Seville Strategy (results of the 1995 UNESCO conference in



**FIGURE 1** Location of the 15 Mountain Biosphere Reserves in the Russian Federation; the boundaries of the New Independent States are visible at the west and southwest of the Russian Federation. (Map by Merzlyakova, adapted by Jürg Krauer and Ulla Gämperli)

#### Mountain Biosphere Reserves in the Russian Federation

##### Northern mountains

- 1 Laplandskiy
- 6 Taimirskiy
- 4 Pechoro-Ilichskiy
- 5 Visimskiy

##### Southern mountains

- Caucasus**
- 2 Kavkazskiy
- 3 Teberdinskiy

##### Altai-Sayan

- 15 Katunskiy
- 8 Sayano-Shushenskii

##### Far East

- 7 Ubsunurskiy
- 9 Baikalskiy
- 10 Sokhondinskiy
- 11 Barguzinskiy

##### Far East

- 12 Sikhote-Alinskiy
- 13 Kronotskiy
- 14 Komandor Islands

- Seville, Spain, on the future development of BRs);
- Develop the Global Change Research Program plus guidelines for its implementation in Russian MBRs (2nd phase, 2007–2012).

The first step is a diagnostic analysis of 4 MBRs: Katunskiy, Kavkazskiy, Sikhote-Alinskiy and Teberdinskiy. The Mountain Group at the Institute of Geography has been chosen to analyze their representativeness in terms of mountain ecoregions and global change issues, the capacity of the selected MBRs and joint research teams, and the presence of transition and development zones. At the end of 2005, the Mountain Group assembled a project team that includes scholars from the Institutes of Geography, Ecology and Evolution of the Russian Academy of Sciences and the Universities of Moscow, St Petersburg, Altai, Tomsk, and Kubanskiy, as well as representatives of the pilot sites.

#### The future

After analyses of the selected MBRs in 2006, the Russian Academy of Sciences and the Federal Ministry

of Natural Resources should sign a larger agreement for cooperation in the NGCRPinMBR. The agreement should encompass research cooperation, coordination, and financial/institutional support over the long term.

The period 2007–2012 should see the program's implementation. This phase will include international cooperation at a multi- and bi-lateral level. The GLOCHAMORE Research Strategy will be the framework for partnership at the theoretical as well as the operational level. For every research field specific partners will be determined. For example, in glaciology, there are important partners in the US, Switzerland, and France.

Further information on the concept and functioning of BRs, on BRs in the Russian Federation, and on the MAB program are available on the Internet at [www.unesco.org/mab/](http://www.unesco.org/mab/); information on the GLOCHAMORE project and Research Strategy is available at [mri.scnatweb.ch/content/category/3/10/31/](http://mri.scnatweb.ch/content/category/3/10/31/)

The following persons can provide information on the National Global Change Research Program in Mountain Biosphere Reserves:

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A web site should be online in the first months of 2006.

#### REFERENCE

**Samoilova GS.** 1999. Morphometric analysis of mountain areas in Russia. *Izvestiya of Russian Academy of Sciences, Geography* 2:110–114.

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