Darwin Initiative for the Survival of Species

Project: 162 / 11 / 025

Cross-border conservation strategies for Altai Mountain endemics (Russia, Mongolia, Kazakhstan)

Annual Report (Year 3)

April 2005

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Darwin Initiative for the Survival of Species
Annual Report

1. Darwin Project Information

Project Ref. Number	162 / 11 / 025
Project Title	Cross-border conservation strategies for Altai Mountain Endemics (Russia, Mongolia, Kazakhstan)
Country(ies)	UK, Russia, Mongolia, Kazakhstan
UK Contractor	University of Sheffield
Partner Organisation(s)	Tomsk State University (Russia); Hovd branch of Mongolian State University; Altai Botanical Gardens (Leninogorsk, Kazakhstan)
Darwin Grant Value	£180,780
Start/End dates	01.04.2002 – 31.09.2005
Reporting period (1 Apr 2004 to 31 Mar 2005) and report number	01.04.2004 – 31.03.2005 (3)
Project website	http://www.ecos.tsu.ru/altai*
Author(s), date	Dr. A. Pyak, Dr. A. Zverev, Dr. A. Ebel, Dr N. Semenova, Dr. S.C. Shaw, (with contributions from others). April 2005

** Note that there are still problems with the server at TSU that is hosting our website, which means that at present it is not available externally – we hope that these problems will be resolved soon.*

2. Project Background

The project aims to investigate the spatial distribution of endemic species and to develop a strategy for their protection in the Altai Mountains – one of the centres of biodiversity in Eurasia. The study area covers contiguous parts of three states – Russia, Mongolia and Kazakhstan.

3. Project Purpose and Outputs

The main purpose of the project is to collect and collate (for the first time) information on the rare and endemic flora of the whole of the Altai Mountain region. The project will apply British expertise to investigate species spatial distributions and develop appropriate database systems, to identify "hot spots" of biodiversity within the area on the basis of the analysis of existing and newly-gathered information on species distribution, and to investigate habitat controls on species distribution. Economic activities in the region (including land management regimes) will also be examined and their actual or potential impact on rare and endemic species of flora and fauna will be assessed. The information will be used to (1) identify species and areas under greatest threat, (2) develop strategies to preserve the biodiversity in this cross-border region and (3) formulate species and site-based habitat action plans that will optimise the existing network of protected areas through the organisation of new areas and improvement of management and overall performance of existing ones.

There are two proposed changes to the original operational plan. (1) The final seminar in Tomsk will not now take place. Instead the results of the project will be presented in a series of papers at an international conference “Natural Conditions, History and Culture of Western Mongolia and Contiguous Regions” in Kyzyl (Tuva, Russia) at the end of September. The conference is expected to attract a much wider audience (including international participants) than we would expect to attend a small workshop in Tomsk. [*The Darwin Secretariat have been made aware of this proposed change.*] (2). We are pleased to say that we are currently in

discussion with the publisher "WILDGuides" regarding semi-commercial publication of the book on Altai endemics, and it seems likely that the publication date will be early in 2006. [*We have notified 'Darwin' of this proposed change and will be discussing the need for a formal project extension*].

4. Progress

This is the third reporting period for the project. Brief history of the first two years of the project: start-up meeting and workshop (Tomsk), field meeting/seminar in the Altai Mountains were held; 4 field expeditions (East Kazakhstan, Central and Southeast Altai, Western Tuva, Western Altai) were undertaken; c. 70 undergraduate and postgraduate students (Tomsk State University and Tomsk State Pedagogical University) were trained; project participants attended the international conference "Nature and People" in Pitlochry (Scotland), regional conference "Problems of Botany of South Siberia and Mongolia" in Barnaul (Russia), 15 publications by participants of the project were published; collation of information and compilation of dataset on Altai endemics and population of database were continued; preparation of GIS-maps for the analysis of spatial distribution of endemic plants was started.

A summary of progress against the key milestones for this year, and workplan for the final months of the project are provided below. Progress against the outputs identified in the logical framework is summarised in Annex 2. Details of actual outputs are given in Section 8, and Table 1.

Key milestones for Year 3 (April 2004 – March 2005):

1. Field expedition to Mongolia (1 month) – postponed from Year 2 due to SARS outbreak

a) International workshop "Problems of Biodiversity Conservation in the Altai mountains" in Hovd (Hovd State University, West Mongolia), June, 9-10, 2004. 9 reports were presented by Mongolian, British and Russian participants. c. 50 people (including students from Department of Biology of Hovd University) attended the sessions. Discussions were continued during the expedition which followed. It was unfortunate that local authority staff were unable to attend due to events surrounding the national parliamentary elections, and thus unable to meet UK staff. However,

b) Expedition to West Mongolia in June 2004 (14 days for UK participants, 32 days for others) to gather additional data on spatial distribution of endemic species and their habitats. Participants: A. Pyak, A. Zverev, N. Schegoleva (Tomsk State University, Russia); A. Korolyuk, V. Cheremushkina, N. Makunina, V. Godin, A. Astashenkov (Central Siberian Botanical Garden, Novosibirsk, Russia); S. Sheremetova (Kuzbass Branch of Central Siberian Botanical Garden, Kemerovo, Russia); O. Maslova (Altai State University, Barnaul, Russia); V. Orlov (Central Siberian Botanical Garden, Kamlak, Altai Republic, Russia); D. Ouynchimeg, U. Myagmarjav, D. Sarluu and G. Choserjav (Hovd University, Mongolia); U. Beket (Altai Research Centre, Ulgij, Mongolia), S. Lhagvasuren (Institute of Botany, Ulan-Bator, Mongolia); S.C. Shaw (University of Sheffield, UK), B. Jones (Countryside Council for Wales, Bangor, UK). More than 5000 km of expedition routes covered, more than 2000 herbarium voucher specimens collected, c.350 relevees recorded.

c) A new species of Lamiaceae (Mint) family was found in the Jargalant Mountain range (West Mongolia) and proposed as "*Lagopsis darwiniana* A.I.Pjak sp. nova" in honour of the Darwin Initiative. A paper describing the new species has been submitted to "Kew Bulletin". [*See copy of submitted paper provided*].

2. Winter 04/05 2 scientists from host countries in UK

A. Zverev and A. Ebel (TSU) spent a total of 8 weeks in Sheffield working closely with the Sheffield project participants. [This was less time in the UK than originally envisaged mainly due to other work commitments in TSU, but much was achieved on data preparation etc in Tomsk prior to the visit, which would otherwise have been done in the UK.]

a) On-the-job training in data processing, analysis and presentation using GIS- and other computer-based techniques, with the dataset for Altai endemics. All of the species location data collected from various different sources (herbarium specimens, expeditions etc.) have now been entered into a database. Using these data and environmental data layers (climate, topography etc) prepared in GIS, maps of predicted species distribution were modelled for 79 endemic species using the GARP (**G**enetic **A**lgorithm for **R**ule-set **P**roduction) software. Other analyses undertaken include 'hotspot' analysis (species richness and complementarity analyses) and an examination of the effectiveness of the existing protected area network in conserving endemic species.

b) Project outputs were discussed, in particular the content and layout of the proposed book on Altai Endemics. Information on 27 endemic species has now been compiled [*See example pages provided,* (*although note that the lay-out will be amended following discussion with the Publisher)*]. A working draft Species Action Plan for *Iris ludwigii* (a western Altai endemic species) was prepared in English as a model (*see copy provided*).

c) Visits were arranged to the Royal Botanic Gardens, Kew (Alpine section and Herbarium) and Wakehurst Place (Millennium Seed Bank facility), and useful discussions held with staff at both places regarding current projects and possible future liaisons.

Additional activities

A. UK staff in host country

a) May 2004. John Hodgson (UoS) visited TSU in May (10 days) in particular to discuss data analysis and development of understanding of the determinants of species rarity and distribution patterns. Discussions were held on setting up a twinning scheme between Tomsk & UK schools, and project scientists discussed biodiversity and environmental issues with local school children.

b) June 2004. Visit of Sue Shaw (UoS) and Barbara Jones (Countryside Council for Wales, upland specialist) to Mongolia – participation in workshop in Hovd and partly in field survey. (See above)

B. Collation of information and population of databases etc

c) The recorded localities within the three countries of about 80 species have now been identified from herbarium specimens, field expeditions and other information.

d) A complete inventory of herbarium vouchers of Altai endemic species (locations in Kazakhstan Altai) in the Herbarium of the Central Siberian Botanical Gardens (Novosibirsk) and in the Herbarium of Tomsk State University has been carried out. Winter 04/05: A. Ebel & N. Schegoleva visited Moscow and St.Petersburg to collate any additional information from the Herbarium after D.P. Syreischikov of Moscow State University and the Herbarium of Botanical Institute of RAS after V.L.Komarov (St. Petersburg). A complete inventory of herbarium samples was done. More than 200 Herbarium vouchers of Altai endemic plants were examined, their correct taxonomic position specified, and herbarium labels transcribed for their entry into the database. The examination of herbarium specimens held at the Botanical Institute in Ulan-Bator (locations in Mongolian Altai) has also been completed.

e) Population of the computer database (using MS Excel) has been finished. There is a single database where records for all three countries are included. All the data collected in the three years have been entered into the database.

f) The recorded localities within the three countries of about 95% of the species have now been identified from herbarium specimens, field survey samples and other information.

g) Collection of information about protected areas in the Altai region (Russia, Kazakhstan and Mongolia) has been continued. Review and analysis of the information on existing small-area protected territories will be undertaken, and a separate layer within the Altai GIS-map prepared with this information.

h) Work on collection of information regarding population distribution and density, and distribution and intensity of different types of human activities (e.g. hunting, tourism,

agriculture, forestry and recreation) has continued. The work has been completed for the Russian Altai (in the form of maps with legends). The remainder (for Kazakhstan and Mongolia) should be completed by June 2005.

i) Work on the Altai GIS has continued, and data analysis conducted using information from the whole study area. The maps for Altai have been completed (and now include more than 1200 endemic species localities). In addition to the topographic base maps onto which the species locations have been plotted, the following have been prepared for use in the GIS:

- Map of land use for Russian Altai. Scale M 1:500,000, total area 92,600 km^2. Digitised from the map of land resources of Altai Republic based on data of West-Siberian land surveying expedition. Novosibirsk. 2002.
- Map of carbonate rocks for Russian Altai. Scale M 1:1,000,000, total area 150000 km^2 . Digitised from the map of soil types of Altai Republic (In: Atlas of Altai Province, 1990) + Geological map of Altai Republic. Published in Novosibirsk by Regional Geological Fund. 1998.
- Map of land-cover for the whole of the region, compiled from USGS satellite data, at a resolution of 1km^2. *http://landcover.usgs.gov/glcc/index.asp* (*GLC 2000*).
- Climate layers in the GIS model: solar radiation, frost, elevation, aspect, slope, precipitation, average monthly temperature, average daily temperature. [Available from International Water Management Institute World Water and Climate Atlas (http://www.iwmi.org) and the Climate Research Unit (http://www.cru.uea.ac.uk).]
- Boundaries of protected areas
- Map showing approximate boundaries of intensely-grazed areas. [*A. Pyak*]

j) Field expedition to Russian Altai (August 2004, 2 weeks), where additional data on spatial distribution of endemic species and their habitats was collected. Participants: A. Revushkin, A. Pyak, 1 postgraduate student and 6 undergraduate students of the Department of Botany, Tomsk State University.

C. March 2005. Classification of endemic Altai species on the basis of geographical distribution, habitat and age

k) The classification has been developed and will be presented at the forthcoming VII International Conference "Natural conditions, history and culture of Western Mongolia and contiguous regions" in Kyzyl (Russia, Tuva Republic) in September 2005. It will also be included as a part of the book on Altai Endemics.

D. PhD and Master degree qualification

l) Bayarhuu Batbayar (Mongolia, Hovd State University), PhD thesis. "Recreational assessment of landscapes of Western Mongolia for the purposes of tourism (with the example of Hovd aimag)". Supervised by Dr. V. Khromykh. Date of defence – 28 April 2004.

m) Elena Bashmakova (Russia, Tomsk State University). Master degree thesis. "Flora of Kurai InterMountain Depression (Russian Altai)." Supervised by Dr. A. Ebel. Date of defence – 11 June 2004.

n) Alexander Smorgov (Russia, Tomsk State University). Master degree thesis. "Study of *Artemisia* genus in West Mongolia". Supervised by Prof. A. Revushkin Date of defence - 11 June 2004.

o) Svetlana Bytotova (Russia, Tomsk State University). Master degree thesis. "Endemics in Khakassian Flora: species composition, space distribution, biology". Supervised by Prof. I. Gureeva. Date of defence – 11 June 2004.

p) Bogatoz Dosmailova (Russia, Tomsk State University). Master degree thesis. "Specially protected areas of Altai Republic: their role in conservation of flora and vegetation". Supervised by Dr. N. Semenova. Date of defence – 15 June 2004.

E. Training and completed works

q) Three postgraduate students in botany (N. Schegoleva, M. Morenko, Tomsk, Russia and A. Astashenkov, Novosibirsk, Russia) and 8 undergraduate students in botany (D. Sarluu and G. Choserjav, Hovd, Mongolia; V.Kudryavtsev, Yu. Efa, M. Andreeva, B. Naidanov, V. Zotov, N. Popova, Tomsk, Russia) involved in the project from host countries received long-term field experience and training during the project field surveys (June, 2005, see Table 1)

r) Postgraduate and undergraduate students participating in the field surveys received training in techniques of herbarium sampling and storage, as well as training in relevee description. Plant identification expertise, preparation of standard tables and comparative floristic data processing were also improved. Participation in workshops increased their skills of public reporting.

s) Two TSU students in particular have been more closely involved in project-related work: T. Schatina and A. Shtykova (Tomsk State University, Geographical Department, both from Altai Republic) defended course work on the Altai ("Protection of environmental and cultural values in the Altai Republic: a review of existing specially protected natural sites" and "Problems of ecotourism in Altai Mountains: human impact on natural habitats" respectively).

t) One young researcher, U. Myagmarjav, from Hovd (Mongolia) completed on-the-job training in preparation and use of herbarium specimens at the Department of Botany at TSU and in the Tomsk Herbarium (March – May 2004).

F. Liaison with local authorities and Regional Ecological Committees.

Building on Year 3 key milestones, participating scientists met representatives from the following local, regional and national authorities:

a) Administration of the Ongudai Region of the Altai Republic (Deputy Head of Administration – Leonid N. Ukhonov)

b) Altai Branch of Central Siberian Botanical Gardens (settlement Kamlak in Shebalinski region, Altai Republic, Director – Vassily P. Orlov) and Natural-Economic park «Tchuja-Oozy» (settlement Inya in Ongudai Region, Altai Republic, Director - Ruslana A. Toptygina)

c) El-Kurultai (Regional Parliament) and Committee on Science and Education of the Altai Republic (Chairman of Committee – Vasili A. Tyudenev), Gorno-Altaisk, Altai Republic, Russia, continued;

d) Administration of the Kosh-Agach Region of the Altai Republic (Head of Administration Aulkhan Djatkambaev), continued;

e) Agency for Nature Supervision of Ministry of Natural Resources of Russian Federation in Altai Republic (Head of Agency - Manyshev V.K.)

f) Dr. Nyamdavaa, Governor of Hovd Aimag, Mongolia

g) We informed the operation director of WWF in Mongolia (Haidav Dondog) about our project at a brief meeting in Mongolia.

Work plan for the reporting period April 2005 – September 2005

Date	Activity
Year 4	(all outputs moved from Year 3)
May 2005	Field workshop in Ridder (Leninogorsk) (15 people, 4 days).
May 2005	(UK staff in host country) (2 weeks)
Sept. 2005	Enhancement of the plant collection from Mountain Altai in the Herbarium of Tomsk University.
Sept. 2005	3 herbarium collections of endemic species established (for Mongolian, Kazakhstan & Russian Altai).
Early in 2006*	Publication of the illustrated scientific book "Endemics of the Altai" (in English) (1000 copies)
Sept. 2005	GIS electronic maps of species distributions handed over
Sept. 2005	2 Videos, 10 information leaflets about rare Altai species, dedicated web site (presentation of results, including details of species, photos, distribution maps), photo collection of endemic species and typical habitats
Sept. 2005	25 species action plans (c. 25% of Altai endemics) and 10 site management plans produced, for use by public authorities, local administrations and scientists.
2005	2 papers published in peer-reviewed journals; 4 papers submitted to peer-reviewed journals
2005	3 databases will be handed-over (for Russia, Kazakhstan and Mongolian Altai)
2005	The local databases will be amalgamated into one general database covering the whole area
Sept. 2005	Participation in international conference in Kyzyl (Tuva)* at which findings will be presented and disseminated.
Sept 2005	(UK staff in host country) (2 weeks)
Sept. 2005	1 national / local press release issued in the UK and in each of the 3 participating host countries at the end of the project.

** Change from original plan: see Section 3.*

5. Actions taken in response to previous reviews (if applicable)

The review of our second annual report was discussed with collaborators in Tomsk. Comments have been taken on board. No specific response was required. Where not covered elsewhere in this report, further comments are given below.

- The process of labelling the herbarium specimens collected during the project expeditions is continuing. Special labels have been printed which include the Darwin logo.
- Work has started on preparing English summaries of each of the PhD and Masters theses. These will be provided with the final report.
- Link to Tomsk website now available from BIOME (University of Sheffield) webpages.
- We are classifying all of the species according to IUCN criteria, and plan to pass the information to IUCN when complete.
- Role of UK staff (in addition to liaison/collaboration throughout project and in the preparation of various project outputs):
  Dr B.D. Wheeler (principal ecologist): Overall responsibility for the project and outputs. **Prof. K.J. Gaston** (principal ecologist): training/collaboration in use of computer modelling techniques in biodiversity conservation, patterns of species richness, reserve selection and effectiveness, biodiversity 'hot spots' etc. **Dr S.C. Shaw** (ecologist). Project administration and co-ordination, training/collaboration in preparation of species and habitat action plans. **Dr J.G. Hodgson** (ecologist): development of database on species attributes, species rarity/distribution, school

twinning. **A. B Nagy** (GIS specialist): training/collaboration in use of GIS and other computer modelling techniques in biodiversity conservation.

6. Partnerships

During this reporting period e-mail contact has been maintained between UK and host country partners. Colleagues in Tomsk have maintained contacts with Kazakhstan and Mongolian participants. There was one visit of UK staff to Tomsk and visits by two participants from Russia to the UK (see Section 4) both of which have been particularly valuable.

- Other specific contacts have been made as follows:

  Professor A.N. Kupriyanov (WWF co-ordinator on biodiversity of Altai-Sayan eco-region)

  U. Beket (Altai Research Centre, Ulgij, Mongolia), S. Lhagvasuren (Institute of Botany, Ulan-Bator, Mongolia) and employees of Mongolian National University (including Dr. D. Suran), who are working in particular in the Altai (e.g. within the framework of the projects "Geographical and ecological assessment of Mongolian Altai" and "Study of Biology of Endemic Plants of Mongolian Altai").

  Dr. G. Nyamdavaa, Hovd Aimag Governor.

- Participants of a research project, started in 2002, between Hovd State University (Mongolia), and the Ernst-Moritz-Arndt-University of Greifswald, Germany. This project is looking at the dependence of abiotic and biotic components, and potentials for pasture use and grazing capacity for the semi-desert and mountain ecosystems in the Great Lake Basin and the adjacent Altai mountains in Western Mongolia.
- UNDP-Mongolia has started a project "Preservation of the Altai-Sayan Ecoregion" (see *http://www.undp.mn/modules.php?name=Content&pa=showpage&pid=27*). We have made contact with the new National Project Manager, and she has already met with our Mongolian project participant (Dr Oyunchimeg).
- People in Kazakhstan who are working with the German organisation NABU on a project concerned with development in the Altai biosphere zone.

7. Impact and Sustainability

Efforts to promote the project this year have exceeded expectations, and include: press release in Hovd local newspaper and on WEB (see Section 9), additions to the web-site, local radio reportage (Hovd, Mongolia), five presentations at conferences and seven publications (see Section 9, table 2), organization of International Workshop (June 2004, Mongolia – *see copy provided*) provided an impetus for increasing public interest for nature conservation in the Altai Mountains and attracted attention to potential threats in the region. Undergraduate and postgraduate students who participated in the fieldwork (two field expeditions) made presentations to the TSU Botanical Department Students Study Group. In addition, discussions have been held with local authorities in Mongolia, and contact made with participants in other conservation projects (see Sections 4 & 6). Project scientists from Tomsk and UK discussed biodiversity and environmental issues with local school children at seminars in Tomsk (Secondary Gymnasium No 24, May 2004).

Participating project scientists have held discussions with various local authorities and Regional Ecological Committees (see Section 4), and these bodies expressed an interest in collaboration with the researchers working on biodiversity conservation of the Altai Mountains, as well as an interest in practically applying the expected results of the project.

All of these activities have helped to promote the project and raise interest in and awareness of biodiversity issues in general, and in the Altai in particular, with a wide audience, including school pupils and teachers, under- and post-graduate students (including some students from Mongolia), a wide range of scientists and local 'stake holders'.

Other aspects of the 'exit strategy' are in hand (see Annex 2 for summary of progress and plans), including preparation of herbarium reference collections (labelled with Darwin

Initiative Logo), databases and GIS-based species distribution maps; training; preparation of 'publicity' materials and dissemination of information, including preparing of Action Plans; on-the-job training in data processing, analysis and presentation using GIS- and other computer-based techniques, with the dataset for Altai endemic plants.

8. Post-Project Follow up Activities (max 300 words)

We have some ideas about follow-up activities, and plan to discuss these with colleagues during our forthcoming visit to Kazakhstan.

9. Outputs, Outcomes and Dissemination

Outputs are reported in Table 1 and in Annex 2. All outputs expected were achieved; additional outputs are indicated in Tables 1 and 2. In particular, these included attendance by project participants at 3 conferences in the host countries, with 6 papers published in the conference proceedings. The 'audience' at these conferences is largely from the local scientific communities (scientists and students), but also includes scientists from other Russian regions as well as from other countries, staff from local government committees and NGO's, and others interested in conservation and biodiversity issues.

We fully expect that host country participants will continue to disseminate information from the project once Darwin funding ceases, using local sources of support for attendance at conferences where possible (as has been the case this year), and preparation of journal papers and other 'publicity' materials in their own time.

- **Dissemination activities in the host countries**

No specific dissemination activities were planned for Year 3 (these were moved to 4th year), but the following were achieved:

1. Information about the project was presented as follows:
   - At project workshop in Hovd (Hovd State University June, 2004)
   - On local Hovd radio;
   - In Mongolian newspapers («Hovdyn medee» - Hovd Aimag newspaper, and newspaper of Hovd University); [*See copy provided*]
   - In newsletter at WEB-site of the project "Altai – our common house" http://www.altaiinter.org/news/?id=646 [*See copy provided*]
2. September 2004. A. Pyak (TSU) presented a report on the project at the scientific conference "Problems of Conservation of Vegetation Diversity of Inner Asia", Ulan-Ude (Russia, Republic Buryatia). [*Also published – see Table 2*]
3. November 2004. N. Schegoleva (TSU) presented a report at the International scientific workshop "Ecology of South Siberian and Contiguous Areas", Abakan (Russia). [*Also published – see Table 2*]
4. March 2005. N. Schegoleva (TSU) presented a report at the First Interregional scientific-practical conference devoted to the 5-year anniversary of the Tigirek State Natural Reserve establishment in Barnaul (Russia). [*Also published – see Table 2*]

- **Additional outputs***:*

Electronic mapping – See Section 4

Dissemination in UK

- Barbara Jones (CCW) made a presentation to the staff of Countryside Council for Wales and others, 26 Jan 2005. "*The mountains of Mongolia – home from home*"
- Andrei Zverev & Sue Shaw made a presentation to the BIOME group in Animal and Plant Sciences, University of Sheffield. "*Mongolia illustrations*". 2 February 2005

Table 1. Project Outputs (According to Standard Output Measures)

Outputs additional to those originally planned are shown in red

Code No.	Description	Quantity	Description
1B	PhD attained	1	Bayarhuu Batbayar (Mongolia) "*Recreational assessment of landscapes of Western Mongolia for the purposes of tourism (on an example of Hovd aimag*)". PhD thesis, date of defence – 28 April 2004
2	Masters	3	3 students from Tomsk attained Masters qualification in 2004: E. Bashmakova, A. Smorgov, S. Bytotova
3	Other qualifications	1	1 student from Tomsk attained Specialist (Diploma) qualification in 2004: B. Dosmailova.
4A	No. of undergraduates receiving training	8	2 undergraduate students in botany (D. Sarluu and G. Choserjav, Hovd, Mongolia - 4 weeks), 6 undergraduate students in botany (V. Kudryavtsev, Yu. Efa, M. Andreeva, B. Naidanov, V. Zotov, N. Popova, Tomsk, Russia - 2 weeks) involved in the project from host countries received long-term field experience and training during the project field surveys.
4B	No of training weeks	6	First group for 4 weeks (West Mongolia, June 2004) and second group for 2 weeks (Russian Altai, August, 2004)
4C	No. of post-grads receiving training	3	N. Schegoleva (Tomsk, Russia), A.Astashenkov, (Novosibirsk, Russia), M.Morenko (Tomsk, Russia)
4D	No of training weeks	6	First two: 4 weeks each; last: 2 weeks
8	UK staff in host country	6	John Hodgson (UK) in Tomsk for 2 weeks in May 2004, Sue Shaw and Barbara Jones in Mongolia for 2 weeks in June 2004
11B	Other papers	6	See Table 2
14A	Workshops organised	1	Workshop in Hovd, Western Mongolia, June, 2004
14B	Workshops / conferences attended	3	Ulan-Ude (Russia, Sep.2004), Abakan (Russia, Nov. 2004), Barnaul (Russia, Mar. 2005)
15B	Local press releases in host country	2	
19C	Local radio	1	*In Hovd, Mongolia*
23	Additional resources		*£37,250*
Other	Other publicity	3	*Newsletter on internet: http://www.altaiinter.org/news/?id=646* *2 presentations in the UK*

Table 2: Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)	Cost £
Conference proceedings*	Ebel A. & Maslova O. Rare species of the genus Viola L. in the flora of the Russian Altai. In: Materials of 3rd International Conference "Problems of Botany of Southern Siberia and Mongolia". 2004. p. 145-147 [In Russian]	"AzBuka", Barnaul		0
Journal*	Ebel A.L. & Ebel T.V. Some new and infrequent species of flora in the Altai region In: Botanical researches in Siberia and Kazakhstan. Edited by A.N. Kuprianov. Vol. 11. 2005. p. 93-96 [In Russian]	"Altai University Press", Barnaul		0
Conference proceedings*	Schegoleva N.V. & Ebel A.L. About Akkem Buttercup (*Ranunculus akkemensis* Polozh. et Revyak.), an endemic species to Altai Mountain flora. In: Mountain ecosystems of	"Altaiskie stranitsy", Barnaul		0

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)	Cost £
	South Siberia: study, conservation and natural use. The first interregional scientific-practical conference devoted to the 5th anniversary of the Tigirek State Natural Reserve establishment. Proceedings of the Tigirek State Natural Reserve. Vol. 1. 2005. p. 260-261 [In Russian]			
Conference proceedings*	Pyak A.I. Conservation of endemic plants of the Altai. In: Problems of conservation of the Inner Asia Vegetation. Conference proceedings (Ulan-Ude, Russia, September, 2004). p 174-175. [In Russian]	Buryat Scientific Center SB RAS Publishers, Ulan-Ude		0
Conference proceedings*	Schegoleva N.V. Buttercups of South Siberia. In: "Ecology of South Siberian and Contiguous Areas", Proceedings of International scientific workshop (Abakan Russia, November, 2004). Vol. I, P. 56. [In Russian]	Khakassian State University Publishers, Abakan		0
Conference proceedings*	Morenko M.O. Classification of Life Forms using the example of Chenopodiaceae Family in the Russian and Mongolian Altai. In: Proceedings of International Conference on Plant Morphology (Kirov, Russia, May, 2004), p.203-204. [In Russian]	Vyatka State Humanitarian University Press		0
Journal	Semenova N.M. Land Resources of Altai Republic: Structure, Use, Protection. In: Nature Conservation. Issue 3. Tomsk. *In press* [In Russian]	Tomsk State University Press		0

[Paper copies provided. See end of this document for English summaries]*

10. Project Expenditure

Table 3: Project expenditure during the reporting period (Defra Financial Year 01 April to 31 March)

Figures are subject to confirmation by UoS Finance Department

Item	Budget (please indicate which document you refer to if other than your project schedule)*	Expenditure	Balance

*Changes to the budget were agreed with the Darwin Secretariat, involving a carry-over of a small underspend to year 4 and small amount of virement between headings to allow in particular for the purchase of more books.

11. Monitoring, Evaluation and Lessons

Project progress can be evaluated against the agreed timetable/milestones and outputs (see Annex 2), as well as the measurable indicators and means of verification identified in the logical framework. The project has achieved all of its planned milestones this year, including research and training activities, and has produced more dissemination outputs at this stage than originally envisaged (including 7 publications, attendance at 5 conferences, and two presentations in the UK).

The reciprocal visits between the UK and Tomsk were considered particularly beneficial for the project team to work together on the data analysis and outputs. In addition, the TSU participants were able to register to use the computer facilities in Sheffield remotely, which means that it is now possible for them to access on-line resources (e.g. electronic library facilities) from Tomsk which would otherwise be unavailable.

12. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum)

■ **I agree for ECTF and the Darwin Secretariat to publish the content of this section**

We have submitted a paper on the newly-found species "*Lagopsis darwiniana*" for publication in Kew Bulletin (*see copy provided*), but are still waiting to hear the outcome of the review process. We will provide details as soon as we can for promotion on the Darwin website.

Annex 1. Original Logical Framework

Project summary	***Measurable indicators***	***Means of verification***	***Important assumptions***
Goal To assist countries rich in biodiversity but poor in resources with the conservation of biological diversity and implementation of the Biodiversity Convention		*Ratification of species and habitat action plans by Russian, Kazakhstan and Mongolian authorities and commitment to their implementation; joint reports and peer-reviewed publications; preparation and on-going use of databases and herbaria*	*On-going co-operation of local institutions and authorities in Russia, Mongolia and Kazakhstan; continued employment and dedication of project scientists in UK and host countries.*
Purpose *To bring together for the first time information from Russia, Kazakhstan and Mongolia on the distribution and habitats of the rare and endemic flora of the whole of the Altai region, and identify threats to their preservation, in order to develop strategic, cross-border approaches to biodiversity conservation.*	*Population of 3 databases and GIS maps with existing records plus new records from field expeditions to poorly-investigated areas; identification of biodiversity 'hot spots', controls on species distributions and threats to conservation.*	*Provision of information on distribution and habitats of rare and endemic species; training of scientists, students and local authority staff; recommendations for improvements in existing conservation activities and for new actions and protected areas in the biodiversity 'hotspots' identified.*	*On-going co-operation and support of local institutions and authorities in Russia, Mongolia and Kazakhstan; continued employment and commitment of project staff*; *continued safe access to the Altai Mountain region.*
Outputs *Trained scientists, students, local authority staff; scientific book on Altai endemics; journal papers; herbarium and photographic collections; web site; reports; databases; GIS maps; species and habitat action plans*	*Successful training, adherence to milestones and delivery of outputs on time.*	*Peer-reviewed publications; databases; collected specimens and habitat data; progress and final reports to Darwin Initiative, PhD and Masters degrees awarded*	*On-going co-operation and support of local institutions and authorities in Russia, Mongolia and Kazakhstan; continued employment and commitment of project staff in UK and host countries, time allocations appropriate*.
Activities *Training in the UK, Russia, Mongolia and Kazakhstan; collation of existing information and filling gaps through fieldwork; compilation of databases, GIS maps; reporting, publications*	*Scientists, students and staff receiving training as planned; fieldwork undertaken, preparation of electronic and written outputs; monitoring of progress; milestones adhered to; reciprocal UK/Russia visits*	*Audited statements; progress and final reports to Darwin Initiative; regularity of communications; reciprocal visits made; workshops and seminars held*	*On-going support from the Darwin Initiative, UK and host-country institutions; maintenance of local infrastructure (including communications); co-operation/collaboration from the local authorities; equitable weather conditions permitting field work; favourable rates/fees for money exchange and transfer.*

Annex 2. Report of progress and achievements against Logical Framework for Financial Year: 2004/2005.

Project summary	Measurable Indicators	Progress and Achievements April 2004-Mar 2005	Actions required/planned for next period
Goal*:* To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve • The conservation of biological diversity, • The sustainable use of its components, and • The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources			
Purpose *To bring together for the first time information from Russia, Kazakhstan and Mongolia on the distribution and habitats of the rare and endemic flora of the whole of the Altai region, and identify threats to their preservation, in order to develop strategic, cross-border approaches to biodiversity conservation.*	*Population of databases and GIS maps with existing records plus new records from field expeditions to poorly-investigated areas; identification of biodiversity 'hot spots', controls on species distributions and threats to conservation.*	*Field expeditions were undertaken, and data collated from Herbaria and other sources. All the species location data have been entered into the database. The GIS base-map layers have been completed, and environmental data layers added. Some data analysis and modelling has been done.*	*Work will be finished on all the planned outputs – see below* *Further discussions with local Authorities are planned.*
Outputs			
Trained scientists, students and local authority staff	Successful training, adherence to milestones and delivery of outputs on time.	8 undergraduates and 3 postgraduates students underwent training;	Workshops will be held in Ridder, Kazakhstan, in May 2005, and in Kyzyl, Russia, in September 2005. One further PhD and two Masters are in progress.
Scientific book on Altai endemics		A detailed outline of the book has been prepared and preliminary discussions held with a publisher. Draft text for 27 species has been prepared in Russian, and 10 of these translated into English.	We hope to sign an agreement with a publisher soon. Work will continue on the manuscript, with the final draft planned in September 2005.
Publicity		7 papers have been published in Russian this year, mostly as part of conference proceedings. One paper (in English) has been submitted to 'Kew Bulletin'	We have plans for further journal publications in addition to conference proceedings (Ridder, Kyzyl, Tomsk). Final results of the project will be presented at a conference in Kyzyl in

Project summary	Measurable Indicators	Progress and Achievements April 2004-Mar 2005	Actions required/planned for next period
			September.
Herbarium and photographic collections		More than 2000 photographs have been taken including c 300 for 20 Altai endemic species and their typical habitats. [We now have photos for about 80 of the endemics] *c*. 3000 herbarium specimens were collected during the expeditions.	The best photographs will be used in the planned book, and some will be placed on the project web-site. They will also be used in lecture courses for students: "Vegetation Geography of Siberia" and " Botanical geography of Altai" and "Ecology of Mountain Plants" The specimens collected will be used to enhance herbarium collections held in Tomsk, Ridder and Hovd
Project web site		Progress can be seen at http://www.ecos.tsu.ru/altai *[although note that there are still access problems on the host-server (beyond our control)*]	The web site will be updated on a regular basis.
Videos and information leaflets.		Raw video material (180 minutes) was taken from Mongolia	2 videos and 10 information leaflets will be completed. The latter will be distributed in the 3 countries, and also placed on the project website.
Reports		Progress reports have been submitted to Darwin	Progress reports will be submitted to Darwin
Databases		Information is being compiled onto one database, which will subsequently be split for each participating country.	The databases will be completed and handed over.
GIS maps		The GIS layers for the whole of the Altai region have been prepared, and species locations added.	The GIS will be handed over to relevant authorities in the 3 countries.

Project summary	Measurable Indicators	Progress and Achievements April 2004-Mar 2005	Actions required/planned for next period
Species and habitat action plans		Relevant information is still being collated. One draft species action plan has been prepared in English as a model.	The plans will be completed and handed over to the relevant authorities Copies will also be placed on the project website.

Note: Please do NOT expand rows to include activities since their completion and outcomes should be reported under the column on progress and achievements at output and purpose levels.

Additional documents supplied:

Appended to this document: details and English summaries of all publications to date.

Copies (on paper) of:

- Papers etc. published in 2004-5.
- Paper on new species of *Lagopsis* submitted to Kew Bulletin.
- Working draft of Species Action Plan for *Iris ludwigii*
- Example pages from proposed book on Altai endemics.
- Workshop programme (formal part), Mongolia, June 2004
- Publicity article in "Hovd News" (Mongolian newspaper)
- Publicity article on Altai website.

Darwin Initiative for the Survival of Species

Project: 162 / 11 / 025

Cross-border conservation strategies for Altai Mountain endemics (Russia, Mongolia, Kazakhstan)

Details of publications

From annual report, Year 1 (2002–3)

*Type **	*Detail*	*Publishers*
Paper	Pyak A.I. Taxonomic structure and endemic species of petrophyte flora of Russian Altai. In: Bulletin of Tomsk State University. Appendix, № 2. – Tomsk, 2002. p. 51-57 [In Russian] *The article provides an analysis of the taxonomical structure of the petrophyte flora of the Russian Altai; basic features of its species composition are also considered. Based on the analysis of geographical species distribution, the endemics of the Altai mountain country are selected and brief details of their ecological –geographical characteristics are given.*	Tomsk State University
Paper	Rudaya N.A. Study of endemic and sub-endemic flora of South-East Altai and North of Western Mongolia. In: Bulletin of Tomsk State University. Appendix, № 2. – Tomsk, 2002. p. 3-15. [In Russian] *A comprehensive study was undertaken of the endemic and sub-endemic plant species of a unique floristic zone, delimited by southeast part of Russian Altai, Northwest Mongolia and Southwest Tuva. The majority of these species are rare and require protection. 57 species and 2 sub-species of 35 vascular genera attributed to 16 families are listed as endemics and sub-endemics of South-Chuya – West Mongolian floristic region.*	Tomsk State University

*Type **	*Detail*	*Publishers*
Paper	*Pyak A.I. On the history of the flora of Russian Altai. In: "Problems of Botany of South Siberia and Mongolia", Barnaul, 2002. [In Russian]* *On the basis of an analysis of features of the modern distribution of petrophytes of the Russian Altai in terms of their biology and ecology, an hypothesis of formation of vegetation of the region in late Cenozoic is proposed.*	*Altai State University*
Paper	Ebel A.L. Rare species of Draba genus in Russian and Mongolian Altai. In: "Problems of Botany of South Siberia and Mongolia", Barnaul, 2002. [In Russian] *Data on the distribution of some rare species of the genus Draba L. (*D. czuensis, D. eriopoda, D. kuznetsowii, D. mongolica, D. sapozhnikovii, D. stenocarpa*) in the Russian and Mongolian Altai are presented, together with new data on the morphology and variability of several species.*	Altai State University
Paper	Ebel A.L. On the study of endemics of Kazakhstan Altai. In: "Study of vegetation of Kazakhstan and its protection" Almaty, 2003. [In Russian] *The article provides general information about endemic plants of the Altai. Brief taxonomical analysis is given; features of species distribution over three countries (Russia, Kazakhstan, Mongolia) are specified. Kazakhstan Altai hosts 39 Altai endemic species, among which are 13 endemic species of the Kazakhstan Altai. The five rarest endemics of the Kazakhstan Altai (*Limnas veresczaginii, Sterigmostemum schmakovii, Craniospermum subfloccosum, Galium krylovianum, Pyrethrum kelleri*) are considered in detail, with information on their distribution and relative connections. The necessity of the various forms of protection for Altai endemics is shown.*	

From annual report, Year 2 (2003–4)

*Type **	*Detail*	*Publishers*
Conference proceedings *	Ebel A.L. On the distribution of Draba mongolica Turcz. (Brassicaceae) in Southern Siberia and Mongolia. In: Natural conditions, history and culture of Western Mongolia and contiguous regions: Reports of the VI International scientific conference (September 18–22, 2003, Hovd, Mongolia). 2003. p. 122–123 [In Russian] *Data are given on the distribution of the rarest species of* Draba *genus -* D. mongolica *- in the western part of the mountains of Southern Siberia. It is stated that within the limits of the Russian Altai the unique locality of this species is accurately known and it is likely that the species is absent from the Mongolian Altai (former records were erroneous). Data on features of ecology and relationships of* D. mongolica *are presented.*	Tomsk State University, Tomsk
Conference proceedings *	Ebel A.L. About some taxonomy problems of the South-Siberian representatives of the genus Draba (Brassicaceae). In: Botanical researches in Asian Russia: Materials of the XI congress of the Russian Botanical Society (August 18–22, 2003, Novosibirsk – Barnaul). Volume 1. 2003. p. 301–302 [In Russian] *There is a total of 20 species of genus* Draba *in the mountains of Southern Siberia, two of which are Altai endemics (*Draba czuensis *and* D. sapozhnikovii*). Some problematic taxonomical issues of the genus are discussed and a taxonomic system for south Siberian species is proposed.*	"Azbuka", Barnaul
Conference proceedings *	Morenko M.O. Sketch on the family Chenopodiaceae of Russian and Mongolian Altai. In: Botanical researches in Asian Russia: Materials of the XI congress of the Russian Botanical Society (August 18–22, 2003, Novosibirsk – Barnaul). Volume 1. 2003. p. 301–302 [In Russian] *The family Chenopodiaceae is represented in the flora of Russian and Mongolian Altai by 96 species from 26 genera. In the Russian Altai the main centre of diversity of Chenopodiaceae is the Chuya*	"Azbuka", Barnaul

Type *	Detail	Publishers
	intermountain depression; in Mongolian Altai – it is the Dzungarian part. A significant part of Chenopodiaceae in the Altai flora are desert and desert-steppe species with Central Asian type of distribution. The ecological diversity of Chenopodiaceae in the Altai is not too large; the general evolutionary direction is xerophytization of species	
Conference proceedings *	Oyunchimeg D. & Miagmarjav U. Flora of Hovd aimak (district) and its quantitative composition. In: Natural conditions, history and culture of Western Mongolia and contiguous regions: Reports of the VI International scientific conference (September 18–22, 2003, Hovd, Mongolia). 2003. p. 101–102 [In Russian] *Preliminary results of the inventory of the flora of higher vascular plants of Hovd aimag (Mongolia) are presented and their general analysis is carried out. A total of 993 species attributed to 357 genera and 86 families are taken into account.*	Tomsk State University, Tomsk
Conference proceedings *	*Pyak A.I. On the protection of endemic plants of the Altai. In: Natural conditions, history and culture of Western Mongolia and contiguous regions: Reports of the VI International scientific conference (September 18–22, 2003, Hovd, Mongolia). 2003. p. 278 [In Russian]* *The Altai-Sayan mountain country is one of the territories with a high level of biodiversity. In terms of preservation of endemic plant species, organization of small territories which are clearly delimited by natural borders and easily surveyed, and which can be protected whilst still allowing development of recreation and excursion activity is most expedient here. In particular we apply this approach in intermountain depressions and valleys of the large rivers, where endemic taxa are richly represented.*	Tomsk State University, Tomsk
Conference proceedings *	Pyak A.I. The protection of rare and endemic petrophytes of Russian Altai. In: Materials of 2nd International Conference "Problems of Botany of Southern Siberia and Mongolia". 2003. pp. 80-81 [In Russian]	"Azbuka", Barnaul

Type *	Detail	Publishers
	Designation of small, clearly delimited and easily surveyed territories with special protection measures is the most expedient way to preserve rare plants at the current stage of economic development. For protection of rare and endemic species of petrophyte complex of Russian Altai it is possible to offer many interesting sites for realization in practice of the proposed approach. So, for preservation of 13 endemic petrophytes, it is considered that organization of 6 small sites will be sufficient in Southeast and Central Altai.	
Journal	Pyak A.I. A question of protection of rare and endemic petrophytes of Russian Altai. In: Bulletin of Tomsk State University. Appendix, № 8. –2003. p. 176-178 [In Russian]	Tomsk State University, Tomsk
	Results of the analysis of the distribution of rare and endemic petrophyte plants of the Russian Altai within the borders of existing reserves are presented. Information from the 'Red' Books (lists of endangered species) concerning the study area was also considered. Taking into account that no more than 25% of species can be found in reserves and some species are not included in the Red Book of the Russian Federation, 6 small sites which are clearly delimited by natural borders and easily surveyed, and which can be protected whilst still allowing development of recreation and excursion activity are suggested for designation.	

*Type **	*Detail*	*Publishers*
Conference proceedings	Rudaya N.A. Features of endemism of flora of Southeast Altai, Southwest Tuva and Northwest Mongolia. In: Botanical researches in Asian Russia: Materials of the XI congress of the Russian Botanical Society (August 18–22, 2003, Novosibirsk – Barnaul). Volume 1. 2003. p. 395–397 [In Russian] *A study was carried out of endemic and sub-endemic plant species limited in distribution to the southeast part of Russian Altai, Northwest Mongolia and Southwest Tuva. It is established that this territory supports 60 endemics and sub-endemics (species and subspecies) from 35 genera and 16 families. The altitudinal and regional distribution of species as well as their relation to basic ecological factors is analysed.*	"Azbuka", Barnaul
Conference proceedings *	Schegoleva N.V. The study of Ranunculus L. in the Altai-Sayan mountain region. In: Natural conditions, history and culture of Western Mongolia and contiguous regions: Reports of the VI International scientific conference (September 18–22, 2003, Hovd, Mongolia). 2003. p. 120–121 [In Russian] *The genus* Ranunculus *is widespread in non-tropical areas of the Northern hemisphere. It contains 550 species in total, and 40 species are represented in Altai-Sayan mountain country. Many of them are endemics of different levels; some are strict local endemics (*Ranunculus sajanensis, R. akkemensis, R. schichkinii and R. trautvetteranus*). Buttercups prefer to inhabit well drained and wetland habitats; some of them are amphibious and even water plants. The study of relationship of genus* Ranunculus *with similar genera (*Batrachium, Halerpestris, Oxygraphis*) will provide us with knowledge of genesis and distribution in this mountain country.*	Tomsk State University, Tomsk

*Type **	*Detail*	*Publishers*
Conference proceedings	Zverev A.A. Use of Internet opportunities for realisation of a cross-border strategy for preservation of the biodiversity of the Altai Mountains. In: Natural conditions, history and culture of Western Mongolia and contiguous regions: Reports of the VI International scientific conference (September 18–22, 2003, Hovd, Mongolia). 2003. p. 273–274 [In Russian] *At the current stage of development of human society and high level of anthropogenic impacts on species and plant communities, effective preservation of the biodiversity of complex areas is only possible as a result of joint efforts of scientific and nature conservation institutions of adjoining countries. The effective sharing of information between representatives of different countries has a very important role. Within the scope of the Darwin Initiative Project "Cross-border conservation strategies in the Altai Mountains Endemics (Russia, Mongolia, Kazakhstan)", we have set up a special WEB-site which contains information on 112 endemic and rare species, typical plant communities, species distributions and the main publications of the participants of the project. All information is available in English.*	Tomsk State University, Tomsk

From Annual Report, Year 3 (2004–5)

Type *	***Detail***	***Publishers***
Conference proceedings*****	Ebel A., Maslova O. 2004. Rare species of the genus Viola L. in the flora of Russian Altai. In: Materials of 3rd International Conference "Problems of Botany of Southern Siberia and Mongolia". p. 145-147 [In Russian] *New information is provided on the distribution and habitats within the Russian Altai of endemic and subendemic species of the genus Viola L. (*V. fischeri, V. czemalensis, V. irinae*) and also some rare species (*V. incisa, V. macroceras, V. mauritii*). Typical habitats of endemic and subendemic species are specified. Existing threats and basic reasons for species rarity and vulnerability are considered.*	"AzBuka", Barnaul
Journal*****	Ebel A.L., Ebel T.V. 2005. Some new and infrequent species of the flora of the Altai region In: Botanical researches in Siberia and Kazakhstan. Edited by A.N. Kuprianov. Vol. 11. p. 93-96 [In Russian] *Five new species of flowering plants for the Altaisky krai are presented:* Agrostis sibirica, Rumex patientia, Ribes glabrum, Geum urbanum, Heliopsis helianthoides*. The last 2 species are also new for the Siberian flora. The new sites of 16 rare species for this territory, including 5 endemic to the Altai Mountains (*Iris ludwigii *– 2 new locations,* Aconitum krylovii *– 1 new location,* Euphorbia alpina *– 7 new locations,* Euphorbia altaica *– 3 new locations, and* Scutellaria altaica *– 1 new location) are specified.*	Altai University Press, Barnaul
Conference proceedings*****	Schegoleva N.V., Ebel A.L. 2005. The Akkem Buttercup (Ranunculus akkemensis Polozh. et Revyak.), an endemic species to Altai Mountain flora. In: Mountain ecosystems of South Siberia: study, conservation and natural use. The first interregional scientific-practical conference devoted to the 5-year anniversary of the Tigirek State Natural Reserve establishment. Proceeding of the Tigirek State Natural Reserve. Vol. 1. p. 260-261 [In Russian] *Questions about the protection of this*	"Altaiskie stranitsy", Barnaul

Type *	Detail	Publishers
	species are quite natural as the Akkem buttercup is a rare and endemic plant. Now only a small part of the population is located within a specially protected natural territory (south of the Altai Zapovenik). However it is not likely that this species requires special measures of protection since its habitats are rather remote and are not subject to direct human impact.	
Conference proceedings*	Pyak A.I. Conservation of endemic plants of Altai. In: Problems of conservation of the Inner Asia Vegetation. Conference proceedings (Ulan-Ude, Russia, September, 2004). p 174-175 [In Russian] *The reasons for the non-uniform level of knowledge about the flora of the Altai Mountains are considered, a preliminary analysis of the distribution and concentration of endemic plants is carried out and the estimation of the importance of results the Darwin Initiative project in terms of their conservation is provided.*	Buryat Scientific Center SB RAS Publishers, Ulan-Ude
Conference proceedings*	Schegoleva N.V. Buttercups of South Siberia. In: "Ecology of South Siberian and Contiguous Areas", Proceedings of International scientific workshop (Abakan Russia, November, 2004). Vol. I, P. 56 [In Russian] *There are about 40 species of a polymorphic genus* Ranunculus *L. in the mountains of Southern Siberia. A significant role among them is played by species with restricted distribution: Altai-Sayan–Central Asian (19%) and South Siberian (16%). 3 species are narrow local endemics:* R. akkemensis *and* R. schischkinii *in the Altai and* R. sajanensis *in East Sayan. It is stated that the strict diploid species are more characteristic for the high-mountain areas.*	Khakassian State University Publishers, Abakan
Conference proceedings*	Morenko M.O. 2004. Classification of Life Forms; an example using the Chenopodiaceae in the Russian and Mongolian Altai. In: Proceedings of International Conference on Plant Morphology (Kirov, Russia, May, 2004), p.203-204 [In Russian] *The goosefoot family (Chenopodiaceae) is represented within the Russian and*	Vyatka State Humanitarian University Press, Kirov

Type *	Detail	Publishers
	Mongolian Altai by 23 genera and 96 species. 6 species are Altai endemics. In the search for an optimum method of classification of the life forms in this family, an attempt is made to combine the classifications by Raunkier (1905) and by Serebryakov (1986), and a method of description using the functional structure of plants and their habits was used. As result, 3 types of life forms and 8 subtypes are allocated.	