

Research Projects on Grasslands of Russia

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The degradation of rangelands is recognized as a major problem around the world threatening their biodiversity, viability of many useful plant and animal species and the livelihood of local communities. Ecosystems of steppes of the structure of the Eurasia dry land biome predominate, which occupy more than 30 per cent and 10 per cent of the areas of mainland plains and of mountains, respectively. But the steppes of European Russia already have been transformed by human activities for many centuries. Before farming developed natural pastures for herds of nomad tribes and numerous wild ungulates were present in large tracts. By that time the Russian Plain's steppe zone was called "Wild Field", and it served as a border between the settled population of Russia and the nomads of the South. Industrial development and intensive ploughing of meadows and typical steppes began only between 200 years and 300 years ago. In the 19th century they still occupied their natural position. In Central and Eastern Europe, in the 20th century steppes disappeared almost completely and only very small portions of them could be found in protected areas. Fundamental changes in vegetation and soil cover and animal population of steppes took place at that time. The productivity of such steppes decreased simultaneously with the reduction of humus reserves in soil. Soil erosion (water- and windy-) is the most urgent ecological problem for the steppes of Eurasia. Moreover, there are large areas with chemical and radioactive pollution, extraction of mineral resources, irrigation (including salinization due to water surplus) on dry lands.

A number of projects are being implemented in Russia today that are dealing with the study, conservation, and sustainable use of grassland ecosystems. We will present to you a very brief information on some of them. First of all, it is necessary to mention the possibilities to

publish results of these projects in specialized journals. There are three such sources of information for specialists:

❶ The journal „Arid Ecosystems“ [„Aridnye ekosystemy“, in Russian with English summaries] was founded in 1995. The journal (editor-in-chief is professor Z.G. ZALIBEKOV, Director of Cis-Caspian Institute of Biological Resources, R.A.S.) is published by the General Biology Department of the Russian Academy of Sciences. Scientists from the Russian MAB-Committee take active part in this journal which covers results of fundamental and practical investigations of arid ecosystems and the achievements in desertification control. Principles of the study of arid ecosystems and the dynamics of their components at global and regional scales are main features of this Journal and are important to avoid potential negative changes and loss of biodiversity.

❷ In 1996, the Institute of Steppe was established at Orenburg city within the Urals Branch of the Russian Academy of Sciences. This is only one scientific institution of Russian Academy of Sciences which specializes on problems of the steppe. Periodically, this Institute organizes the international symposium „Steppes of Eurasia“ and already has issued a number of different scientific and popular publications. In May 2000 the next international symposium „Steppes of Eurasia: Strategy of Use and Conservation of Natural Diversity in the 21st Century“ will be convened (with support by the Russian MAB-Committee) at Orenburg city. Recently, this Institute has started the publication of its own journal „Questions of Steppe Studies“ [„Voprosy steppevedeniya“, in Russian with English summaries] (Editor-in-Chief is professor A. A. CHIBILYOV, Director of the Institute of Steppe).

❸ In 1998, under the initiative of some Russian NGOs the „Steppe Bulletin“ was

founded which publishes papers on conservation of steppe ecosystems.

Some words about other activities, mostly initiated by the Russian MAB-Committee:

❶ In September 1998 at Volgograd city the International Conference on Problems of Conservation of Arid Regions' Biodiversity in Russia was organized by the Volgograd branch of the Russian Ecological Academy, the Russian MAB-Committee, and the State Committee for Environmental Protection of the Volgograd region. The Conference's participants discussed a number of current problems which impede the study, conservation, and sustainable use of biological resources that are necessary for the normal functioning of ecosystems and the survival of human beings. Following the recommendations of this conference the Regional Center for the Study and Conservation of Biodiversity was established at Volgograd city and practical work on the inventory of biodiversity and a survey of potential sites for establishing new protected areas (there are very few of them in grassland zone of Russia) have been started.

❷ In 1998, in the Kalmyk Republic the Arid Center was established with support of the Russian MAB-Committee. The activities of this Center include the collection of data on desertification processes in arid regions of Russia and Europe; the creation of a database on these problems; and the exchange of information with other similar institutions.

❸ The project „Russian Ecological Transect“ was initiated in 1992 as a part of the state research program of Russia on „Global Changes of the Environment and Climate“. As a number of different studies have shown, some considerable changes in temperature and precipitation could possibly be observed in the not too distant future in different natural zones of the Northern Hemisphere. Based on the analysis of meteorological records of the last one hundred years the

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changes are already noticeable in the arid zone of Russia and other parts of the Old World. In order to specify possible impacts of them on ecosystems it is necessary to build an inventory of all available data and create a retrospective monitoring of some situations involving different ecological factors. For this purpose the transect method could be used. The above mentioned Russian transect passes through all the main landscape zones of our country's European part. During this study special attention was paid to the following aspects: estimation of immediate impacts of ecological factors upon populations and communities; study of changes in biotic interactions due to gradual changes of the biotic environmental factors; study of the ecotone's effects. A special booklet on the results of these studies within this transect was published in 1996 (in Russian and English) and most of its chapters have been prepared by scientists from different Working groups of the Russian MAB-Committee.

At present, we are preparing a project proposal on the international latitudinal transect that will cover grasslands of Eurasia from Moldavia to China. It will be important to use the same methodology in collaboration with other European countries with grassland ecosystems (Hungary, Bulgaria, and others).

④ During 1996-1998 the project „Sustainable Agriculture and Steppe Biodiversity in Russia and Ukraine“ was implemented with the IUCN's and the Government of the Netherlands' financial support. The main purpose of the project was a preparation of realistic management plans for farms in the steppe zone with the aim of securing sustainable agriculture and the conservation of biodiversity. The first stage of this project was successfully completed and now it is necessary to find additional funds for carrying on complex social and ecological studies in different environments on the territory of the former USSR.

⑤ The long-term project on historic aspects of pasture digression and the re-

storation of herbaceous communities of the Kalmyk Republic is implemented by scientists of the Institute of Ecology and Evolution of the Russian Academy of Sciences. The area of these studies lies adjacent to the Biosphere Reserve „Chernye Zemli“ and is unique for Russia's grassland ecosystems which have been transformed significantly by the ill-conceived extensive use in the past. After the reduction of livestock and a certain increase in precipitation, natural processes of ecological systems recovery came to life. The data accumulated during the last hundred years allow the assessment of the role of various factors in the trends of the ecological processes distinctive for these ecosystems. This project has to solve several problems. In order to ensure sustainable development of the region's economy an analysis of all collected information is required. Also, forecast models need to be developed taking into account the errors committed so that these can be avoided in future as well as possible global changes in the environment. No doubt, identification of the integral reaction of the vegetation cover to the changed climate factors and anthropogenic impacts as well as the level of the recovery capabilities of the degraded herbaceous ecosystems will allow to closely approach the stage of developing a modern management framework and the optimal use of pastures on the given territory as well as in other arid regions.

In connection with these studies we are trying to improve the conditions for survival of local populations of the Saiga antelope (*Saiga tatarica tatarica*) and organize their sustainable use. Many foreign experts have been involved in such studies and much useful advice was given, but unfortunately, due to the present lack of finance in our country it is impossible to solve the problems of degradation of grasslands and the decline of their biodiversity.

⑥ There are plans to establish some across-the-border protected areas (including biosphere reserves) along the fron-

tier of Russia with its neighbors. Most of them are situated in grasslands on plains and mountains. But as mentioned above, it is difficult to achieve this important task without adequate finance. Besides, these areas rather often have been used for military polygons. On the one hand, it was additional protection of some rare species of plants and animals, on the other, it is difficult to get these lands back for scientific studies and protection due to political changes in the area of the former USSR and differences in legal instruments of new independent states. Some investigations and projects aimed at progress in this field are conducted with the help of the European Program of IUCN. We hope, in the near future we will achieve some progress and more protected areas will be established within the grassland zone of Eurasia which, of course, will be open for international co-operation.

One of the topical tasks in such type of co-operation could be the protection of nesting, migrating and wintering of the Great Bustards (*Otis tarda*) in different European countries. Our MAB-Committee is conducting some negotiations with relevant authorities and national MAB-Committees concerning a possibility to sign the international agreement to save this gorgeous bird endemic in Eurasian grasslands. Any help and advice from the participants of this Symposium how to arrive at this agreement as soon as possible is very much appreciated.

We called your attention to some of our problems and presented only a part of the most recent research implemented in Russia. It should be mentioned also that seven to eight years ago the Soviet MAB-Committee was able to organize many field projects which were conducted in different Republics and were more comparative in character. At the present time we are interested in re-establishing our former links with all colleagues who made great contributions into progress of the UNESCO „Man and Biosphere Program“.