

Darwin Project Information

Project Reference No.	162/11/026
Project title	Recovering Ukraine's Lost Steppe: a Unique Opportunity
Country	Ukraine
UK Contractor	CABI Bioscience
Partner Organisation (s)	Master Consulting / Nikita Botanic Garden
Darwin Grant Value	£165,600
Start/End date	April 2002 / March 2005
Project website	www.cybertruffle.org.uk/darw2002
Author(s), date	D.W. Minter, 14 June 2005

Project Background/Rationale

Location

This project operated in Ukraine, particularly in Kiev, Crimea and southeast Ukraine.

Circumstances

In the early 2000s (and continuing today), conditions in Ukraine's **agriculture** and **military** sectors provide a unique opportunity to recover steppe. **Agriculture.** Large areas (much originally steppe) lie derelict through economic stagnation and a declining but increasingly urbanized population. As part of Rio commitments, Ukraine's government favours restoration to natural landscapes: in Crimea alone, 37,000 ha have been identified as suitable. **Military.** Training areas and other military lands are often important for nature. The UK Ministry of Defence routinely takes conservation into account when managing such areas, knowing its public relations value. Ukrainian military also has custody of many important natural landscapes, including large areas of steppe, but conservation has not been a factor in their management. In September 2001, Ukrainian and UK Ministries of Defence signed a Memorandum of Understanding which, for the first time, included agreement to co-operate over ecology.

Problems addressed by project

This project addressed two related problems: steppe conservation and environmental conservation of military areas.

Need and demand for project

The **need for this project** was identified jointly by Dr Minter and his Ukrainian collaborators. At the time of making the original proposal, Dr Minter had worked with Ukrainian scientists and conservationists for over ten years, visiting Ukraine many times and meeting two of the country's last three Ministers of Ecological Security. Dr Isikov was in the scientific team which made the initial survey and developed the management plan of Opuk, the main reserve involved in this proposal. In April 2001, accompanied by Dr Isikov and Dr Hayova (a participant in the present project), Dr Minter visited that reserve. Dr Minter, Dr Hayova and Dr Andrianova (another participant in the present project) discussed the project with staff at the Ukrainian Embassy in London. Dr Minter and Dr Hayova discussed the proposal with Mr David Pert, the then Environmental Officer at the British Embassy in Kiev. Dr Hayova also discussed the proposal with Major Colin Bulleid, the then Military Attaché at the British Embassy in Kiev. Mr Pert and Major Bulleid both offered much practical advice about how this project could be taken forward in the event of it attracting funding.

The **demand for this project** can be traced directly to Ukraine's official conservation priorities. Regarding conservation of steppe, the Ukrainian government's bilingual Ukrainian / English document entitled *A State Programme for Ukraine's National Environment Network Development for the years 2000-2015* sets out its policy relevant to the present project. That document specifically refers to withdrawal from agricultural use of degraded and no-longer-profitable arable lands. It also mentions withdrawal of land plots which have lost their natural condition because of industrial use and which endanger preservation of the environment. Dr Luda Vakarenko

(who represented Ukraine in the Darwin Initiative project Biodiversity Information in the former Soviet Union, 1999-2002, and who has good contact with Ukraine's Ministry for Ecological Security) confirmed that work in this area would be a priority for Ukraine in the next few years. Regarding conservation of military land, during meetings at Ukraine's London Embassy in mid-October 2001, Dr Minter and Dr Hayova were advised by Scientific Attaché Dr Sergii Kucherenko and Defence Attaché Colonel Olexander Chornohuz that, in September 2001, UK and Ukrainian Ministries of Defence signed a new Memorandum of Understanding on military co-operation. One clause covered the totally new topic of military co-operation on ecological issues. Both attachés believed the proposal for the present project was timely and, while ground breaking, would be welcome as introducing British best practice in this new area. They furthermore felt that, if successful, advisory work could be extended to other land-holding national bodies of Ukraine, such as the border guards. Colonel Chornohuz provided Dr Minter and Dr Hayova with further British military contacts, suggesting that initial Darwin Initiative funding could trigger additional support from those sources. Dr Minter and Dr Andrianova discussed these ideas with Ukrainian politicians and diplomats attending the Royal Society's 2001 meeting, *A 10 Year Retrospective on Support for Science in Russia and Ukraine*, where it was suggested that such work could usefully be extended to military training areas in forested land near L'viv in western Ukraine. All this indicated positive support at a high level for work of this sort.

There is abundant **evidence of commitment** from the local partners, all of whom are established professionals who have worked actively in nature conservation for the whole of their professional lives. For further information, visit their personal websites (also available through the project main website):



[Dr T.V. Andrianova](#)

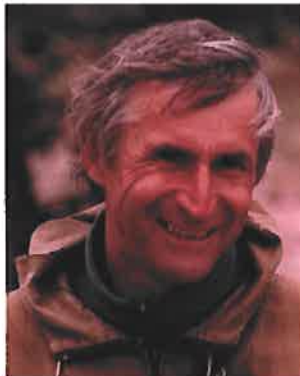


[Dr V.P. Hayova](#) (above)

[Dr A.P. Genov](#) (left)



[Dr V.P. Heluta](#)



[Ms T.I. Krivomaz](#) (above)

[Dr V.P. Isikov](#) (left)

[Dr V.S. Tkachenko](#) (right)



[Dr Yu.Ya. Tykhonenko](#)

Project Summary

Purpose and objectives of project

The **purpose** of this project was to increase steppe land in Ukraine by influencing the country's agriculture and military sectors. The project's original logical framework is included as Appendix V. During the whole life of this project, no changes were made to this logical framework. The **objectives**, not modified during the whole life of this project, were as follows:

- gather Ukrainian scientists with appropriate restoration skills;
- give them practical experience (on problem areas of existing reserves);
- accumulate suitable materials, including seeds and seedlings of steppe plants;

- pass those skills and resources to villagers with suitable land adjacent to reserves;
- encourage villagers to maintain and extend recreated natural landscapes, and use them sustainably;
- establish links between Ukrainian biologists, Ukrainian military administrators, and suitable UK personnel, through study trips and seminars explaining the importance of nature conservation, and its public relations value;
- [if possible] formalize those links into a national Joint Advisory Panel where Ukrainian scientists would be able to advise military administrators about conservation issues, helping disseminate that advice, perhaps through further local panels.

Articles of the Convention on Biological Diversity best describing this project

The Articles under the Convention on Biological Diversity best describing this project are as follows [Article numbers in **bold**, with brief explanatory notes]:

- **1.** Improvement and potential extension of existing reserves, and transfer of skills and resources particularly to local people;
- **5.** Support of Ukrainian-British co-operation in managing military lands for conservation;
- **6.** Assistance to Ukraine in implementing an existing national strategy to restore derelict land;
- **7.** Monitoring and augmentation of knowledge about existing reserves and, potentially, other areas;
- **8.** Enhancement of *in situ* conservation in and outside reserves (**8c**), particularly through rehabilitation of degraded ecosystems (**8f**), and through promotion of compatibility between present uses and conservation (**8i**);
- **9.** Strengthening of *ex situ* conservation, particularly of rare steppe plants;
- **10.** Support of local populations in improving degraded areas where biological diversity has been reduced (particularly **10d**);
- **12.** Appropriate scientific and technical education;
- **13.** Improvement of public awareness;
- **17.** Facilitation of information exchange;
- **18.** Promotion of technical and scientific co-operation.

An evaluation of the success of this project in meeting its objectives

This project was successful in meeting its objectives. All original objectives were achieved. In the bulleted points below, a comment is made on each:

- a team has been established of Ukrainian scientists with appropriate skills;
- that team has gained considerable practical experience of steppe restoration, working on problem areas of existing reserves (principally with encroachment by scrub and other undesirable plants in eastern Crimea and Donetsk oblast');
- suitable materials have been accumulated, including seeds and seedlings of steppe plants (for example, by the end of 2005, the four seed banks set up through this project are expected to contain examples from up to 10% of the native flora of all Ukraine, with a strong emphasis on steppe ecosystems);
- skills have been passed to villagers with suitable land adjacent to reserves (seed stocks of key steppe plants have been bulked-up, simple accommodation for sustainable tourism has been established with the involvement of villagers who further help in providing food for such visitors);
- those villagers have been encouraged to maintain and extend restored natural landscapes, and to use them sustainably (wells have been repaired, buildings restored, new buildings constructed, signposting established, and there has been intense activity clearing rubbish from reserve land);
- links have been established between Ukrainian biologists, Ukrainian military administrators, and suitable UK personnel, through study trips and seminars which have communicated to the Ukrainian military the importance of nature conservation and its public relations value (this included two study trips to the UK by Ukrainian military officers, one return trip to Ukraine by British military officers, and numerous formal and informal seminars);
- those links between Ukrainian biologists and the Ukrainian military have been formalized sufficiently for both parties jointly to prepare exhibition stands, seminar presentations, and a proposal to the British Council's *Small Environmental Projects Scheme* (second round) [SEPSII] for work preparing an environmental

management plan for Divichky Artillery Training Area near Kiev (that proposal was successful, and is now being implemented).

In addition to the original objectives this project produced numerous other significant accomplishments. These are listed in Appendix VI.



Ms Krivomaz discussing biodiversity monitoring with officers at Divichky Artillery Training Area near Kiev

Scientific, training, and technical assessment

Research. This project had no explicit research element. Nevertheless, its existence provided an important environment in which some research - scientific activity in a broad sense - could survive, and that activity, all additional to the main objectives of this project, is the topic of this *Research* section [those interested solely in the main theme of this project are advised to by-pass the next two paragraphs]. Given the mycological background of the Project Leader and the participating scientists in Ukraine, scientific activity was most strongly expressed in studies of fungal biodiversity. Provision of that research environment through the Darwin Initiative was (and is) very highly valued by all the scientists participating in this project, particularly because mycology and mycologists are now globally in danger of extinction. Ukraine is one of the few countries of the world where professional mycologists still exist, and where at least a few are more than 10 years from retirement. The biggest single achievements were the hosting by Ukraine of the *XIV Congress of European Mycologists* (<http://www.biodiversity.ac.psiweb.com/14cem/index.htm>) in Crimea in September 2003 with more than 140 participants from over 30 countries and, arising from that Congress, the establishment of the *European Mycological Association* (<http://www.euromould.org/>). Given the very limited resources which could be redirected from the project's main aims, the other visible expression of research through this project mainly took the form of websites making available information which already existed in computerized form through earlier Darwin Initiative projects. Those websites, and the scientific publications on paper and in CD format (including some work on microfungi inhabiting the inside of rocks, an overlooked habitat) are all listed in Appendix III.

The websites are highly significant for biodiversity conservation. Two sites provide free and rapid access through electronically generated maps to large amounts of information about the geographical distribution of thousands of species of fungi in Ukraine (<http://www.cybertruffle.org.uk/ukramaps>) and Georgia (<http://www.cybertruffle.org.uk/gruzmaps>), and with the maps of Ukrainian fungi it is possible to point and click on individual points to see the published or specimen information on which those records are based. A third site, *Cyberliber* (<http://www.cybertruffle.org.uk/cyberliber>), provides bibliographic references to nearly 60,000 published papers on mycology. That site is now also starting to provide direct access to scanned images of important but rare publications essential for fungal taxonomists (for example the *Systema Mycologicum* by Fries, mycology's equivalent of *Species Plantarum* by Linnaeus). A further site, *Cybertruffle's Fungal Valhalla* (<http://www.cybertruffle.org.uk/valhalla>), provides information about dead mycologists, significantly with a link to *Cyberliber* for their publications. In future this site will also provide information about the location of their type specimens and other collections. Two other sites provide summarized information about *Potentially Rare or Under-recorded Fungi in Ukraine* (<http://www.cybertruffle.org.uk/redlists>), and evaluation of *Recording Coverage of Higher Fungal Ranks in Ukraine* (<http://www.cybertruffle.org.uk/lists>), showing for the first time that objective information can be made available for fungal conservation. Four other sites, developed very recently, build on those earlier sites to establish for the first time active collaboration with IUCN in fungal conservation, through *Sampled Red Lists for Microfungi* (http://www.cybertruffle.org.uk/iucn_red_list), *Ascomycete Conservation*

(<http://www.cybertruffle.org.uk/ascos>), *Rust & Smut Conservation* (<http://www.cybertruffle.org.uk/rustsmut>) and *Mildew, Mould & Myxomycete Conservation* (<http://www.cybertruffle.org.uk/moulds>). Collectively, the websites provide a unique platform on which it would be possible to build an information system about fungal biodiversity and conservation at a global level.

Training. No formal training courses or workshops were proposed for this project. Nevertheless, from the outset, considerable informal training and career development formed an integral part. Each training activity identified in the original proposal is listed below, with a comment on how this activity was carried out during the project.

- *Practical skills in steppe restoration.* Dr Heluta, Dr Tkachenko and Dr Isikov gained very considerable practical experience in steppe restoration. Dr Heluta and Dr Tkachenko were responsible for work in Donetsk oblast', particularly liaising with the Ukrainian National Steppe Nature Reserve, using grazing by horses to control scrub encroachment. Earlier UK funded work had involved construction of stables, renovation of the reserve museum and production of leaflets. Dr Heluta was able to build on that foundation and, further, identified other adjacent non-protected areas suitable for listing as new sites of special scientific interest. Dr Isikov was responsible for work in eastern Crimea, particularly liaising with Opuk National Nature Reserve. He oversaw mowing and herbicide trials aimed at controlling invasives, restoration of wells, repairs to buildings, rubbish clearing operations, fire-prevention work, production of leaflets and a poster, and development of a new reserve museum. Through these activities, other scientists (particularly assistants of Dr Isikov), students, nature reserve staff and local people all acquired practical skills in steppe restoration too.



Khomutovski Steppe Nature Reserve: some of the horses used to control scrub encroachment through grazing [photo. V.P. Heluta]

Accumulated experience from several years of visits, much but not all attributable to the present project, and a payoff of long-term collaboration, has meant that by the end of March 2005, Dr Hayova, Dr Isikov and Ms Krivomaz had, either individually or jointly, through various visits, seen examples of land-management practices altered to support conservation in the following locations: Porton Down, and Salisbury Plain and Sennybridge military training areas (military activities organized to take into account conservation); Aldershot (felling of conifer plantations to encourage woodlarks and nightjars); the Cornish coast (grazing regimes to prevent scrub encroachment, prevention of erosion on paths, signposting, channelling of visitors to "honeypot" sites); the Devon and Dorset coasts, Dartmoor, Exmoor and the North Yorks Moors (prevention of erosion on paths, signposting, channelling of visitors to "honeypot" sites, activities of National Parks, a UNESCO World Heritage Site, private estates and long-distance footpath management); Glencoe, Torridon and Corrieshalloch (activities of private estates, the National Trust and the Footpath Trust, signposting, prevention of erosion on paths); the Brecon Beacons, Beinn Eighe and Rothiemurchus (management of national nature reserves, visitors' centres); the Inner and Outer Hebrides (islander buyouts, maintaining rubbish-free coasts, corncrake conservation, signposting, activities of the John Muir Trust), Cader Idris and Tryfan (Snowdonia National Park) (prevention of erosion on paths), the Yorkshire Dales and the Uffington White Horse near Wantage (prevention of erosion on paths, preservation of flower meadows, signposting, activities of a National Park and of the National Trust); Arisaig (changes to a small botanic garden in response to imminent construction of a new main road).

- *Skills in conserving resources (seeds, seedlings etc.) for steppe restoration, and skills in managing steppe land.* During this project, Dr Isikov and Dr Tykhonenko gained very considerable practical experience in conservation of seeds, establishing four seed banks for native Ukrainian plants, in eastern Crimea, Kiev, Poltava and Yalta. This entailed packaging collections, cleaning seed collections, air-drying seeds, drying seeds in sealed containers with silica gel, assessing collection quality, freezing seeds, documenting collections, producing collection labels, and maintaining a herbarium of voucher specimens associated with seed collections. In April 2005, Dr Isikov and Dr Minter visited the UK *Millennium Seed Bank* at Wakehurst Place in Sussex to tour the facilities and discuss possible collaboration. Dr Heluta and Dr Tkachenko supervised the implementation of the management plan for *Khomutovski Steppe Nature Reserve* in Donetsk oblast', drawn up with earlier UK funding. Through these activities, other scientists (particularly assistants of Dr Isikov), students, nature reserve staff and local people all acquired practical skills in steppe restoration too.
- *Teaching experience to pass on skills.* Dr Isikov and Dr Tykhonenko were both very active training assistants, students, nature reserve staff and villagers in seed collection and steppe restoration skills. Various students and assistants accompanied Dr Isikov on his numerous seed collecting trips and some students, particularly four trained by Dr Tykhonenko (Yuri Hrinkov, Mykola Rozhok, Olexiy Nikolaenko and Tetiana Kryvoruchko), also successfully made unsupervised seed collecting trips. Dr Tykhonenko also helped Dr O.M. Bairak (Poltava University) to establish the seed bank there and to begin collecting seeds typical of plants of the left-bank forest-steppe zone.
- *Use of computers (databases, word-processing, internet, e-mails etc.).* Dr Tykhonenko learned simple HTML programming sufficiently to produce the Ukrainian language version of the *Seed Banks Website* (<http://ln.com.ua/~divers/>) set up by this project. Dr Heluta worked with Dr Minter on the website for the *Khomutovski Steppe Nature Reserve* (<http://www.cybertruffle.org.uk/khomstep>), particularly on the Ukrainian language variant. The project provided Dr Isikov with e-mail and internet facilities, and he has begun to study the HTML programming language. Using various second-hand donated computers acquired, transported to Ukraine and delivered to beneficiaries by this project, basic computing skills have been extended to nature reserve staff in Donetsk oblast' and Crimea.
- *Project proposal writing.* Dr Andrianova, Dr Hayova, Dr Heluta, Dr Isikov and Ms Krivomaz all gained experience in successful project proposal writing. Dr Heluta prepared a successful proposal to the Ukrainian Academy of Sciences which won long-term funding for the grazing project on *Khomutovski Steppe Nature Reserve* (<http://www.cybertruffle.org.uk/khomstep>) using horses purchased and previously supported through this Darwin Initiative project. Advised by Dr Minter, Dr Hayova and Dr Isikov prepared a successful proposal to DEFRA for a project on sustainable development of the Crimean south coast. Jointly with Col. V.V. Kovalevskiy (the original contact within Ukraine's Ministry of Defence, at that time Head of the Department of Ecological & Radiation Safety, Deputy Chief, Department of NBC Protection Troops, General Staff of Ukrainian Armed Forces, now a civilian), Dr Hayova and Ms Krivomaz prepared a successful proposal to SEPSII for work to prepare an environmental management plan for Divichky Artillery Training Area near Kiev. Dr T.V. Andrianova successfully applied for support to attend the *International Conference for the Barcoding of Life* at the British Museum in February 2005.
- *Skills to develop sustainable tourism.* During the lifetime of this project, Dr Hayova, Dr Isikov, Ms Krivomaz and Dr Tykhonenko have, either individually or jointly, through various visits to the UK and elsewhere, gained experience of different levels of accommodation for sustainable tourism, including bed & breakfast, backpacker hostels, youth hostels, mountain bothies and camping (both wild and within campsites). They have furthermore seen a range of visitors' centres (Beinn Eighe, Dartmoor, Lulworth Cove, Rothiemurchus, Torridon), sustainable tourism attractions (eg the Eden Project and Mallaig Marine World), and experienced long-distance coast paths, particularly in southwest England. With Dr Minter, Dr Hayova visited the administration of the Southwest Coastpath in Exeter to gain experience of practical management of such a facility. Those skills have been transmitted to over 60 people in southern Crimea through two workshops (October 2004, April 2005) jointly with the DEFRA project for sustainable development of the Crimean south coast. The skills have also been transferred through direct advice and feedback to prototype backpackers' hostels in Crimea (Balaclava, Feodosia and Opuk).



Nikita Seed Bank: Dr Isikov's assistant holding some of the collections

- *Study trips, and seminars for Ukrainian Ministry of Defence administrators.* Contact with Ukraine's military was established by December 2002, several months after the start of the project. From then on, a series of seminars was held in Kiev at various locations, including (most frequently at the start) rooms rented in the Shevchenko Museum in the city centre. Following a strong preference expressed by the military participants, the seminars rapidly developed into a frequently-meeting informal group at which different ideas were exchanged and plans were made. This arrangement worked well, and apart from project personnel, the most frequent participants included Colonel Kovalevskiy, Dr A.B. Kachynsky (Head of the Department of Ecological Policy, National Institute of Strategic Research), Col. Yu.I. Sytnik (the current Head of the Department of Ecological & Radiation Safety, Deputy Chief, Department of NBC Protection Troops, General Staff of Ukrainian Armed Forces) and Dr Alexander Dudkin (head of the Ukrainian Society for Protection of Birds). Those meetings continue to be held.

In May 2003, Dr Kachynsky and Colonel Kovalevskiy made a study trip to the UK, accompanied by Dr Hayova and Ms Krivomaz, with the prime objective of seeing examples of conservation on military land. Thanks to superb support from the UK Ministry of Defence, the group visited the following sites: Salisbury Plain Training Area, Defence Estates Headquarters Farnham, Porton Down, a former Atomic Weapons Establishment Site in Cardiff, and the Sennybridge Training Area. To emphasize constructive re-use of redundant military sites, the group also visited the historic ships and the Royal Armories Museum, Fort Nelson (Portsmouth), and HMS Belfast.

In July 2004, Col. Kovalevskiy, Col. Sytnik and Ms Krivomaz visited the UK to participate in the Salisbury Plain Life Project Workshop organized by the UK Ministry of Defence. In addition to further tours of the Salisbury Plain training area and Porton Down, they also visited the Dartmoor training area and the Lulworth Artillery Ranges. Their involvement on this and the previous visit is mentioned and two of them appear in a photograph in the report for the European Commission entitled *LIFE, Natura 2000 and the Military* available in interactive form (<http://europa.eu.int/comm/environment/life/infoproducts/lifefaturepublications.htm>).

In September 2004, Col. Mike Smith, Lt Col. Keith Kiddie, Ms Rachel Clarke, Mr Paul Toynton and Mr Martin Brown of the UK Ministry of Defence visited Ukraine for well-attended seminars in Kiev and Sebastopol' (maybe 40-50 other Ukrainians military personnel participating and, in Sebastopol' also with some participation by representatives of the Russian fleet), and to tour Ukrainian military facilities, including *Divichky Artillery Training Area* near Kiev, *Zarechnoe Training Area* near Simferopol', and the *National Oceanarium of Ukraine Research Centre* (Ministry of Defence of Ukraine) near Sebastopol'. During this visit, the British delegation also toured the former submarine base in Balaclava and historic sites associated with the Crimean war.

In March 2005, Dr Isikov and Ms Krivomaz visited the UK looking at, among other conservation topics already mentioned, use of older military sites within a general strategy for sustainable tourism. During their trip, they visited the World War II gathering site for Russian convoys in Loch Ewe, and looked at use of historic military roads in Scotland for long-distance footpaths, also visiting various military antiquities including Glenfinnan, Eilean Donnan castle and the Ruthven Barracks near Newtonmore. Problems resulting from military activity were also discussed from the Wester Ross mainland, overlooking Gruinard Island, for many years contaminated by anthrax as a result of ill-advised biological warfare experimentation.



Col. Kovalevskiy, Ms Krivomaz and Col. Sytnik in front of the American Tank Memorial, Slapton Lee, Devon, July 2004



Sebastopol', September 2004: the British military delegation and their hosts in front of an historic military railway locomotive

Capacity building. The original proposal for this project promised capacity building through establishment of a seed bank [for native wild plants] at Nikita Botanic Garden. This was fully achieved, and Dr Isikov now manages and maintains that seed bank. In addition, three other seed banks were established, in Kiev, Poltava and

eastern Crimea, and a Ukrainian language website was set up to provide information about all four banks (<http://ln.com.ua/~divers/>). The project also addressed other capacity building issues not foreseen in the original proposal. The most important of these were:

- establishment and registration in Ukraine of an environmental NGO as a not-for-profit counterpart to Master Consulting (one of the partner organizations of the present project);
- development of biodiversity websites, with registration of international, Ukrainian and British domain names;
- establishment of a dedicated internet server in London for exclusive use by this and related projects;
- development, jointly with the DEFRA project, of a *Crimean Coast Stakeholders' Forum*;
- development of a small network of backpacker hostels in southern Crimea;
- establishment of the *European Mycological Association* (<http://www.euomould.org/>);
- establishment of specialist groups, endorsed by four international and regional mycological societies, for *Ascomycete Conservation* (<http://www.cybertruffle.org.uk/ascos>), *Rust & Smut Conservation* (<http://www.cybertruffle.org.uk/rustsmut>), and *Mildew, Mould & Myxomycete Conservation* (<http://www.cybertruffle.org.uk/moulds>), with the prospect of these eventually being accepted by the IUCN.

Project impacts

Achievements. The achievements of this project have clearly taken Ukraine closer to accomplishment of the project's purpose, and have resulted in additional unscheduled impacts (listed in Appendix VI).

The purpose of the project was defined in the original (and never altered) logframe with the following words: "The objective of this project is to increase steppe land in Ukraine by influencing the country's agriculture and military sectors. Agriculture. The project will support Ukraine's policy of restoring derelict agricultural land. Military. The project will try to establish a Joint Advisory Panel of Ukrainian scientists and administrators to facilitate conservation management of military land". Each of the three sentences describing the project's purpose will be evaluated in turn in the following paragraphs.

- i. *To Increase Steppe Land in Ukraine.* The following achievements have helped increase the area of protected steppe land in Ukraine:
 - grazing on the *Khomutovski Steppe Nature Reserve*, managed through this project, resulted in an increase in the area of steppe on the reserve through control of scrub encroachment;
 - ploughing of fire breaks, combined with different mowing regimes, rubbish clearance and other maintenance work, improved protected steppe land on *Opuk Nature Reserve*;
 - publicity, through leaflets, posters and the local press has raised awareness in villages near *Opuk Nature Reserve* of the value of conserving steppe land outside the reserve;
 - a search for sites with remnant virgin steppe plant communities in Donetsk oblast' and Zaporizhzhya oblast' by Dr Heluta and Dr Genov identified several localities appropriate to be included in Ukraine's network of protected sites;
 - appropriate identified sites were prioritized, land-owners and local authorities were approached and, where suitable agreement was obtained to proceed, the site was surveyed and documentation prepared and submitted to the requisite authorities so that the site could be added to Ukraine's protected sites network;
 - Konchek Hill (near Lake Uzunlarskoye), an area of steppe close to a military training area and highly prioritized for inclusion in *Opuk Nature Reserve*, was surveyed to prepare documentation of its plants for its eventual inclusion within the nature reserve.
- ii. *To Support Ukraine's Policy of Restoring Derelict Agricultural Land.* The following achievements helped support Ukraine's policy of restoring derelict agricultural land:
 - establishment of four seed banks, in Kiev, Nikita, Opuk and Poltava, provides long-term storage of seeds of native Ukrainian plants collected through this project and forms the basis of a reservoir from which to recolonize steppe;
 - collection of seeds, and preparation and documentation of the resulting specimens, has provided material for those seed banks, and given Ukrainian scientists and their assistants experience of the practicalities involved;
 - establishment in southern Crimea of a simple network of backpackers' hostels, with preparatory work for a long-distance coastpath, and formation of a *Crimean Coast Stakeholders' Forum* (in conjunction with the separate DEFRA small project) have all helped in establishing conditions where derelict agricultural land can be restored for sustainable use through "green" tourism;

- donation of equipment has ensured that the project's scientists, the nature reserves with which the project has worked, and the seed banks established by the project have some basic resources with which to restore derelict agricultural land.
- iii. *To Try to Establish a Joint Advisory Panel of Ukrainian Scientists and Administrators to Facilitate Conservation Management of Military Land.* The following achievements helped facilitate conservation management of military land in Ukraine:
- an appropriate section of Ukraine's military was identified, successful contact was made, and good relations were established;
 - agreement was reached to organize seminars leading to establishment of a joint advisory panel, and a series of seminars was, as a result, organized;
 - suitable representatives of Ukraine's military have visited the UK to see best British practice and to participate in European-wide sessions;
 - joint military / civilian presentations have been made at international exhibitions in Kiev, demonstrating the preparedness of Ukraine's military to be associated with environmental conservation;
 - a joint military / civilian proposal for further work preparing an environmental management plan for Divichky Training Area was prepared, submitted to the British Council's SEPSII scheme, and approved for funding.

Extent to which project achieved goal. The table in Appendix I shows approximately the contribution made by different components of the project to the measures for biodiversity conservation defined in the CBD Articles.



Dr Hayova reads the plaque acknowledging Darwin Initiative support in the new reserve museum at Opuk

Extent to which project improved local capacity to further host biodiversity work. The independent preparation without British input of a proposal for further work, its submission to the British Council's SEPSII scheme by Ukrainian participants of this project, and its subsequent success in being funded is a clear indication that local capacity to further host country biodiversity work has been improved: Ukrainian participants are starting to attract their own funding. Of the participants receiving informal training during this project, Ms Krivomaz continues as Director of Master Consulting, and heads the new environmental NGO set up through this project; Dr Isikov continues to work at Nikita Botanic Garden; Dr Andrianova, Dr Hayova, Dr Heluta and Dr Tykhonenko continue to work at the M.G. Kholodny Institute of Botany (Kiev), and Dr Heluta is now Deputy Director. All expect to continue working in the general area of this project.

Collaboration between local and UK partners. This project has enabled a long-established and very productive Ukrainian / UK team to continue functioning. Relations between partners in the two countries have been very close throughout, and are expected to continue after the end of the project. Competitive project bidding is, however, an arguably inefficient way to fund science, and is certainly exhausting for the scientists involved: after more than 10 years' exposure to this monetarist system, coupled with the evident difficulties of daily life in Ukraine, some partners are understandably showing signs of "project fatigue".



Breakfast in Opuk: one of the village ladies who are now providing "green tourism" accommodation

Collaboration within Ukraine. The project has made a very positive impact on collaboration within Ukraine, through much improved links between the country's military and scientists working in nature conservation, and through establishment of a *Crimean Coast Stakeholders' Forum*.

Beneficiaries. In terms of social impact, the main beneficiaries of the project were nature reserve employees and villagers in settlements near the two main nature reserves where this project worked. Other beneficiaries included local people setting up backpacker hostels, and the scientists actually participating in the project. Unexpected positive and negative impacts on individuals or local communities have not been recorded and are not expected to be encountered.

Project outputs

Standard output measures. Project outputs are shown in Appendix II using the coding and format of the Darwin Initiative Standard Output Measures.

Differences in actual output against agreed schedule. In general actual output was similar to the agreed schedule, although there were some differences in timing and selection of locations. The most noteworthy of these were:

- establishing first contact with Ukraine's military took longer than originally planned (not unreasonably, Ukrainian participants wanted to ensure contact was correctly understood);
- development of the website for *Khomutovski Steppe Nature Reserve* was prioritized over that for *Opuk Nature Reserve*, because a rare opportunity arose to get a fully idiomatic English translation of the information for that reserve, so that it became possible to produce a fully bilingual website;
- some initial difficulties were experienced in setting up the main seedbank in Crimea, and this led to a delay in the start of seed collecting work, although later efforts more than made up for that delay;
- a decision was made about halfway through the project to divert efforts in establishing sustainable tourism from eastern Crimea to Balaclava; this decision, which was explained in earlier project reports, has worked well, and by the end of the project progress had in any case also been made in establishing sustainable tourism in eastern Crimea.

General description of this project's outputs. The many outputs of this project are briefly summarized in the bulleted points below. A full description is provided only if it is not available elsewhere in this report.

- **Military contact.** An appropriate department of Ukraine's military was identified, and contact was established, leading to an agreement to collaborate. It is worth remembering that, when the project began, even this was considered a long shot.
- **Military seminars.** Many seminars and study meetings were held in Ukraine, involving Ukraine's military, in 2003, 2004 and 2005. Those national-level seminars are scheduled to continue until autumn of this year. International seminars were held in Ukraine with UK participants in 2004.
- **Military study visits.** Five Ukrainian personnel visited the UK in 2003 and 2004 to see environmental conservation on British military sites. Six UK personnel visited Ukraine in 2004 to deliver seminars and to see and comment on environmental conditions on Ukrainian military sites.
- **Distribution of *Sanctuary*.** This project acted as a catalyst to ensure that copies of the UK MOD conservation magazine *Sanctuary* and other MOD conservation literature were distributed to teachers participating in the British Council's *English for Peacekeepers* scheme in Albania, Armenia, Azerbaijan, Bosnia, Bulgaria, Czech Republic, Croatia, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Poland, Romania, Serbia and Montenegro, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan. The British Council and Defence Estates of the UK MOD are expected now to continue distribution of future material without further input from this project.
- **Military exhibitions.** The work of the project was presented with a stand organized jointly by the *NBC Protection Department* of the General Staff of the Armed Forces of Ukraine and *Master Consulting* in 2003 and 2004 at the International Exhibition for Protection Technologies held in Kiev annually. A further stand is planned for 2005.

- **Steppe conservation on nature reserves.** At *Opuk Nature Reserve*, trial plots were established, and mowing and herbicide treatments carried out. In *Khomutovski Steppe Nature Reserve*, the work controlling scrub encroachment through managed grazing by horses was supported for two years until the *National Academy of Sciences of Ukraine* took over responsibility; during those two years, the project provided winter fodder for the horses and supported the additional nature reserve staff required as herdsmen, and the number of horses was increased from nine to the planned target of fifteen.
- **Steppe conservation outside nature reserves.** In Donetsk oblast' and Zaporizhzhya oblast', a survey was carried out to identify sites suitable for incorporation in Ukraine's network of protected areas; for prioritized sites, agreement was sought from owners and, where forthcoming, documents were prepared for submission to the appropriate regional authorities. In Crimea, a botanical survey was made of a potential new reserve area, close to *Opuk Nature Reserve*, and planting of steppe endemics from seed collected through the project was carried out on land owned by villagers adjacent to the reserve.
- **Infrastructural improvements to nature reserves.** Opuk: the reserve building was renovated, receiving a new roof (including new roof timbers), new external rendering, repairs to front steps and the splash surround, pointing of the chimney, repainting of doors, pillars, window frames and architraves, and the surrounding area was greened; within the building, three rooms were fully renovated, one serving as a reserve office, another as a small museum and visitors' centre, and the third providing accommodation for visitors; on the reserve itself, the project supported the clearing of wells, fire-break ploughing, repair of a shelter and storage area in a remote part of reserve, rubbish clearance, and the collection of materials for the reserve museum and visitors' centre; the reserve also received donated used computers. Khomutovskiy Steppe: the reserve received donated used computers.
- **Seed collection and seed banks.** Four seed banks were established by the project, in Nikita (Crimea), Kiev, Poltava (eastern Ukraine) and Opuk (eastern Crimea). Active collection of seeds from native plants means that, by the end of 2005 it is hoped that nearly 10% of Ukraine's native flora will be represented in the banks.
- **Sustainable development of southern Crimea.** A small network of backpacker hostels has been established, with basic accommodation now available in Balaclava, Feodosia and Opuk, a domain name has been set up and some information is now available on the internet (<http://www.crean-backpackers.org>); plans are being prepared for a long-distance footpath along the Crimean south coast, and together with the DEFRA small project, a *Crimean Coast Stakeholders' Forum* has been formed, which has already held two meetings.
- **Websites.** During the lifetime of this project, a dedicated server was established, and nine domain names were registered for relevant work. That server now hosts almost all of the internet information provided through the Ukrainian and Cuban Darwin Initiative projects of this team. In addition to its own dedicated website, at least fourteen other websites have been set up through this project's activities, providing information about a wide range of topics relating to Ukrainian and former Soviet Union environmental conservation, world biodiversity, particularly of fungi, and sustainable tourism.



Repairs to the Opuk reserve building: before and after

- **Professional development.** This project has provided many opportunities for the professional development of its Ukrainian participants. The following are some highlights. Dr Andrianova represented former Soviet Union countries at BioNET-INTERNATIONAL's third *Global Biodiversity Workshop* in Pretoria in 2002, presented a paper at the 7th *International Mycological Congress* in Oslo also in 2002, was elected to the executive of the *International Mycological Association* in 2002, and was elected General Secretary of the *European Mycological Association* in 2003; Dr Hayova is serving as Ukraine's representative on the *European Council for Conservation of Fungi* and, with Ms Krivomaz, is a member of the British Council's Professional & Scientific Network in Ukraine; Dr Andrianova, Dr Hayova, Dr Isikov, Ms Krivomaz and Dr Tykhonenko have all benefited from study trips to the UK during the lifetime of this project. With very modest top-up support from this project, Ms Krivomaz has further been able to carry out fieldwork on myxomycete biodiversity in various locations including Cuba, Kazakhstan and the USA.
- **Capacity building and scientific work.** Capacity building outputs, and outputs from scientific work have already been described earlier in this report.



Dr Hayova and Dr Isikov on Opuk Nature Reserve, September 2004

Publications and materials which can be publicly accessed

Appendix III contains full details of all paper publications and CDs that can be publicly accessed, together with a list of the websites established during the lifetime of this project and through which conservation and scientific information generated by this project, and information about sustainable tourism in Crimea are made freely available.

Dissemination of project information

Project information is mainly disseminated through its dedicated website (www.cybertruffle.org.uk/darw2002). This website is distinct from the fourteen sites listed in Appendix III which provide conservation and scientific information, and information about sustainable tourism

in Crimea. This website, hosted on a server maintained by Dr Minter, is expected to remain live for the foreseeable future. In addition, the visit to Ukraine by the British military delegation was covered by radio and television in Crimea. The work of the project was presented with a stand organized jointly by the *NBC Protection Department of the General Staff of the Armed Forces of Ukraine* and *Master Consulting* in two consecutive years at the International Exhibition for Protection Technologies held in Kiev annually. The following articles appeared in Ukrainian magazines and newspapers (list is not exhaustive):

- *Цей Оасис Називається... Полігон* [*This Oasis is Called... a Military Training Area*], a one-page article with colour photographs in *Камуфляж* [*Camouflage*], p. 29, December 2003. [*Камуфляж* is a widely distributed glossy monthly magazine dealing with military matters. It is, for example, regularly available to read on Air Ukraine International flights. The article gave an account of the Ukrainian military delegation's experiences in Britain during their 2003 visit under this project];
- *Цей Оасис Називається... Полігон* [*This Oasis is Called... a Military Training Area*], a half-page version of the same article with one half-tone photograph in *Народна Армія* [*National Army*], p. 11, 30 December 2003. [*Народна Армія* is a widely distributed tabloid newspaper dealing with military matters];
- *С Рюкзак за Спινόю* [*With a Rucksack on your Back*], a two page article with colour photographs in *Корреспондент* [*Correspondent*], pp. 26-27, 3 July 2003. [*Корреспондент* is a widely distributed glossy weekly magazine dealing with news and current affairs, with a similar style to *Time* or *Newsweek*. The article discussed this project's work on sustainable tourism, particularly in respect of the establishment of simple backpacker hostels in Crimea].

The target audience of the website is as broad as the internet itself. Other publicity was specifically targeted at specialists (the exhibition), the military (*Camouflage* magazine and the newspaper, *National Army*), economist and decision makers (*Correspondent* magazine), and the civilian population of Crimea (radio and television).

Project Expenditure

Project expenditure is summarized in the table below. The project was completed without exceeding the original budget. There was no variation in overall expenditure between headings greater than 10%. Only one change was requested: to delay some expenditure until 2005/2006. The reason for the request was the disruption associated with the "orange revolution". That change was agreed by the Darwin Initiative. The expenditure delayed in that way is shown in the column "2005/06". The minus figure for travel in 2004/05 represents a correction of earlier expenditure incorrectly attributed to travel.

Project expenditure summary (£)					
Total Darwin Grant: £165,600					
Annual Darwin Grant:					
2002/2003	£52,000				
2003/2004	£48,300				
2004/2005	£59,340				
2005/2006	£5,960 (withheld until submission of final report)				
Expenditure details	2002/03	2003/04	2004/05	2005/06	Total
Rents, rates, heating, lighting, cleaning & overheads (CABI)					
Salaries (CABI)					
Salaries, rents, rates, heating, lighting, cleaning & overheads (Ukraine)					
Postage, telephone, stationery					
Travel, subsistence					
Printing					
Conferences, seminars, capital items / other					

Project Operation and Partnerships

Local partners

For most of the life of this project, seven local partners - the same number as originally proposed - were involved. The main and most active partners (main rôles in parentheses) were Dr Andrianova (capacity building), Dr Hayova (sustainable tourism), Dr Heluta (steppe conservation in Donetsk oblast'), Dr Isikov (steppe conservation in Crimea), Ms Krivomaz (military liaison, civilian side), Dr Tykhonenko (seed bank development) and Col. Kovalevskiy (military liaison, military side). In addition, at a lower level of activity, Dr Genov (*Khomutovski Steppe Nature Reserve*), Mr S.L. Kuznetsov (*Opuk Nature Reserve*), Dr Kachynsky (Institute for Strategic Studies) and Col. Sytnik (Ministry of Defence of Ukraine) were also involved. The fact that three participants from the military side could be regarded as partners by the end of the project is some indication of the success this project had in communicating its objectives in that direction. Those most involved in planning and implementation of work were Dr Andrianova, Dr Hayova, Dr Isikov, Ms Krivomaz and Col. Kovalevskiy. Although in general the project ran according to plan, some changes were made in response to local consultation, Col. Kovalevskiy's advice being followed, for example, when making approaches to the Ukrainian Ministry of Defence.

Collaboration with similar projects

During this project's lifetime participants interacted with many other projects and organizations within Ukraine. Three, the British Council **SEPS** project on *Environmental Planning for Balaclava* (www.in.com.ua/~veha/), the British Council **SEPSII** project on *Environmental Planning for Divichky Military Training Area*, and the DEFRA project on *Sustainable Development of the Crimean South Coast*, were awarded to team members of the current project. Others (the British Council **SEPS** project on *Coastal Management around Odesa*, and the local government project *Biodiversity of Kam'yanets'-Podil's'kyi*) represented interaction with totally independent

schemes. In preparing the exhibition stands referred to earlier, this project collaborated not only with Ukraine's military, but also with the *Royal Danish Defence Academy* and the *Danish Ministry of Defence*. Project participants played a prominent rôle in the British Council's *Workshop on Sustainable Development* (Balacava, October 2003), and in several instances liaised with the *Ukrainian Society for Protection of Birds*.

Foundation of the European Mycological Association, Katsiveli, Crimea, September 2003



International partners

Although Dr Minter was the only formal international partner for this project, during its lifetime, Ukrainian participants had very considerable interaction with other people and projects internationally. The two most notable examples, the British military delegation, which visited Ukraine through this project, and the more than 140 mycologists from over 30 different countries, who participated in the *XIV Congress of European Mycologists* in Crimea in September 2003, are fully described elsewhere in this report. The third important instance was the involvement of Col. Kovalevskiy, Ms Krivomaz and Col. Sytnik in the Eurosite Workshop (<http://www.eurosite-nature.org/IMG/pdf/85proginv.pdf>) organized by the Salisbury Plain Life Project in July 2004. Their involvement on this and their 2003 visit is mentioned and two of them appear in a photograph in the report for the European Commission entitled *LIFE, Natura 2000 and the Military* available in interactive form (<http://europa.eu.int/comm/environment/life/infoproducts/lifenaturepublications.htm>). In March 2005, British / Cuban / Ukrainian interaction occurred: Dr Isikov and Ms Krivomaz were able to tour the UK, hosted by Dr Minter and Mr A.P. Bennell, Deputy Director of the Royal Botanic Garden Edinburgh, with Dr M.C. Camino Villaró (<http://www.cybertruffle.org.uk/people/0003583.htm>) and Sr J.-M. Rodríguez Vázquez (<http://www.cybertruffle.org.uk/people/0032324.htm>), participants of the now finished Darwin Initiative project in Cuba, who were supported by funding from the British Council in Havana. This was particularly fruitful, because the work of both groups is strongly connected with environmental planning and sustainable development, and considerable exchange of ideas was possible between representatives of two very different countries with some similar problems.

Other international interactions were largely scientific, with participants using very modest support from this Darwin Initiative project to "piggyback" travel to meetings and to carry out fieldwork. These provided great opportunities for Ukrainian scientists to present their work internationally. Dr Andrianova visited Pretoria in July 2002 to participate in BioNET-INTERNATIONAL's *3rd Global Taxonomy Workshop* in the company of Dr J. Mena Portales (<http://www.cybertruffle.org.uk/people/0016573.htm>) from Cuba, who was supported by the then Darwin Initiative project *Biodiversity Conservation in Cuba* (<http://www.cybertruffle.org.uk/darwcuba>) [following up a previous Darwin Initiative project in the former Soviet Union, Dr A. Charchoglian (Yerevan, Armenia), Dr G. Nam (Almaty, Kazakhstan), Dr K. Baikov (Novosibirsk, Russia) and Dr A. Ryss (St Petersburg, Russia) all involved in that previous Darwin Initiative project also participated in that workshop with help in kind, but no financial support from the present project]. Dr Andrianova also travelled to Oslo in August 2002 in the company of Dr J. Mena Portales (<http://www.cybertruffle.org.uk/people/0016573.htm>) and the late Dr M. Rodríguez Hernández (<http://www.cybertruffle.org.uk/people/0021654.htm>) from Cuba to participate in the *7th International Mycological Congress*, at which she was appointed to the Executive Committee of the *International Mycological Association*. In 2002, Ms Krivomaz visited Belgium in August to participate in the *4th International Congress on Systematics and Ecology of Myxomycetes*, and Cuba in November to participate in an expedition to the Darwin Initiative supported protected area of *Alturas de Banao* (<http://www.cybertruffle.org.uk/endfyf/banao.htm>) as part of a biodiversity survey of neotropical mycetozoans ([http://msafungi.org/54\(1\).pdf](http://msafungi.org/54(1).pdf)) supported partly by Dr Minter's then Darwin Initiative project *Biodiversity Conservation in Cuba* (<http://www.cybertruffle.org.uk/darwcuba>). In June 2004, Dr Andrianova visited Yerevan to collaborate with Armenian mycologists, and in February 2005, Dr Andrianova visited London to participate in the *International Conference for the Barcoding of Life* at the British Museum.

Post-project local partner activity

Local partnerships have remained active and seem likely to continue that way for long after the end of this project. Two other projects involving the same local partners (the British Council's **SEPSII** project *Environmental Planning for Divichky Military Training Area*, and the DEFRA project on *Sustainable Development of the Crimean South Coast*) continue at least until the end of 2005, and if funding can be found there is every prospect that work on both themes - there is so much to do - will continue: community participation is already evident and growing in the *Crimean Coast Stakeholders' Forum* set up by the DEFRA project, and the success of *Master Consulting* as a partner indicates that there is indeed a rôle for the private sector. Dr Andrianova's involvement as General Secretary of the *European Mycological Association* is scheduled to continue at least until September 2007. The IUCN initiative for Sampled Red Lists for Microfungi (http://www.cybertruffle.org.uk/iucn_red_list), led by Dr Minter, will require trained mycologists. Ukraine is one of the very few places left where such human resources still exist. There are therefore clearly new opportunities for key work in biodiversity conservation.



The UK Military Delegation and their hosts, Kiev, September 2004

Monitoring and Evaluation, Lesson Learning

Monitoring and evaluation strategy

Because this project involves a team of people with a long track-record of successful collaboration and who all know each other well, a lot of on-site monitoring and evaluation was delegated to the main Ukrainian participants themselves, Dr Minter receiving information about progress and problems remotely, by e-mail. E-mail contact between Dr Minter and Dr Hayova occurred several times each week throughout the project, while e-mail contact with other project participants was less frequent, but often more than once a week, and rarely less than once a fortnight. To ensure good involvement with key non-English-speaking Ukrainian participants, Dr Hayova maintained regular contact with Dr Isikov in Crimea, and Ms Krivomaz maintained regular contact with Col. Kovalevskyi. At the time of writing this report, all of those contacts continue. On each visit to Ukraine, Dr Minter tried to see all participants except Dr Isikov who, being in Crimea, could only be seen on some visits. Every approximately three to six months Dr Minter reviewed progress with each participant. Baseline information about the project's various topics can be summarized as follows:

- **Seed banks.** No seed banks for native wild plants existed in Ukraine before this project;
- **Protected Steppe in Donetsk oblast'.** A full survey of plants of the *Ukrainian National Steppe Reserve* was carried out in 1998 (ie prior to this project) under the leadership of Dr Tkachenko, and Dr Heluta, a major participant in the present project wrote the reserve management plan (full information is available from the reserve's website, www.cybertruffle.org.uk/khomstep);
- **Protected Steppe in Crimea.** A full survey of *Opuk Nature Reserve* was carried out shortly before the start of the present project, with Dr Isikov as one of the survey leaders;
- **Nature conservation on military land.** Before this project, environmental work by Ukraine's Ministry of Defence concentrated almost totally on the physical environment and, in particular, nuclear and chemical pollution; issues relating to biodiversity conservation on military land were largely overlooked.

Regarding seed banks and nature conservation on military land, therefore, all of this project's achievements can be evaluated as establishing structures where nothing existed previously. Regarding steppe conservation, the project's achievements can be evaluated against well documented baseline surveys.

In the following bulleted points, the milestones identified at the start of the project are summarized, with a comment on each:

- **New visitors' centre at Opuk.** A very dilapidated reserve building was fully repaired using support from this Darwin Initiative project. That building now constitutes the reserve headquarters, a visitors' centre and simple accommodation for visitors. Dr Minter visited the reserve in October 2004 at which time the visitors' centre was starting to function. Dr Isikov reports that further improvements have subsequently been made.
- **Pamphlets about Opuk reserve.** Pamphlets and a poster about Opuk reserve were designed, printed and distributed.
- **Advisory Panel for conservation on military land.** Functioning. The panel planned seminars for Ukrainian military personnel, exhibition stands and the visit to Ukraine by the UK military delegation in September 2004, then jointly and successfully applied for and is now active carrying out the British Council SEPSII project *Environmental Planning for Divichky Military Training Area*.
- **Target figures for monitoring.** This milestone relates principally to Opuk reserve, where Dr Isikov set targets and collected statistics of work done. Summarized information from these statistics (for example tonnage of rubbish cleared, numbers of villagers participating, numbers of sampling plots, types and frequency of treatments etc.) was provided in earlier annual reports.
- **Accommodation for visitors in Opuk village.** Functioning: Dr Minter, Dr Isikov and Dr Hayova have used this accommodation during their visits to the reserve, and villagers have been given oral feedback on presentation of this accommodation.
- **Clearance of land designated for living collection of Crimean steppe plants and restoration of non-reserve land.** Done. In 2003, then more in 2004, villagers near *Opuk Nature Reserve* have been employed to grow Crimean steppe plants. This activity is expected to continue and be extended to a greater number of species in 2005.
- **Field trip to reserve by mycologists from 14th Congress of European Mycology; villagers gain real experience of providing accommodation for foreign visitors.** Done.
- **Five computers delivered.** During the lifetime of the project, more than twelve computers, plus several scanners and printers were delivered to different beneficiaries in Ukraine. The total number of computers delivered by Dr Minter through all his Darwin Initiative projects to date probably exceeds 250, beneficiary countries including Argentina, Armenia, Belarus, Bolivia, Cuba, Georgia, Kazakhstan, Kenya, Moldova, Russia, Turkmenistan, Ukraine and Uzbekistan.
- **Review of progress of sustainable tourism and economics of local B&B-style accommodation takes place.** Major reviews carried out through meetings of the *Crimean Coast Stakeholders' Forum* in Balaclava (October 2004) and Feodosia (April 2005).



Sebastopol, September 2004, one of the British-Ukrainian military seminars in progress

In the original proposal (and never altered), the indicators at goal and purpose level were as follows (comments in parentheses):

- **Goal indicators.** Steppe land in Ukraine increases in area (new potential sites of special scientific interest were identified in Donetsk oblast' and Zaporizhzhya oblast', but official recognition of short-listed sites was delayed during the "orange revolution"), quality of Ukrainian steppe land improved (scrub control grazing programme on the *Khomutovski Steppe Nature Reserve* in Donetsk oblast', and fire protection, rubbish clearance and measures against invasives on *Opuk Nature Reserve* in Crimea improve quality of steppe land; new seed banks provide additional insurance), Ukrainian government supports further work on restoration of steppe and other ecosystems (*Khomutovski Steppe Nature Reserve* grazing programme now funded by National Academy of Sciences of Ukraine, and Ministry of Defence of Ukraine takes new interest in nature conservation), with local people sharing benefits (establishment of the *Crimean Coast Stakeholders' Forum* and backpacker hostel network).
- **Purpose indicators. Agriculture.** Experts in place with skills and resources; work communicating those skills and supplying resources to local people begun (done). **Military.** Regular meetings of Joint Advisory Panel, ideas generated at those meetings put into practice in management of military areas (done).

Main problems and steps to overcome them

In the early 2000s, Ukraine has continued to be an interesting place to work on biodiversity conservation. Nothing occurred comparable with the "Piontkovsky affair" difficulties which overtook a different earlier Darwin Initiative project in southern Crimea totally unconnected with the present team. Several other problems were, however, encountered during the project.

- **Corruption.** Ukraine remains a country generally classified as very corrupt. Corruption has impacted on the project in several ways. Firstly, it is still very risky to transfer monies through banks and, as a result, all funds have been taken into Ukraine as cash, either by Dr Minter or by senior Ukrainian participants. All money transferred to Ukraine in this way has, to date, arrived safely. The natural limits of opportunities to import money in this way have resulted in a tendency for the project to be chronically under-spent. Secondly, experience in Dr Minter's first Darwin Initiative project in Ukraine (1993-1996) and experience reported by leaders of other Darwin Initiative project has shown that payment of funds into host institutions can result in very little of the money reaching the desired target. As a result, funds taken into Ukraine through this project have all gone directly to the scientists responsible for project results. In the first year of this project, a particularly strong perception of corruption at Nikita Botanic Garden (but absolutely not involving any participants in the present project) resulted in a serious setback of some of the work setting up the seed bank there.
- **War against terrorism.** This project involved liaising with military in two countries actively involved in the so-called war against terrorism. Ukrainian military colleagues have naturally been pre-occupied with the war in Iraq and, for example, the Madrid bombings, particularly because the Department of Ecological & Radiation Safety, Department of NBC Protection Troops, General Staff of Ukrainian Armed Forces has been directly involved in work in Iraq.
- **Attitudes.** The use of this word here is not intended to be highly charged. In essence, a lot of the work of this project was about changing of attitudes. In trying to bring about changes within Ukraine, one frequently encounters the view that systems which have worked well in the UK will fail in Ukraine. The explanation usually given is that "Ukraine is not ready for this". When expressed by uneducated people with no knowledge of the UK, an explanation of ignorance carries some credence. Sometimes, however, the view may come from an educated person with good knowledge of conditions in both countries. This is more worrying: the project leader then needs real wisdom to identify practices which are truly inappropriate, and to avoid imposing them.
- **Communication.** This difficulty manifested itself in different ways. On one level, misunderstandings are a normal aspect of work when people from such different cultural and linguistic backgrounds collaborate. Patience, a recognition of the problem, and a sense of humour are always the best tools for overcoming such problems. When a project is affected by a misunderstanding between two external bodies, however, for example between people in an embassy and a ministry, the problem may be harder to circumvent. On another level, throughout this project there was the difficulty of maintaining good communication between Dr Minter and Dr Isikov. Although both get on well and know each other well, the inadequacies of Dr Minter's colloquial Russian meant most messages had to be channelled through Dr Hayova who was therefore the key Ukrainian participant of this project.
- **Health.** Earlier reports on this project mentioned health problems. Although they continued throughout the project, work was not strongly affected.
- **Transfer of equipment.** Demand for such support remains high, but it remains very difficult to get donated equipment from the UK to Ukraine, and several potentially good donations were lost as a result.

- **Revolution.** In November and December 2004, Ukraine underwent a national political revolution. This resulted in considerable disruption to the project, particularly in Donetsk oblast' where the attention of the local authority was drawn to matters other than approving new zakaznyks ("sites of special scientific interest"). The administrative and legal mess caused by Ukraine's poor legislative machinery, political corruption and revolutionary upheaval was described by Dr Heluta in an e-mail received while this report was being written: "unfortunately, situation is stably unsuccessful. My Institute sent official letter to the Telmanove State Administration. We have no answer. Today we have consent of owners to establish the zakaznyk and permission of the Telmanove district council. Dr Genov informed me, that local lawyer from administration explained such action of the administration through absence of the special law for situation when zakaznyks are created on private lands. Therefore the administration propose owners to return these plots into state property. It is absolute imbecility! The owners never will return lands. In addition, now the situation with the Telmanove administration is quite critical. It was got involved with falsification of president elections and now is waiting for court examination. Head of the administration urgently has retired on a pension. In addition, in our state an administrative adjustment is waited. I believe that such administrations will be disbanded. Today in Kiev national meeting, devoted to this problem, started to work. Unfortunately, the finish of our project has fallen into a trap of big state changes. But I am sure that we will be winners, and this zakaznyk will be established. All local and oblast' environmental institutions support us".

Evaluation of project work

Internal evaluation. During the life of this project, Dr Minter has made many visits to Ukraine, but only a small number to Crimea (Opuk, Balaclava, seed banks etc.) and Donetsk oblast' (Khomutovskyi Steppe Reserve). It has therefore been necessary to rely to some extent on information received from Ukrainian colleagues. The fact that the National Academy of Sciences of Ukraine has taken over long-term support of grazing at the *Khomutovski Steppe Nature Reserve*, that the Ukrainian side has asked for conservation work to be included in Ukraine-UK MOD bilateral plans, that backpackers' hostels have opened in Balaclava, Feodosia and Opuk, that Dr Hayova has been successful in obtaining a new DEFRA project for sustainable development in Crimea, that Dr Hayova, Ms Krivomaz and Col. Kovalevskyi have been successful in obtaining a new SEPSII project for environmental planning on a military site, and that Dr Minter was invited to speak at a three-day forum on UK-Ukraine scientific collaboration (May 2004) at the Embassy of Ukraine in London, all indicate that outcomes of the project really are contributing to the project's purpose. The successful staging of the *XIV Congress of European Mycologists*, and the establishment of the *European Mycological Association* in 2003 are two further pieces of evidence that this scientific collaboration for biodiversity conservation is making real changes.

External evaluation. The work of this project was seen by two totally external groups. In September 2003, after the *XIV Congress of European Mycologists* in Crimea, two parties of scientists stayed on for post-Congress field trips. One group travelled to eastern Crimea, including a visit to *Opuk Nature Reserve*, while the other group saw the central and western parts of the Crimean south coast. Both groups were shown activities carried out by this project and in both cases responses and feedback were favourable. The September 2004 visit to Ukraine through this project by the British military delegation provided a very good opportunity for external evaluation of military aspects of the work. The feedback from participants received by Dr Minter, Dr Hayova and Ms Krivomaz was universally favourable and constructive, with surprise registered that so much was being achieved on so little funding. Dr Minter believes those participants would be happy to comment further, if such is required, and would be happy to facilitate contact between them and any Darwin Initiative project reviewer.

Key lessons

During this project, the sheer cost per hectare to realize genuine regeneration of steppe has become increasingly clear. The Ukrainian government needs to recognize what its scientists already understand: steppe regeneration is a process which needs real resources. Similarly, the Ukrainian military needs to face the fact that clearing up environmentally damaged areas is also extremely expensive. Both jobs are likely to take a long time; real progress with them will only occur when there is political will to recognize the size and the necessity for such work. During the last year, the size and scope of the environmental work to be undertaken in the military sphere has also become clearer to the team: potentially every military site in Ukraine needs an integrated land management plan similar to those organized by the UK Defence Estates for their sites - a huge task.

The last year of this project saw momentous times for Ukraine, with its "orange revolution". Now, perhaps, the country has some chance of moving towards a less dysfunctional and less corrupt civil society. NGOs are an important element of a civilized civil society. The biggest single NGO in Europe is the National Trust for England & Wales. That highly respected body owns huge areas of land in the name of the nation and plays an enormous rôle in conservation. Ukraine has no equivalent, but everywhere one goes in that country, a crying need for such an organization can be seen.

Actions Taken in Response to Annual Report Reviews

The reviews of each annual report were discussed in detail with Ukrainian collaborators. Each matter raised in those reviews received a response, and in all cases the response was accepted. In the annual report prepared at the end of the first year, activities strictly associated with the current project were not clearly separated from activities resulting from earlier projects or from projects arising as spin-offs from Darwin Initiative work. This resulted in some misunderstandings. In preparing the second annual report, those activities were very clearly distinguished and separated, and no further misunderstandings arose.

Darwin Identity

Publicizing the Darwin Initiative

The sections *Publications and Materials which can be Publicly Accessed and Dissemination of Project Information* above provide information about books, papers, CDs, websites, newspaper and magazine articles, exhibitions, and radio and television programmes in Ukrainian and English associated with this project, all of which cited the Darwin Initiative. In many cases, the Darwin Initiative logo also appeared prominently. In addition, a poster and pamphlets about steppe conservation in eastern Crimea were produced and distributed through this project. The Darwin Initiative logo was prominent on both of those products. Finally, plaques attributing restoration work to this project through support by the Darwin Initiative have been set up on one building and one well in Opuk Nature Reserve in eastern Crimea.

Understanding of the Darwin Identity in the host country

Darwin Initiative projects have now operated in Ukraine more or less continuously for over twelve years. With the exception of the so-called "Piontkovsky affair" (mentioned in the section *Main Problems and Steps to Overcome Them* above), all of the Darwin Initiative's activities in Ukraine have received universally positive publicity. Where the Darwin Initiative is known in Ukraine, and, apart from biodiversity scientists and informed sectors of the general public, that includes some politicians, some ministries, relevant sections of the military, and the Embassy of Ukraine in London, the fund is highly regarded.



Three of the publications in which articles about this project appeared

Status of the project within the host country

Within Ukraine, this project was distinct and had its own clear identity. It did not form part of any larger programme.

Leverage

Additional funds attracted to biodiversity work associated with the project

During the lifetime of the project, the following additional funds were attracted to biodiversity work:

- The National Academy of Sciences of Ukraine took over long-term responsibility for the grazing project on the Khomutovski Steppe Nature Reserve.
- Dr Hayova and Ms Krivomaz successfully applied for about worth of funding from the British Council in Ukraine for a SEPSII project on *Environmental Planning for Divichky Military Training Area*.

Given the pro-west / pro-European Union / pro-NATO character of the recent "orange revolution" in Ukraine, other achievements with some chance of enduring over the next few years include:

- **Condition and quality of steppe on reserves associated with this project.** At both Opuk and Khomutovski Steppe Nature Reserves, the condition and quality of steppe has improved as a result of this project which has been a great stimulant for making reforms. Those improvements will continue in the short and medium term, but without regular revision of the management plans of those reserves, and without financial support, it is difficult to guarantee their continued positive effect, for example, ten years from now.
- **Condition of capital equipment on those reserves.** Opuk and Khomutovski Steppe Nature Reserves both now have renovated museums / visitors' centres (the Khomutovski Steppe museum was renovated through an earlier project). Both reserves also have some computer equipment. The Khomutovski Steppe Nature Reserve has winter accommodation for the horses (also provided through an earlier project), and Opuk Nature Reserve has repaired wells, shelters and signposts. Their short- and medium-term survival seems secure, but all of them will need maintaining and, as time goes by, being kept up-to-date, and where the reserves themselves cannot find the money from core grants, that again will mean long-term funding will need to be found.
- **Seed banks.** Prospects for short- and medium-term survival are good, since there the cost for participant scientists to maintain collections is not great. Long-term survival would mean accommodation at a level greater than the current basic conditions, and introducing a programme of periodic testing of stored seed viability, and to increase the collection to cover more of the country's native flora. That would depend on further and more substantial funding.
- **Maintenance of grazing and other management programmes on reserves associated with this project.** The National Academy of Sciences of Ukraine has taken over the funding of the grazing project at Khomutovski Steppe Nature Reserve and at present seems prepared to support this work for the foreseeable future.

Without further project support, the future for project staff is not good: the average wage in Ukraine for a scientist remains very low and project staff, particularly single parents and those maintaining elderly relatives will find it difficult to continue as scientists. The prospect of losing professional systematic mycologists in one of the few countries which still has a viable cadre of experts in this poorly-covered discipline is grim. The resources delivered through this project will remain in use, as much as possible, by project partners as long as they are able to remain active. Having collaborated successfully for more than twelve years, participants in this project are highly likely to keep in touch.

The project's conclusions and outputs have been applied in two major nature reserves and on at least two military training areas in Ukraine. There is enormous potential for them to be applied much more widely.

- **Steppe conservation.** Any brief search of the internet for grassland conservation in the UK will reveal the existence of a well-developed network of different learned societies, charities and trusts working together. In particular, Ukraine has nothing like the *National Trust for England & Wales* which, for example, owns something like 40% of our coastline. The absence of an equivalent to this key body, the largest NGO in Europe, is a hugely significant gap in Ukraine's conservation infrastructure. Earlier discussions with the British Council in Kiev on this topic evinced the view that Ukraine was far too corrupt for establishment of such a body to be a practical proposition. More recently a view has been expressed within the British Council in Kiev that, as a result of the "orange revolution" the political atmosphere in Ukraine may now change. Partners in the present project are now looking very hard at the possibility of catalytic action to establish in Ukraine a body like the *National Trust*. Another area which needs developing is the establishment of "Friends" organizations for each reserve, in the same sense as exists for bodies such as the Royal Botanical Gardens at Kew. That too will be dauntingly difficult, since Ukraine's poverty and continuing isolation mean that neither natives of the country with disposable income nor visitors aware of the reserves in need of support exist in sufficient numbers to make such a venture easy.
- **Conservation of military lands.** The "orange revolution", Ukraine's current move, politically, towards the west and, particularly, Ukraine's desire to become closer to NATO all mean further funding of this work should, at least in theory, become easier. At present it is not clear whether funds could become available from NATO, or whether Ukraine would be expected to support such work on its own as evidence of its good intentions (one senior British army officer with whom this question was discussed expressed the view that "NATO is a 'big-boys' club' and that, if Ukraine wants to be a member, it should be able to pay its own way").

Additional funds will be sought to continue steppe conservation and conservation of military lands in Ukraine. For British collaborators, this will not be easy, as British politics at present has no great interest in Ukraine in general and environmental questions in Ukraine in particular. A classic example of absence of interest occurred a couple of years ago, delegates at an event in Balaclava on sustainable development heard a participating

representative from DFID in his presentation advising them not to expect any significant funding from Britain for environmental work in Ukraine. This attitude is a pity, because it results in a very poor perception of this country, particularly since Ukrainian conservationists are acutely aware of the strong link between good conservation and good governance. The legacy of this project could be greatly improved if there were, at a political level, more joined-up thinking and greater consistency in supporting environmental work.

Value for Money

Without exceeding its original global budget of £165,600, this project achieved all of its objectives plus a very wide range of additional successful outputs. Considering these costs and benefits, evidence for which is presented above, the author of this report rates project as very good value for money.

Appendix I. Project contribution to Articles under the Convention on Biological Diversity

Project Contribution to Articles under the Convention on Biological Diversity		
Article No./Title	Project %	Article Description
6. General Measures for Conservation & Sustainable Use	10	Develop national strategies that integrate conservation and sustainable use.
7. Identification and Monitoring	15	Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities that have adverse effects; maintain and organise relevant data.
8. In-situ Conservation	15	Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources.
9. Ex-situ Conservation	15	Adopt <i>ex-situ</i> measures to conserve and research components of biological diversity, preferably in country of origin; facilitate recovery of threatened species; regulate and manage collection of biological resources.
10. Sustainable Use of Components of Biological Diversity	15	Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector.
11. Incentive Measures		Establish economically and socially sound incentives to conserve and promote sustainable use of biological diversity.
12. Research and Training	10	Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations).
13. Public Education and Awareness	10	Promote understanding of the importance of measures to conserve biological diversity and propagate these measures through the media; cooperate with other states and organisations in developing awareness programmes.
14. Impact Assessment and Minimizing Adverse Impacts		Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage.
15. Access to Genetic Resources		Whilst governments control access to their genetic resources they should also facilitate access of environmentally sound uses on mutually agreed terms; scientific research based on a country's genetic resources should ensure sharing in a fair and equitable way of results and benefits.
16. Access to and Transfer of Technology		Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies.
17. Exchange of Information	10	Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge
19. Bio-safety Protocol		Countries shall take legislative, administrative or policy measures to provide for the effective participation in biotechnological research activities and to ensure all practicable measures to promote and advance priority access on a fair and equitable basis, especially where they provide the genetic resources for such research.
Total %	100%	Check % = total 100

Appendix II. Outputs

Quantification and description of project outputs using the coding and format of the Darwin Initiative Standard Output Measures.

Code	Total to date	Detail
Training		
1a	1	Although not strictly part of the project, Ms Krivomaz is working towards a candidate degree (Ukrainian approximate equivalent of a PhD) with Dr Minter as supervisor.
4a	4	Undergraduates trained for seed collecting.
4b	3	4 undergraduates × 2 days' training × 2 years = 16 days' training for seed collecting
6a	60	Training for Dr Hayova, Dr Heluta, Dr Isikov, Ms Krivomaz and Dr Tykhonenko in steppe conservation skills, project management, project proposal writing and preparation of internet sites. Training for Dr Kachynsky, Col. Kovalevskiy and Col. Sytnik in ecologically friendly management of military training areas. Seminars in which an estimated 40-50 other military personnel participated.
6b	34	Estimate, including visits of Ukrainian military personnel to UK, and time of other personnel spent in seminars.
7	2	Guide to collecting seeds for seed banks. Reserve pamphlets.
Research		
8	20	Visits by Dr Minter to Ukraine.
9	2	Updated / improved management plans for two major reserves.
10	7	3 CDs published, plus 4 associated websites (see report itself for more information).
11a	6	3 books published, plus at least three other papers (see publication list below).
12a	1	Database established for seed banks.
12b	1	The very large database driving mycological websites for Ukrainian and Cuban collaborators of Darwin Initiative projects was considerably enlarged during the present project, and continues to be managed as a joint resource.
13a	4	4 seed banks; associated herbaria established; gathering of seeds and planting.
Dissemination		
14a	15	Meetings / seminars organized through Col. Kovalevskiy and colleagues with the Ukrainian military.
14b	7	<i>7th International Mycological Congress</i> , Oslo, 2002 (Dr Andrianova, Dr Minter); <i>4th International Congress on Systematics & Ecology of Myxomycetes</i> , Brussels, 2002 (Ms Krivomaz); <i>International Myxomycete Workshop</i> , Cuba, 2002 (Ms Krivomaz); <i>14 Congress of European Mycologists</i> , Crimea, 2003 (Dr Andrianova, Dr Hayova, Dr Heluta, Ms Krivomaz, Dr Minter, Dr Tykhonenko); <i>Life Project Symposium</i> , Salisbury Plain, 2004 (Col. Kovalevskiy, Ms Krivomaz, Col. Sytnik); <i>International Protection Technologies Exhibition</i> , Kiev, 2003, 2004 (Col. Kovalevskiy, Ms Krivomaz).
15a	3	3 articles in Ukrainian national newspapers or magazines.
15b	5	Estimate: several were published, exact details not known.
16a	1	This project was covered as a front page article of CABI Bioscience News (Autumn/Winter 2004).
16c	1000	CABI Bioscience News is distributed internationally.
18c	3	Television programmes in Crimea, covering military seminars and stakeholder group meetings.
Physical		
20	£8000 estimate	New and donated second-hand computers, printers, scanners; books, CD disks, digital camera, e-mail & internet access, ethernet switches plus network adapters, modems, paper, printer cartridges, printers, scanners; oats for horses; materials for repair of spring, wells and buildings, repair of buildings, repair of military equipment for environmental work.
21	1	Museum (visitors' centre) in Opuk Nature Reserve.
22	28	Plots for steppe plants at Opuk nature reserve / monitoring plots at Opuk reserve.
23	£12,000 estimate	Travel provided by other projects; donated computer equipment / long-term contribution by National Academy of Sciences of Ukraine to grazing conservation on Khomutovskyi Steppe Reserve.

Appendix III. Publications

This list is probably not exhaustive, and only contains publications reporting scientific information. It does not include publications such as magazine articles which simply provided information about the project itself. In the table below, an asterisk (*) indicates publications which were submitted with this report or which were already submitted before the report was prepared.

Type	Detail	Publishers	Available from	Cost £
Book	<i>Збереження Степів України</i> [<i>Conservation of Steppes of Ukraine</i>]. Гелюта, В.П.; Ткаченко, В.С.; Вакаренко, Л.П.; Войтюк, Ю.О.; Генів, А.П.; Мосякін, С.Л. [Heluta, V.P.; Tkachenko, V.S.; Vakarenko, L.P.; Voityuk, Yu.O.; Genov, A.P.; Mosyakin, S.L.] [eds], 2002. 164 pp.	Київ: Академперіодика [Kiev: Akademperiodika]		
Book	<i>Гербарій Інституту Ботаніки НАН України</i> [Herbarium of the Institute of Botany, NAS of Ukraine]. Крицька, Л.І.; Мосякін, С.Л.; Федорончук, М.М.; Шевера, М.В.; Драпайло, Н.М.; Партика, Л.Я.; Вірченко, В.М.; Кондратюк, С.Я.; Безніс, Н.Г.; Дудка, І.О.; Тихоненко, Ю.Я.; Царенко, Р.М.; Борисова, В.М.; Дарієнко, Т.М.; Петльованій, О.А.; Савицький, В.Д. [Krytzka, L.I.; Mosyakin, S.L.; Fedoronchuk, M.M.; Shevera, M.V.; Drapaylo, N.M.; Partyka, L.Ya.; Virchenko, V.M.; Kondratyuk, S.Ya.; Beznis, N.G.; Dudka, I.O.; Tykhonenko, Yu.Ya.; Tsarenko, P.M.; Borisova, E.V.; Dariyenko, T.M.; Petlovany, O.A.; Savitsky, V.D.]	Київ: Інститут Ботаніки ім. М.Г. Холодного [Kiev: M.G. Kholodny Institute of Botany]		
CD	<i>Mycology in Ukraine, a CD Commemorating the XIV Congress of European Mycologists, Katsiveli, Yalta, Crimea, 22-27 September 2003.</i> Minter, D.W. [ed.], 2003	Isleworth		
CD	<i>Georgian Fungi.</i> Gvritishvili, M.N.; Hayova, V.P.; Krivomaz, T.I.; Minter, D.W., 2003	Isleworth		
CD	<i>Vorontsov's Who's Who in Biodiversity Sciences.</i> Andrianova, T.V.; Bakloushinskaya, I.Yu.; Lyapunova, E.A.; Minter, D.W. [eds], 2003. 10206 HTML-format pages			

Paper	<i>IMI Descriptions of Fungi and Bacteria</i> . Set 156. Bogomolova, E.V.; Minter, D.W., 2003. 26 pp.	CABI Publishing: Wallingford	ISSN 0009-9716 CABI Publishing, CAB International, Wallingford, Oxon, OX10 8DE, UK	available only through subscription to the series
Paper	<i>Phaeococcomyces chersonesos</i> , a new microcolonial lithobiontic fungus from marble in Chersonesus (Crimea, Ukraine). Bogomolova, E.V.; Minter, D.W., 2003. <i>Mycotaxon</i> 86 : 195-204.	Mycotaxon		
Book	<i>XIV CEM Abstracts. XIV Congress of European Mycologists, Yalta, Crimea, Ukraine, 22-27 September 2003</i> . Andrianova, T.V.; Minter, D.W. [eds], 2003. 130 pp/	ST DRUK: Kiev		
Paper	<i>IMI Descriptions of Fungi and Bacteria</i> . Set 159. Andrianova, T.V.; Minter, D.W., 2004. 30 pp.	CABI Publishing: Wallingford		
Book	<i>Шляхи Інтеграції Природо-охоронної та Освітньо-Виховної Діяльності [Steps to Integrate Nature Conservation and Environmental Education]</i> . Байрак, О.М. [Bairak, O.M] [ed.], 2004. 144 pp.	Полтава: Верстка [Poltava: Verстка]		
Book	<i>Біорізноманіття Кам'янця-Подільського Попередній Критичний Інвентаризаційний Конспект Рослин Грибів і Тварин [Biodiversity of Kam'yanets'-Podil's'kyi: Preliminary Critical Inventorization Checklist of Plants, Fungi and Animals]</i> . Кагало, А.А.; Шевера, М.В.; Леванец, А.А. [Kagalov, A.A.; Shevera, M.V.; Levanets, A.A.] [eds], 2004. 179 pp.	Львів: Ліга-Прес [L'viv: Liga Press]		

In addition to the paper publications and CDs listed in the table above, the following websites (all newly established during this project) publish scientific information germane to this project: *Electronic Distribution Maps of Ukrainian Fungi* (www.cybertruffle.org.uk/ukramaps); *Cyberliber, an Electronic Library for Mycology* (www.cybertruffle.org.uk/cyberliber); *Cybertruffle's Fungal Valhalla* [portraits, biographies and other information about dead mycologists] (www.cybertruffle.org.uk/valhalla); *Red Lists for Microfungi* [part of the IUCN Sampled Red List Index project] (www.cybertruffle.org.uk/iucn_red_list); *Ascomycete Conservation* [the specialist group promoting conservation of ascomycetes] (www.cybertruffle.org.uk/ascos); *Rust & Smut Conservation* [the specialist group promoting conservation of rusts & smuts] (www.cybertruffle.org.uk/rustsmut); *Mildew, Mould & Myxomycete Conservation* [the specialist group promoting conservation of mildew, mould and myxomycetes] (www.cybertruffle.org.uk/moulds); *Lists of Potentially Rare, Endangered or Under-recorded Fungi in Ukraine* (www.cybertruffle.org.uk/redlists); *Maps Showing Recording Coverage in Ukraine of Higher Fungal Ranks* (www.cybertruffle.org.uk/lists); *European Mycological Association* (www.euromould.org); *Electronic Distribution Maps of Georgian Fungi* (www.cybertruffle.org.uk/gruzmaps); *Банки Насіння Дикорослих Рослин України [Seed Bank of Native Ukrainian Plants]* (<http://ln.com.ua/~divers/>) [language of site is Ukrainian]; *Khomutovskiy Steppe Nature Reserve [Заповідник "Хомутівський Степ"]* (www.cybertruffle.org.uk/khomstep) [languages of site are English and Ukrainian]; *Crimean Backpackers* (www.crimean-backpackers.org).

Appendix IV. Darwin contacts

Project Title	Recovering Ukraine's Lost Steppe - a Unique Opportunity
Ref. No.	162/11/026
UK Leader Details	
Name	Dr David W. Minter
Role within Darwin Project	Project Leader
Address	
Phone	
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Other UK Contact (if relevant)	
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Partner 1	
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Partner 2 (if relevant)	
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