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ACHIEVEMENTS OF FINNISH-RUSSIAN RESEARCH COOPERATION IN FRIENDSHIP PARK RESEARCH CENTRE

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The basis for Finnish-Russian nature conservation research cooperation in the framework of Friendship Nature Reserve is shortly described. The most important achievements of the research especially on the Finnish side are introduced giving information about the most important projects and publications. The activities of the research and its applications have developed from inventories to high level academic research. The Friendship Park research framework has also given opportunity to prepare several master theses and doctoral dissertations. Also, the results have been popularised to be used in schools, ecotourism and decision making. The activities have increased the mutual understanding of Finnish and Russian scientists and nature specialists. Visits of scientists and excursions have increased the understanding of boreal nature widely internationally.

Key words: Nature conservation, conservation research, Finnish-Russian cooperation, publications, Friendship Park, Fennoscandian green belt .

Р. Хейккиля, Т. Линдхольм. ДОСТИЖЕНИЯ ФИНЛЯНДСКО-РОССИЙСКОГО НАУЧНО-ИССЛЕДОВАТЕЛЬСКОГО СОТРУДНИЧЕСТВА НА БАЗЕ ИССЛЕДОВАТЕЛЬСКОГО ЦЕНТРА ПАРКА «ДРУЖБА»

Дано краткое описание основ финляндско-российского сотрудничества в области природоохранных исследований в рамках природного парка «Дружба». Представлена информация об основных проектах и публикациях, отражающих важнейшие результаты этих исследований, в особенности на финляндской стороне. Исследовательская деятельность и применение ее результатов прошли путь от инвентаризации объектов до академических исследований высокого уровня. Кроме того, научная структура парка «Дружба» позволила подготовить несколько магистерских и кандидатских диссертаций. Результаты исследований были переработаны в популярную форму для использования в школах, в экологическом туризме и управленческой деятельности. Проведенная работа повысила взаимопонимание между финляндскими и российскими учеными и специалистами в области природы. Посещения территории учеными и экскурсии позволили достичь более глубокого понимания бореальной природы в мире в целом.

Ключевые слова: охрана природы, природоохранные исследования, финляндско-российское сотрудничество, публикации, парк «Дружба», Зеленый пояс Фенноскандии.

Introduction

The nature reserve Friendship was established in 1990 on the basis of an agreement signed by the presidents of Finland and the Soviet Union, Mauno Koivisto and Mihail Gorbachew in 1989. The aim of the agreement was to promote Finnish-Russian cooperation in nature conservation, and especially nature conservation research.

Basically, the nature on different sides of the border is all the same. The area belongs to the Fennoscandian Archaean bedrock area with gently undulating terrain formed by several glaciations during the last two million years. The boundary has been in the same place since 1595, and due to different land use history, the human impact on the nature has been very different during the centuries. Nowadays the intact nature on the Finnish side is very fragmented due to intensive forest logging and mire ditching. On the Russian side there are still very large more or less intact forests, mires and lakes, but on the other hand also large scale industry and large clear cut areas in the forests. The nature reserve Friendship offers a globally unique and extremely interesting field for research of biodiversity and human impact on it. It is also an important part of the Fennoscandian Green Belt concept.

The nature reserve consists of six different parts in Russia and in Finland. Kostamus state nature reserve (zapovednik) on the Russian side is strictly protected and reserved mainly for ecological research. It was established in 1983, and it covers 47 500 hectares including the large Lake Kiihtehenjärvi, numerous smaller lakes, pristine forests, small aapamires and bogs. The reserve was opened for guided tourist excursions along 8 routes in 1995, and recently also ecological education is one task of the reserve in addition to scientific research.

On the Finnish territory there are five nature reserves, which together form Friendship Park. Ulvinsalo strict nature reserve was established in 1956 covering 2500 hectares. In the 1990s it was extended up to 3000 hectares in connection with the old forest conservation programme. In Ulvinsalo there is a mosaic of pristine forests, small aapamires and small watercourses. It is reserved for ecological research and closed for the public. Elimyssalo nature reserve (established in 1990) is the largest protected area in Kainuu province, covering after recent extensions about 8000 hectares. There are old-growth forests, a large diversity of small mires, numerous small lakes and natural streams. Iso Palonen – Maariansärkät nature reserve (4000 ha) was also established in 1990. It consists of pine forests on eskers and oligotrophic lakes with very clear water. Lentua nature reserve (5100 ha), established in 1990, contains a part of the largest unregulated lake

in Kainuu province, and some islands with pine forests. Juortanansalo mire reserve (established in 1988) covers about 3000 hectares of relatively large aapamires and pristine forests on mineral soil islands. Thus, Friendship Park covers altogether 23 000 hectares in Kuhmo and Suomussalmi towns.

Results

In this article we concentrate on Finnish-Russian nature conservation research cooperation in the framework of Friendship Nature Reserve cooperation in such a manner that we deal with cross-border cooperation, and national and international activities connected with it mainly on the Finnish side. We mostly pay attention to the achievements on the Finnish side of the border, and hopefully our colleagues from Kostamus and Petrozavodsk would in the future write about the achievements on the Russian side (see list of publications in the Appendix).

Research cooperation and projects

Kostamus zapovednik was established already in 1983, and scientific research had been conducted for several years before the start of cooperation. On the Finnish side only scattered studies by researchers from the universities of Oulu and Helsinki had been done. Finnish and Russian scientists conducted also joint works about wild forest reindeer.

The continuous research cooperation was started in 1990, guided from the Finnish Environment Institute, but Friendship Park Research Centre was established only in 1993, when the building was constructed near the centre of the town of Kuhmo. At the moment, the staff of Friendship Park Research Centre in Kuhmo consists of 7 persons with permanent contracts, a few project researchers and approximately 10 assisting persons with temporary contracts with funding mainly from employment authorities. In Kostamus nature reserve there have lately been 3 researchers but no research assistants.

After the establishment of the joint Finnish-Russian Nature Reserve Friendship, the first meeting on the practical arrangements of Finnish-Russian research cooperation was held in July 1990 in Akonlahti in Kostamus nature reserve. Joint works and exchange of scientists started in the form of joint field works on bird fauna, mire ecosystems, coleopterans and small mammals during the same year.

Friendship Park Research Centre coordinates the cooperation on the Finnish side under the guidance of Finnish Environment Institute, and promotes the exchange of information across the border. The cooperation acts as a «gate between the

east and the west» also more widely internationally. The research of the factors influencing biodiversity in Friendship Nature Reserve helps to understand the matter in whole East Fennoscandia and thus promotes the evaluation of nature reserve network in Finland and Northwest Russia, and supports the development of methods in forestry. Thus it gives a possibility to protect and utilize the boreal coniferous forests in a sustainable way. The ecological sustainability ensures the success of forestry products in international market. The research also promotes nature tourism, multiple use of forests, and helps to understand non-timber values of forests, including also cultural and historical values.

Due to different methods and paradigms in Finnish and Russian traditions of research, and some linguistic problems, a lot of work was needed in the beginning to learn to know each other, the ways of work, and make friends. The close cooperation, sometimes in difficult conditions during joint expeditions, has made the partners of research to feel real friendship according to the name of the reserve. Mutual understanding on the personal level has been a very positive feature in this cooperation, and it has also greatly improved the scientific cooperation.

Since the first symposium on the Finnish-Russian research cooperation in the framework of the Nature Reserve Friendship in 1994, a lot has happened. The research both in Finland and in Russia has turned more and more from basic inventories to analytical research on the functioning of ecosystems from regional to local scale. Special attention has been paid to the fragmentation of old-growth forests and the problems of threatened species. In 1997, a large project on conservation biology of old-growth forests was started together with Helsinki, Turku and Oulu universities in the Finnish Academy biodiversity programme (FIBRE) and funding from the Finnish Ministry of the Environment. The goal was to produce information and practical tools for the regional planning of the utilization of forests.

An important task has been compiling data to promote the ideas about forming a «Green belt» along the Finnish-Russian border. Large projects have been conducted with funding from the ministries of the environment and natural resources as well as from EU TACIS and LIFE foundations. There have been also large projects with EU Interreg funding to study the influence of the large wilderness areas on the Russian side on the animal populations in the fragmented network of small reserves on the Finnish side, to produce popular information about the nature on the basis of the research cooperation, and the impacts of

Kostamus mining plant on man and nature. The studies nowadays also aim at showing alternative economic possibilities to compensate the losses in forestry caused by the establishment of new large nature reserves.

Finnish-Russian cooperation has mainly been fruitful, and it has expanded quickly. In the beginning, cooperation partners were Kostamus nature reserve and Karelian Research Centre from Petrozavodsk. In the late 1990s and early 2000s also institutes of the Russian Academy of Sciences from Moscow, St. Petersburg and Novosibirsk as well as universities from Moscow, Petrozavodsk, St. Petersburg, Tula and Vologda have joined the cooperation. Cooperation with Russian partners has emphasized the biodiversity of mires and forests, geology, soil science and Holocene development of nature. Friendship Park Research Centre has also together with Finnish and Russian partners taken part in the evaluation and development of the nature reserve network in NW Russia, coordinated by the Finnish Environment Institute.

The most important projects in Friendship Park Research Centre for Finnish-Russian cooperation have been:

Inventories to promote Kalevala National Park and extension of Kostamus Nature Reserve (EU LIFE, 1998–1999) and three EU Interreg projects

- Impact of Russian Karelian forests on animal populations in the old-growth forests of Kainuu region (2001–2004)
- Enchanted by Nature – getting familiar with the boundary region nature (2005–2007)
- The influence of Kostamus mining plant on human environment in the boundary region (2007)

Nationally, the most important project has dealt with the ecological sustainability of old-growth forest conservation in northern Finland (1997–2001). It was funded by the Ministry of the Environment. In addition, there have been numerous smaller projects funded by the Ministry of the Environment and Metsähallitus (Forest and Park Service of Finland) natural heritage services in 1990–2008. The Ministry of the Environment has also funded the exchange of scientists in Finnish-Russian cooperation annually.

Seminars, workshops and symposia

Gradually it has become possible to put together the materials collected on different sides of the border. In 1994, the first Finnish-Russian seminar on the results of the research was arranged in Kuhmo. The presentations were compiled in the form of a publication in English, containing 364 pages, mostly articles about the biodiversity of flora and fauna in the territory.

In October 2000, the 10 years anniversary symposium of the nature reserve Friendship was organized in Kuhmo and Kostamus jointly by the research centre of Friendship Park, Kostamus Nature Reserve and Metsähallitus. 140 participants from 8 countries gave altogether 65 oral presentations and presented 35 posters. The proceedings, containing 326 pages were published in August 2003.

In addition to the actual Friendship Nature Reserve symposia, Friendship Park Research Centre has also taken part in the arrangements of an International Mire Conservation Group workshop in Kuhmo in 1997 (35 participants from 15 countries), which was followed by a one-week field symposium in Solovetski, arranged by our Russian colleagues, Disturbance Dynamics in Boreal Forests Conference in Kuhmo in 2000 (200 participants from 21 countries), Habitat Contact Forum of the Barents Region in Kuhmo in 2003 (105 participants from 12 countries), Raptor workshop in Kostamus in 2005 (50 participants from 6 countries) and International Mire Conservation Group conference in Finland from Lapland to south coast (100 participants from 21 countries). In addition, numerous smaller meetings and workshops have been arranged in Kuhmo in Friendship Park Research Centre.

Publications

Over the years, numerous other scientific reports have been published both in Finland and Russia. Today the number of publications exceeds 350, including also popular articles and books.

The results of research have been published

as scientific articles, monographs and reports in the publication series of the environment administration in Finnish, Russian, English and German (See appendix). In addition, 11 doctor's dissertations and some 30 M.Sc. theses and other diploma works have been prepared. The best way to measure the results of the work are the publications, so far altogether almost 400 (Tabl. 1). The scientific quality can be measured by taking separately into account refereed publications and publications in international journals. During latest years the amount of international publications has been relatively high when compared with the resources. In addition to the publications mentioned in the Appendix, numerous articles have been published in Finnish on the Finnish side, as well as mainly in Russian on the Russian side.

The results of research have been widely popularized in local, regional and national newspapers as well as in radio and TV programmes in Finland, Russia, France, Germany, and in the international ARTE TV satellite channel. In addition, tens of presentations have been held in Friendship Park Research Centre to the visiting student and other groups.

Academic studies

Friendship Park Research Centre has actively worked for giving possibilities for young scientists to make their master's theses and doctoral dissertations conducting the field work in projects in Friendship Park (Tabl. 2, 3). Supervisors of the studies have usually come from different universities, but also the authors of this paper have supervised many theses.

Table 1. Numbers of different publications from Friendship Park Research Centre in 1990–2006. The columns are as follows: 1) Administrative reports in Finnish; 2) Popular publications; 3) Scientific non-refereed articles (e.g. conference proceedings); 4) Scientific refereed articles in national journals; 5) Scientific international articles; 6) Conference abstracts; 7) Dr. dissertations; 8) M.Sc theses; 9) Books and edited volumes

Year	1	2	3	4	5	6	7	8	9	Total
1990	2	0	0	0	0	0	0	0	0	2
1991	4	0	0	0	0	0	0	0	0	4
1992	2	0	0	0	0	0	0	0	0	2
1993	4	0	0	0	0	0	0	0	0	4
1994	5	0	3	3	2	0	0	2	0	15
1995	4	2	5	3	2	0	0	0	0	16
1996	5	2	1	1	0	0	0	4	0	13
1997	16	2	1	7	2	1	0	2	1	32
1998	1	0	3	4	2	0	1	4	0	15
1999	10	0	3	1	0	18	1	3	0	36
2000	1	2	5	2	7	29	0	2	2	50
2001	0	1	2	5	6	3	0	1	0	18
2002	15	0	15	0	7	3	0	3	1	44
2003	0	0	15	0	12	5	4	1	1	38
2004	0	1	7	0	4	1	3	0	1	17
2005	1	2	2	1	6	1	1	5	0	19
2006	0	0	23	7	4	4	1	2	2	43
Total	70	12	85	34	54	65	11	29	8	368

Table 2. Academic dissertations prepared in the framework of Friendship Park Research Centre

University of Helsinki		
Mikko Kuussaari	1998	Department of Zoology
Raimo Heikkilä	1999	Department of Geography
Paula Siitonen	2003	Department of Ecology and Systematics
Gergely Várkonyi	2004	Department of Ecology and Systematics
Juho Pennanen	2004	Department of Forest Ecology
Reijo Penttilä	2004	Department of Biological and Environmental Sciences
Tuomo Wallenius	2004	Department of Biological and Environmental Sciences
Tarja Latva-Karjanmaa	2006	Department of Biological and Environmental Sciences
University of Joensuu		
Atte Komonen	2003	Faculty of Forestry
Teemu Tahvanainen	2005	Faculty of Biological Sciences
University of Uppsala, Sweden		
Tord Snäll	2003	Faculty of Science and Technology

Table 3. Number of master's theses prepared in the framework of Friendship Park Research Centre in different universities up to 2006

University of Helsinki	13
University of Oulu	8
University of Joensuu	2
University of Turku	1

Network

The research units in Kuhmo and Kostamus are rather small, and their main task is to coordinate research conducted in the nature reserve Friendship. A great deal of the research is made in cooperation with scientists from Petrozavodsk, Moscow, St. Petersburg, Helsinki, Oulu, Joensuu and so on. During recent years, also scientists from other countries like USA, Canada, China, Sweden, Norway, Austria, Belgium and Germany have noticed the possibility for research here, and have started cooperation with us.

There has been a lot of fruitful cooperation with Finnish universities and research institutes like Finnish Environment Institute, North Karelia Regional Environment Centre, Forest Research Institute, Finnish Geological Survey and Game and Fisheries Research Institute. Among universities Helsinki University has been the most important partner.

In the framework of Friendship Nature Reserve cooperation, a lot of studies have been conducted also outside the nature reserve. Especially in the studies of mire ecosystems, the cooperation has extended far beyond the core area to reach better understanding of the geographical position of Friendship Nature Reserve. For example, studies have been conducted in Kauhaneva national park in western Finland, in Kolatselkä area in southern Karelian Republic, Ypäyssuo mire in Kalevala region and on the White Sea coast. This has also resulted in wider international contacts, especially in the framework of the International Mire Conservation Group (www.imcg.net).

The research has also resulted in arranging teaching in e.g. Kuhmo high school (special course

on forest ecology), two field courses of mire and forest ecology for Helsinki University in Kuhmo and education in forest institutes. In summer 2000 a group from Vienna University from Austria spent a week in Kuhmo having a field course on boreal nature supported by Friendship Park Research Centre, and in 2000 Friendship Park Research Centre arranged a field course in mire ecology for Greifswald University from Germany.

The influence of the studies

Scientific ranking of the publications

The main task of Friendship Park Research Centre is to conduct applied research. Its influence can be evaluated on the basis of the impact of practical activities on biodiversity, not so much by the scientific impact factors. The influence on practical activities can be evaluated only qualitatively, not quantitatively. To promote contacts in the scientific community, however, also high-quality international publications are needed to reach credibility.

The use of scientific knowledge in practice

Most concretely the influence of research can be seen in the landscape ecological planning of Metsähallitus, state enterprise of forestry. In the first plans in mid-1990s the forest patches to be left outside loggings to preserve biodiversity in managed forests were very small fragments. When research showed that small (less than 10 ha) forest fragments cannot preserve old-growth forest species sustainably, in more recent plans the forests to be left out of loggings have been much larger, which is obviously more effective to preserve biodiversity than to save the same area in small fragments.

Another important result has been the popularization of research results jointly with Metsähallitus natural heritage services to promote nature tourism and environmental education. In environmental education the cooperation across the border has been especially fruitful together with Kostamus Nature Reserve.

An important result has also been to improve employment in a region where the unemployment rate has been very high. So far, over 300 persons, almost all unemployed, from Kuhmo have worked shorter or longer periods in Friendship Park Research Centre.

Conclusions and future

As a conclusion, our attitude is that when compared with the available resources, and long distances from universities and other research institutes, the research cooperation in the framework of Friendship Nature Reserve has been successful and productive. Useful knowledge has been produced for local, regional, national and international needs in scientific community and for practical purposes to develop the region. Exchange of knowledge across the border has been fruitful and beneficial for both parties, Finland and Russia. Friendship Nature Reserve concept has also been useful to serve scientists from numerous countries to conduct their studies at the Finnish-Russian border.

When developing the Fennoscandian green belt concept, the role of future Friendship Park research is most essential. The information and scientific research during last two decades gives a good basis to continue and widen the scientific work and cooperation between Finnish and Russian scientists.

For the future, additional resources are, however, needed, since the funding from employment authorities is decreasing, and a critical mass of researchers has not been reached in Kuhmo or Kostamus. An interesting challenge for future is the recent establishment of Kalevala National Park on the Russian side. It gives new views, and hopefully additional resources for joint work. Below we summarize our proposals how Kalevala National Park could join the ongoing cooperation network.

Finnish-Russian nature conservation research cooperation in Kalevalaparks (Kalevala National Park on the Russian side and Kalevalapark in Finland, both adjacent to the border) is coordinated by the Ministry of the Environment of Finland and scientific institutions of Republic of Karelia. The coordinators of the practical cooperation on the Finnish side are Finnish Environment Institute and Friendship Park Research Centre.

The research cooperation is open to all interested parties, and the coordinators have a task to promote the research activities in both Kalevalaparks in Finland and Russia.

The research cooperation is to produce information used by the administration of the Finnish and Russian Kalevalaparks, Metsähallitus and Russian Ministry of Nature Resources,

respectively, as well as the municipalities of Suomussalmi, Kostamus and Kalevala, to promote the development of ecological education, sustainable use and sustainable ecotourism in Kalevalaparks.

The main topics of research should be:

- Geology, geomorphology and hydrography of the territories as a basis for the understanding of geodiversity and landscapes as the background of biodiversity.
- Biogeographical questions connected with this northern taiga area
- Development of the nature during the Holocene and in the future
- Human history of the area
- Biodiversity in forests on landscape, site and species levels with special emphasis on human impact on biodiversity
- Biodiversity of mires on landscape, site and species levels with special emphasis on ec hydrology and human impact on biodiversity
- Biodiversity of small watercourses taking into account the water framework directive of the EU
- Sociology and pedagogical sciences with special emphasis on the development of ecological education and sustainable ecotourism

Appendix

A selection of most important publications and other reports of Friendship Park Research Centre in 1990–2006. The publications of the staff of Friendship Park Research Centre are in italics. The list includes also publications of cooperative partners (plain text) in cases where Friendship Park Research Centre has significantly participated in the data collection, management or reporting.

ACADEMIC DISSERTATIONS

University of Helsinki

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University of Uppsala

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