

Final Report of Darwin Project 18-004 (2010-2013)

Altyn Dala: supporting ecosystem-scale conservation in Kazakhstan



Submitted in June 2013 by



in partnership with



ENQUIRIES CONCERNING THIS REPORT

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Cover photograph: Vets and rangers releasing a satellite-collared saiga antelope

Darwin Initiative – Final Report

(To be completed with reference to the Reporting Guidance Notes for Project Leaders (<http://darwin.defra.gov.uk/resources/>) it is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

Darwin project information

Project Reference	18-004
Project Title	Altyn Dala: supporting ecosystem-scale conservation in Kazakhstan
Host country(ies)	Kazakhstan
Contract Holder Institution	RSPB
Partner Institution(s)	<ul style="list-style-type: none"> • The Association for the Conservation of Biodiversity of Kazakhstan (ACBK) – BirdLife Affiliate Partner to Kazakhstan • The Committee for Forestry and Hunting of the Ministry for Agriculture of the Republic of Kazakhstan (main conservation authority in Kazakhstan) • Karaganda State University • North Kazakhstan State University of Petropavlosk • Frankfurt Zoological Society
Darwin Grant Value	£XXX (actual claim was £ XXX less than this, as this amount was surrendered to Darwin in Y2 as underspend)
Start/End dates of Project	1 April 2010 – 31 March 2013
Project Leader Name	Michael Brombacher in Year 1, thereafter Paul Donald (assisted by Edith Koshkin in Year 2 and Stephanie Ward in Year 3)
Project Website	http://www.acbk.kz/en/pages/506.html
Report Author(s) and date	Paul Donald, Pamela Braham, Ruslan Urazaliev, Albert Salemgareev, Johannes Kamp, Steffen Zuther, Stephanie Ward and Sergey Sklyarenko: June 2013

1 Project Rationale

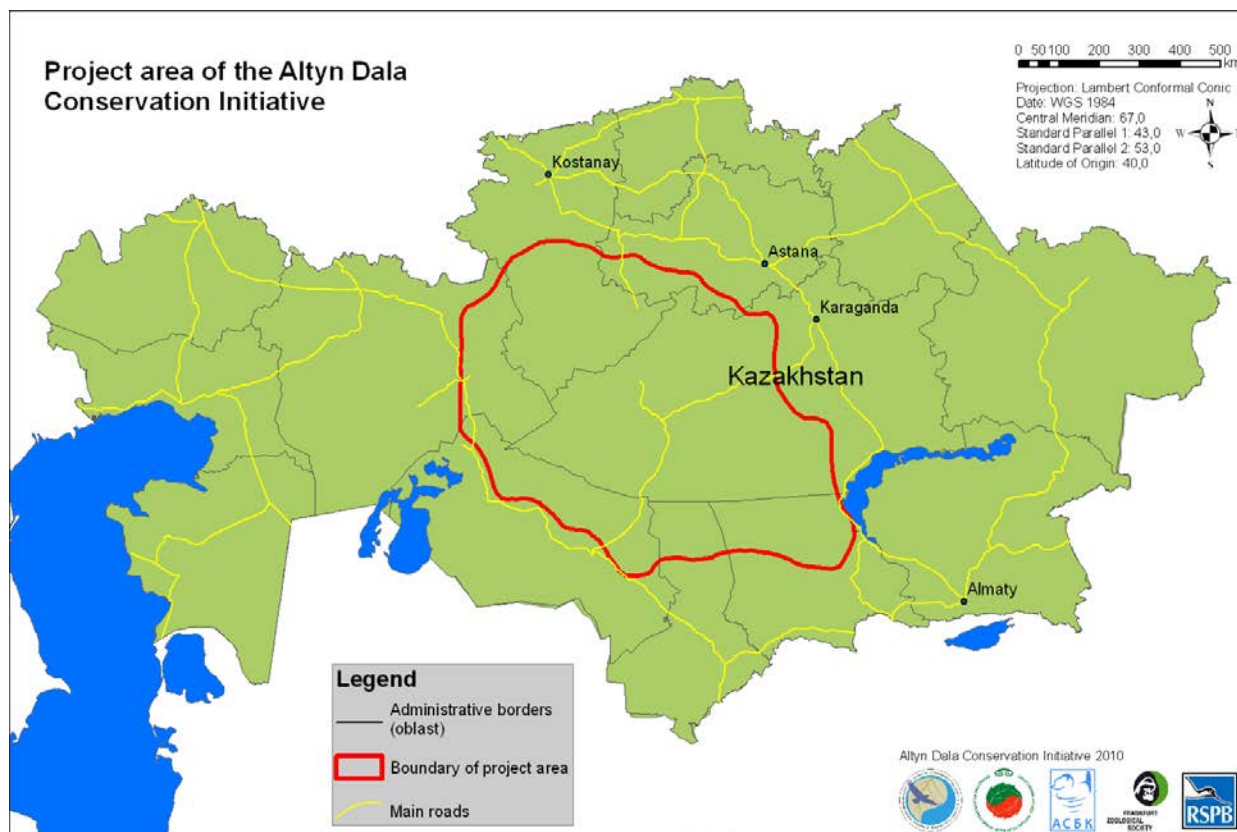
In 2006, the Government of Kazakhstan launched the Altyn Dala Conservation Initiative (ADCI) in partnership with a group of national and international organisations (ACBK, RSPB and FZS). Altyn Dala (“Golden Steppe”) aims to conserve globally important biodiversity, flagship species and habitats in an integrated and representative ecosystem-scale network of protected areas covering between 3 and 4 million hectares, spread over an area totalling 56 million hectares (the size of France) across the Kazakhstani part of the Central Asian steppe and semi-desert belt (see map below). Before this project, however, there was little capacity to support this initiative with research. This Darwin-funded project aimed to address urgent scientific questions regarding the conservation of threatened steppe and semi-desert ecosystems, a little studied and poorly protected environment. These questions included the following:

- What major land use changes are likely to take place in the ADCI and how will steppe and semi-desert species respond to them?
- How do threatened species use the steppe and semi-desert zones of Central Asia?
- Which areas hold the most important populations, and so should be priorities for protection?
- Do key areas for mammals, plants and birds coincide?

Answering these questions was necessary to maximise the impact of ADCI resources and so present a major opportunity for the Government of Kazakhstan to meet its obligations under the CBD and CMS, protecting a unique ecosystem and the species it supports and for which Kazakhstan has a global responsibility. It would also greatly improve the present paucity of information on these important ecosystems. Such knowledge gaps could not be filled by experienced researchers from Kazakhstan, since large numbers of them left the country during times of economic hardship in the 1990s, including many of the university staff needed to train future generations of conservationists.

This project aimed to build the technical support and capacity necessary to turn the Altyn Dala vision into a reality. The project partners built on the expertise developed during previous Darwin projects (Sociable Lapwing project, Central Asian IBA project). The project added an ecosystem-scale component to previous species- or site-based research by providing the technical input required to achieve a landscape-scale network of protected areas.

The final crucial step in this process was to combine the results of the research into a conservation strategy that is integrated into the core workings of ADCI, and to present the project outputs to an international audience by means of a conference on steppe ecology and conservation. Technical development of local researchers and students took place both formally and experientially, and built upon the model developed very successfully during previous Darwin-funded work on Sociable Lapwings. The project planned to generate capacity in advocacy skills amongst project partners, enabling them to work even more effectively with government and other agencies to develop and enhance the ADCI and steppe/semi-desert conservation in general. The project thereby allowed the ADCI consortium to proceed towards the vision of implementing an ecosystem-scale conservation mechanism of immense international importance.



Map of Kazakhstan with the ADCI project area outlined in red

2 Project Achievements

2.1 Purpose/Outcome

The extent to which the project achieved its intended purpose, and the extent to which the individual outputs achieved their aims and met their indicators, are assessed in Annex 1. All the indicators relating to the project purpose were met or exceeded. Perhaps the single most important indicator of the success of this project, however, is the extent to which the two longer-term goals of the work have been met within the lifetime of the project. First, the goal of creating new protected areas to safeguard steppe biodiversity were partly met in November 2012, when the government of Kazakhstan officially signed the designation document for the new nature reserve 'Altyn Dala', covering nearly half a million hectares. The boundaries of this new protected area were based largely on data collected by this project, and include many of the most important Saiga calving areas (see maps in Annex 7). After the extension of the Irgiz-Torgai reserve (boundaries agreed but not yet signed into existence), which was also based on data on saiga calving areas generated by this project, this is the second big step on the way towards an effective network of protected areas in the wider ADCI project area. It also lays the basis for a successful reintroduction of Przewalski's Horse in the area. Second, the goal of safeguarding threatened steppe species is already showing signs of being met, since the anti-poaching patrols, guided by satellite tracking data generated by this project, have proved so successful that Saiga populations are already starting to increase again. At the start of the project, it was not envisaged that these major conservation gains would be realised within the lifetime of the project. A further major output of the project has been the scientific development of ACBK, which is now widely recognised as the region's leading authority on steppe ecology and conservation and a leader in best practice. This is largely a result of the work supported by this project and of the highly successful international conference held in March 2013, which was organised by ACBK and featured a number talks based on the results of this project. In the case of the few outputs that have not been fully achieved within the lifetime of the project, the reason has usually been that the data collection was so successful and more productive than originally envisaged, or that data are still being generated after the end of the project (in the case of the satellite tags), that the analyses and publication of the data have had to be put back. However, the greater capacity of ACBK and the ongoing support to them from RSPB means that they have the means to analyse and publish the data. In the summer of 2013, no fewer than three different research projects, all supported by external funding, were being undertaken in Kazakhstan by researchers trained through the Darwin project.

2.2 Goal/ Impact: achievement of positive impact on biodiversity and poverty alleviation

Please refer to section 2.1, which describes how the higher biodiversity conservation goals of the project were to a large extent achieved during the lifetime of the project. Poverty alleviation and human welfare were not identified as components within the original project document as the ADCI area is largely uninhabited.

2.3 Outputs

Output 1 Status and trends of land use in all vegetation zones of the Altyn Dala established and socio-economic drivers of land use changes established

This work has been completed and published, providing the most complete picture available on trends in land use in the steppe zone of Central Asia and its socioeconomic drivers. The work documents changes in livestock numbers and cereal area, and uses the results of extensive field surveys, analyses of agricultural statistics and satellite imagery and socioeconomic questionnaires to predict past and future trends in bird populations. The results were summarised in the abstract to Kamp *et al.* (2011): "*The socioeconomic impacts of the break-up of the Soviet Union after 1991 have resulted in massive changes in agriculture on the Eurasian (Pontian) steppe, most of which is now confined to Kazakhstan. Recent trends in agriculture are well documented but their impacts on the characteristic bird community of this vast region, which contains over 10% of the world's remaining grasslands, are poorly understood. We modelled bird population density in a representative region in central Kazakhstan along a land-use gradient ranging from pristine steppe to arable fields and heavily grazed pastures. Long-abandoned arable fields and ungrazed pristine steppe were the most important habitats for most species, and post-1991 abandonment of arable agriculture suggests that many species have enjoyed a period of significant population growth. Livestock concentration effects, leading to high grazing pressure in small areas, are also likely to have benefitted several species of high conservation concern. However, analysis of land-use statistics and socioeconomic surveys among land managers suggest that recent and predicted future trends in agriculture in the steppe zone, particularly the reclamation of abandoned cereal fields and reduced grazing pressure, may cause populations of most species, including a number of biome-*

restricted species, to decline in the near future. We discuss possible conservation solutions, including improvements in the protected area system and land-sparing options.”

Output 2 Baseline data on natural vegetation communities mapped and community dynamics/changes in the Altyn Dala documented

A huge amount of data on the vegetation of the Altyn Dala area has been collected, both through dedicated botanical surveys undertaken throughout the region and through the collection of vegetation data during bird and mammal transects, although not all data have been analysed and a number of scientific papers are currently in production. Botanical surveys and recording of vegetation structure included vegetation sampling plots (259 covered in 2010, 150 in 2011 and 230 in 2012) and long-range transects (400 km in 2010, 4185 km in 2011 and c. 1000 km in 2012). In 2010, fieldwork was aimed at assessing the influence of grazing of Saiga antelope and domestic livestock on vegetation communities and to roughly characterize vegetation patterns along a gradient of aridity through the heart of the ADCI region. Topographical and geomorphologic variables were recorded, as well as soil characteristics and vegetation structure and a quantitative estimate of dung abundance. A complete plant species list was compiled for every 100 km² plot including cover (in %) and height estimates for every species. Additionally, a qualitative species list was compiled for the surroundings of every plot (covering 100x100m). In 2011, fieldwork was aimed at assessing the recovery rates of native steppe vegetation on abandoned farmland. Supervised by a botanist from ACBK (Tatyana Siderova) and Prof. Norbert Hölzel (Münster University, Germany), a student from Karaganda university (Evgeniya Senyak) and three students from Münster University compared floristic composition, structure, biomass and soil characteristics on 150 vegetation sample plots, distributed equally on fields abandoned more than 10 years and adjacent pristine steppe sites. In 2012, some of the sites visited in 2010 were revisited to assess whether changes in Saiga numbers were reflected in changes in vegetation structure. Some of the results of this work and the distribution of field sites are shown in Appendix 7. Perhaps the most important result, and one with clear conservation implications, is that native steppe vegetation recovers more quickly after the abandonment of arable farming in the presence of grazing animals. Carbon stocks in soils of old abandoned fields were comparable to those of pristine steppe soils suggesting a high value of abandoned fields compared to cultivated fields in terms of atmospheric carbon sequestration, another important finding. This work has already been published in Russian and is close to submission as a paper for a peer-reviewed journal in English.

Output 3 Distribution and habitat associations of key bird and mammal species of the Altyn Dala understood

As with the vegetation surveys, a huge amount of data has been collected on birds and mammals, some of which have yet to be published; further publications are currently in progress. Over the three years of the project, over 2700 bird survey transects have been walked or driven across the ADCI region, covering all habitats from agricultural land through abandoned farmland and pristine steppe (grazed and ungrazed) to semi-desert and desert. The walked transects have accumulated well over 36,000 individual bird records, many of them of Red Data Book species, making this by far the most extensive and comprehensive survey of the region's birds ever undertaken. A map showing the study sites is given in Annex 7. To date, papers have been published on the likely response of birds to future changes in steppe management and on the responses of the numerically dominant bird family, the larks, to subtle gradients in land cover. The project also supported work in 2011 and 2012 on Sociable Lapwing (Critically Endangered) ecology that was funded largely by a previous Darwin project. Forthcoming papers will repeat such analyses for a larger number of species and will generate maps of distribution for all the region's birds. Significant work has also been undertaken on small mammal populations. Four study areas were surveyed – steppe grazed by Saiga, pristine steppe with no or little presence of Saiga and domestic animals, steppe area moderately to intensively grazed by domestic animals and burnt steppe. At each study area several methods were applied for observation of different kinds of rodents. Live traps were used for small and medium-sized rodents and insectivores. Line transects were used for counting and observation of boreholes, droppings and other signs. Point observations were made of big rodents (susliks, marmots). Night line transects (by car) were used to count and capture jerboas using headlight beams (see maps in Annex 7). Mammal data were also collected by the ornithology team in SW Altyn Dala. A few camera traps were also deployed, and one of these produced remarkable photographs of the first Steppe Wolf recorded in the Altyn Dala region. In the spring-autumn surveys of 2011 and 2012, 3070 trap-days with Longworth traps were set, catching 62 individual small mammals. On the same plots, eighty 500-m transects and 40 point transects were done for counts of diurnal rodents of the genus *Spermophilus*. Around 500 km of driven night transects were done to count nocturnal mammals, particularly jerboas. The count plots and transects were planned along gradients of cattle grazing pressure, for the evaluation of the influence of cattle grazing on small mammals

communities. Papers based on both the bird and mammal work were presented by staff of ACBK at the international conference organised at the end of the project.

Output 4 Research and conservation capacities among conservationists in Kazakhstan enhanced and secured in the long term

All indicators for this output have been met or exceeded. By Y3 of the project, almost all research work was being undertaken by ACBK with minimal supervision from other project partners. ACBK developed and organised an extremely successful international conference on steppe ecology and management, and ACBK speakers were prominent in the scientific programme of that conference. The outputs of this project have placed ACBK very clearly in the lead in this type of work in Central Asia and they play an increasing role in advising the government of Kazakhstan and other national and international conservation organisations. Throughout the project, emphasis was placed on recruiting undergraduates from universities throughout Kazakhstan to work alongside project staff for both formal and experiential training. As a result, a number of Kazakh students have received Diplomas or Masters through their involvement in the project. Core project staff have received formal training in specialist software such as DISTANCE and the statistical software package R. RSPB helped ACBK to develop a management plan for the new Altyn Dala reservat. Much of the work started by the project has continued into 2013, beyond the life of the project. In the summer of 2013, no fewer than three research projects are underway in Kazakhstan by researchers trained through the Darwin project. These are (1) an ecological analysis of the unusual breeding ecology of black larks, (2) a census of the globally threatened white-headed duck and (3) a project looking at the impacts of electricity power lines on birds in central Kazakhstan. All these projects have received external funding.

Output 5 Movements and habitat use of saiga antelope in the Altyn Dala clarified using satellite telemetry and significance of the species in the steppe/semi-desert ecosystem understood

This was a particularly important part of the project, as the ADCI area is defined largely by the movements of the Betpak-Dala population of this Critically Endangered species. The work exceeded expectations, both in the success with which animals were tracked and in the extent to which the data have proved useful. The saiga telemetry project, which started with collaring of animals of the Betpak-Dala population, has extended over the life of the project. With the good start in this population, the national implementing partner ACBK successfully convinced other organisations to spend money on telemetry of saiga of other populations. The Darwin project funded work on the Betpak-Dala population, but experience from there was transferred to the Ustyurt and Ural populations. In October 2010, the fieldwork started with training for the field staff including catching animals and handling them after catching. This was very important to avoid any harm for the animal and minimize stress. Too much stress might lead to an overheating of the saiga and to death. For this reason, a professional veterinarian from Frankfurt Zoo was invited to check the correct handling of the animal. From all animals, biometric measurements were taken, and samples of blood for DNA-analysis collected, as well as samples of fur, droppings, and – if discovered – ectoparasites. All animals received an intramuscular injection of 3 ml of vitamin solution to aid quick recovery after release. During the life of the Darwin project, 59 animals were fitted with collars in Betpak-Dala, 21 in Ustyurt and 10 in Ural. Of these 90 individuals, 32 were still transmitting data in May 2013. Recycling of dropped collars meant that more animals could be fitted with collars than there were collars purchased. From these animals, many thousands of locations have been recorded, and continue to be recorded. Ongoing data collection has meant that analysis and publication were not possible during the lifetime of the project. Data from tagged animals are fed regularly to anti-poaching patrols and have proved so useful in tracking the movements of animals that the scheduled over-flights in light aircraft were deemed unnecessary and cancelled, resulting in a project under-spend in Y2. The data have been used to identify important calving areas, which the boundaries of the new Altyn Dala reservat were designed to include (see maps in Annex 7). As preliminary analyses of the tracking data suggested that the migration patterns of the eastern and western sections of the Betpak-Dala population differed, a genetic analysis was undertaken (with a diversion of funding approved by Darwin) to develop microsatellite markers and use these to assess exchange between the two groups. The results suggested that in fact there has been recent exchange of genetic material between the two groups, which are genetically indistinguishable, but that the Ural population is genetically different to both the Betpak-Dala and Ustyurt populations, with lower genetic diversity. The mass die-off in the Ural population in 2010, which was investigated by project staff, suggested that a combination of calving time, a high density of poisonous plants and higher than average temperatures were responsible. ACBK is now the leading authority on the movements and ecology of this keystone steppe species, and a number of scientific papers are in production. A conference paper (Zuther *et al.* 2012) was given by project staff

on the benefits of satellite telemetry in tracking Saiga at a conference in March 2012, and a paper was given at the ACBK's international steppe conference in March 2013.

Output 6 Species and site conservation strategy developed incorporating findings and recommendations from Outputs 1,2,3 and 5 and incorporated into ADCI strategy

All the indicators for this output have been met or exceeded. All data collected by the project have been entered into GIS databases to maximise their use. The boundaries of the new Altyn Dala reserve, and the extension of the existing Irgiz-Turgai reserve, were based largely on the results of the project, particularly the saiga satellite telemetry. Management plans for the new Altyn Dala reserve were also based on project outputs. Future likely trends in populations of key bird species have been estimated and published. Project staff presented numerous key papers and posters to the international conference. ACBK is now regarded as the leading authority on steppe conservation in the region, and meets regularly with key officials within Kazakhstan to discuss conservation issues in the ADCI and elsewhere. Project staff, with RSPB assistance, helped develop the management plan for the new Altyn Dala reservat, declared in 2012, using data from the project. Work is ongoing to develop ecological corridors to connect the three elements of the new reservat. In November 2011, a workshop was held in Almaty for Hunting Area managers to discuss revising the format of hunting area management plans to make them easier to prepare and more effective in terms of delivering wider biodiversity conservation benefits. This workshop was also attended by four officials from the Kyrgyzstan Ministry of Environment who are also undertaking a review of hunting area management planning. The management plan for the ACBK hunting area was then reformatted to ascertain whether the revised format was practical. It is hoped that the revised format will be adopted by the Committee for Forestry and Hunting as the 'new' national standard.

Output 7 Importance of the Altyn Dala and Central Asian steppe/semi-desert and threats to it more widely known, especially amongst key decision makers

All the indicators of this output have been met or exceeded. A new protected area was created in the ADCI in 2012 and an existing protected area was expanded to include saiga calving areas identified by the project. An international conference was held successfully in March 2013 and included state representatives from Kazakhstan and other central Asian countries. The ADCI has been promoted to national and international media. Throughout the project, ACBK was in constant contact with the primary conservation authority of Kazakhstan, the Committee for Forestry and Hunting (CFH), as well as with a number of other stakeholders important to this project: UNDP Kazakhstan, Institute of Zoology of the Ministry of Education, State Enterprise "Okhotzooptom" (the Governmental arm responsible for Saiga conservation). Meetings on the progress of the saiga tracking work were held annually or biannually with CFH and the Okhotzooptom to inform them of progress and to obtain the necessary permissions to track saiga. The CHF has called upon ACBK to advise it on saiga conservation and censuses and asked ACBK to undertake monitoring of saiga populations outside the ADCI area. Meetings were held each year before the summer field season with local and Protected Area administrations to inform them of plans and to obtain the necessary permissions. Data from the saiga tracking work were fed to anti-poaching patrols on a regular basis. An international conference on steppe ecology and conservation was successfully held, with over 100 delegates representing 10 different countries with steppe ecosystems, in March 2013.

3 Project support to the Conventions (CBD, CMS and/or CITES)

The project addressed all three Conventions. This project was designed to assist the Kazakh government to meet its obligations to the CBD by addressing Articles 6, 7, 8, 10, 11, 12, 13, 14, 16, 17 and 18. It addresses Thematic Programmes *Agricultural Biodiversity* and *Dry and Sub-humid Lands Biodiversity* and Cross-Cutting Issues *Ecosystem Approach, Protected Areas, Identification and Technology Transfer and Cooperation*. It has supported the implementation of the Programme of Work on Protected Areas (PoWPA). The saiga is listed on Appendix II of CITES, and has been subject to a Significant Trade review. CITES has passed a number of Decisions on the species, including 14.91-97 at CoP14 (2007) urging countries to support the CMS's MTWP. The project has generated data on at least nine migratory species listed under Annexes I and II of the CMS. It has contributed towards the implementation of the saiga MTWP developed under the CMS MoU.

- CBD: the CBD places an onus on signatories to designate protected areas, and the designation of the new 0.5 million-ha reserve Altyn Dala, whose boundaries were demarcated using data

from this project, and the expansion of the Irgis-Turgai Reserve, also based on project data, are major steps by the Government of Kazakhstan towards meeting its CBD targets

- CITES: Saiga is a species that is threatened by poaching, partly for illegal export for eastern medicine. The project has allowed anti-poaching staff to improve the focus of their activities to the extent that poaching rates have fallen and the saiga population is now recovering
- CMS: in recognition of its growing expertise in saiga research, ACBK was been designated by a formal CMS Meeting in 2010 to coordinate the implementation of the CMS MoU on Saiga Conservation
- The project partners regularly liaised with the CBD focal point in Kazakhstan at the Ministry of Environmental Protection, within which Ministry ACBK also works closely with the Minister and Deputy Minister, who are responsible for the implementation of the CBD in Kazakhstan. This close collaboration ensured the early involvement of key decision makers within governmental organisations. ACBK also liaises and cooperates regularly with CFH's Deputy Head, who is the CMS, Ramsar and CITES Focal Point. Both agencies have been involved in the development of the ADCI and were consulted throughout the project.
- In a letter (shown in Annex 7 of this report) to the Prime Minister of Kazakhstan in February 2013, congratulating him on his Government's declaration of the new Altyn Dala reservat and pointing to the significant contribution that was made by Darwin funding to this success, the RSPB proposed and invited further collaborations to help Kazakhstan to meet its obligations under CMS and CBD.

4 Project Partnerships

This project built upon a number of previous Darwin projects that were successfully implemented by a partnership of RSPB and ACBK, which started with work on Central Asian Important Bird Areas in 2005. RSPB and ACBK were therefore already very close partners, through the BirdLife international Partnership, before the start of this project, and RSPB provides institutional support to ACBK through its Partner Development Programme. The current project brought together additional partners in The Committee for Forestry and Hunting of the Ministry for Agriculture of the Republic of Kazakhstan (the main conservation authority in Kazakhstan), Karaganda State University, North Kazakhstan State University of Petropavlosk and Frankfurt Zoological Society (FZS). This partnership proved very successful, with the additional partners providing state support and providing the necessary permissions for the project, students to work alongside project staff and expertise in mammal research, respectively. No problems were encountered. RSPB will continue to support the work of ACBK for the foreseeable future, and will assist project staff in writing up and publishing outstanding outputs from this project. FZS continue to support ACBK's work on saiga. RSPB and FZS have made funds available to ensure this happens (see Section 8). Most important, the ADCI partnership between the government of Kazakhstan, ACBK, RSPB and FZS remains very strong and plans are now underway to reintroduce Przewalski's horses to the area.

In a letter to the Prime Minister of Kazakhstan in February 2013 (see Annex 7), congratulating him on his Government's declaration of the new Altyn Dala reservat and pointing to the significant contribution that was made by Darwin funding to this success, the RSPB proposed and invited further collaborations to help Kazakhstan to meet its obligations under CMS and CBD. If this invitation is accepted, RSPB will once again assist ACBK in embracing all future opportunities.

5 Contribution to Darwin Initiative Programme Outputs

5.1 Technical and Scientific achievements and co-operation

Scientific research lay at the heart of this project. Specific scientific achievements of the project are presented elsewhere in this report but include:

- The most comprehensive satellite tracking of saiga antelope migrations ever undertaken, with 90 animals tracked over long time periods with GPS accuracy
- The most comprehensive systematic surveys of birds, plants and small mammals undertaken in Central Asia for at least 20 years
- Socioeconomic research undertaken on likely changes in steppe management in Central Asia, and predictions generated of future changes in steppe biodiversity that will occur as a result

- The first detailed research on the responses of key steppe bird groups to subtle changes in steppe vegetation
- The first assessment of the correlation of steppe vegetation recovery after agricultural abandonment linked to changes in bird and mammal communities
- Scientific training of project partners and students in fieldwork methodology and statistical data analysis
- The development of a new microsatellite marker for studying saiga population genetic structure, and the first analysis of the genetic interconnectedness and diversity of the three globally important saiga populations in Kazakhstan
- A major international conference on steppe ecology and conservation

All major scientific outputs have been, or will be, subjected to full academic peer review. This programme of research has put ACBK firmly at the forefront of steppe ecology and conservation in Central Asia and their advice is regularly sought. ACBK is now recognised as a scientific body by the Government of Kazakhstan, which gives it the right to apply for government science funding.

5.2 Transfer of knowledge

The scientific outputs of the project have been disseminated in a number of ways to a range of stakeholders. Most important, project data were fed to land planners responsible for drawing up the boundaries of the extended Irgiz-Torgai reserve and the new Altyn Dala reserve, to ensure that the most important saiga calving grounds were included. Also, saiga tracking data were fed to anti-poaching teams to help direct their efforts. Project data were fed into the development of management plans for the new protected areas. ACBK maintain regular contacts with the state authorities responsible for nature protection in Kazakhstan and have been asked for their help in a number of ways. The international conference held at the end of this project proved to be an excellent way to disseminate some of the results of the project to key stakeholders, and the proceedings will be published as free-to-view online content. All scientific outputs have been, or will be, published in the peer-reviewed scientific literature. All major project outcomes have been or will be accompanied by press releases, in Kazakhstan or the UK.

5.3 Capacity building

Capacity building has been a major component of all outputs of the project and was specifically addressed in Output 4 of the project. Please see section 2.3 and section 3 for further details. As a result of the project, culminating the international conference held in March 2013, ACBK is now widely recognised as the leading authority on steppe ecology and conservation in the region and as the world leaders in saiga research and conservation. This is evidenced by the extent to which ACBK is actively consulted by government in conservation issues, and the fact that ACBK is now the coordinator of the CMS MoU on Saiga Conservation. Not only project staff have benefitted from both formal and experiential training: the unique system of training for undergraduates, developed during previous Darwin projects, has provided experience to many young people that they could not access in any other way in Kazakhstan. In the summer of 2013, no fewer than three research projects are underway in Kazakhstan led by researchers trained through the Darwin project (see above). The scientific development of ACBK can best be evidenced by the fact that the organisation was certified by the Ministry of Education and Science in 2012 as a scientific entity with the right to apply for governmental scientific grants.

5.4 Sustainability and Legacy

These issues are covered elsewhere in the report. In summary:

- ACBK was certified by the Ministry of Education and Science in 2012 as a scientific entity with the right to apply for governmental scientific grants
- In November 2012, the government of Kazakhstan officially signed the designation document for the new nature reserve 'Altyn Dala', covering nearly half a million hectares
- In the summer of 2013, no fewer than three research projects are underway in Kazakhstan led by researchers trained through the Darwin project
- The collection of data from satellite tagged saiga is still continuing at the time of writing
- ACBK is actively consulted by government in steppe conservation issues
- ACBK is now the coordinator of the CMS MoU on Saiga Conservation
- All the project partners are continuing to collaborate after the end of the project.

6 Lessons learned

Because this project built on a long history of highly successful and close collaboration between the two main partners, RSPB and ACBK, no major lessons were learned regarding project management and the project was built around the known respective strengths and resources of these partners. The project did however reinforce the strength of the highly successful model of student training, developed during previous Darwin-funded collaborations, by which suitable and interested undergraduate students are identified by the country's leading universities and offered places on training courses, and the most able and keen of these are then offered places working alongside field teams. This has helped increase the capacity of field teams and has created a cadre of trained and interested young researchers and conservationists. It is noteworthy that two of the main project staff in the current Darwin project came up through a similar scheme in a previous Darwin project and are now key staff members of ACBK. Within the space of a few years, ACBK has grown from a small research-based group into a far larger organisation that is now at the forefront of conservation research and practice in Kazakhstan.

All project partners feel that this project has been highly successful, the best measure of this being that some of the longer-term goals of steppe conservation were actually achieved within the lifetime of the project.

6.1 Monitoring and evaluation

Changes in project personnel, particularly the UK Project Leader in Year 2, were made with little impact on the project, since RSPB employed a temporary staff member who had worked at both RSPB and ACBK to oversee the transition and to provide close project and financial monitoring. There were regular visits by RSPB staff to Kazakhstan throughout the project and in April 2012, the CEO of ACBK visited the RSPB HQ in Sandy to discuss this and other projects. The progress of the project continues to be monitored and evaluated after its end using the indicators and means of verification set out in the original logframe. Detailed financial monitoring of the project was undertaken by specialist staff in the RSPB's international financial management unit.

6.2 Actions taken in response to annual report reviews

No significant issues were identified during reviews of previous reports.

7 Darwin identity

Where appropriate, the Darwin logo was included on all project outputs and was featured prominently during the international conference (see photographs in Annex 7). Every effort was made to identify the Darwin-funded components of the wider ACI Initiative as a discrete project. Because of a long history of Darwin-funded projects in Kazakhstan (IBAs, Sociable Lapwing and their follow-ups), the Darwin name and logo is now familiar to most people working in conservation in the country. Darwin was officially thanked as the sponsor in a special presentation at the start of the international conference. Darwin is acknowledged in all written scientific outputs of the project.

In a letter to the Prime Minister of Kazakhstan in February 2013, congratulating him on his Government's declaration of the new Altyn Dala reservat and proposing further collaborations to help Kazakhstan to meet its obligations under CMS and CBD, the RSPB pointed to the significant contribution that was made by Darwin funding to this success. A copy of this letter was sent to the British Ambassador in Astana (see Annex 7).

8 Finance and administration

8.1 Project expenditure

Project spend since last annual report	2012/13 Grant (£)	2012/13 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)	XXX	XXX	XXX	Staff costs were a little higher than expected.
Consultancy costs	XXX	XXX	XXX	N/A
Overhead Costs	XXX	XXX	XXX	Overhead costs were slightly lower than originally budgeted.
Travel and subsistence	XXX	XXX	XXX	Travel and Subsistence costs were slightly higher due to the end of project conference.
Operating Costs	XXX	XXX	XXX	Operating costs were slightly higher than expected.
Capital items (see below)	XXX	XXX	XXX	N/A
Others (see below)	XXX	XXX	XXX	The final costs for the microsatellite development were lower than originally quoted by Senckenberg.
TOTAL	XXX	XXX	XXX	

Staff employed (Name and position)	Cost (£)
Ruslan Urazaliev – Ornithologist	XXX
Alena Shmalenko – Small Mammals Team Leader	XXX
Alexey Timoshenko – Small Mammals Survey Team Member	XXX
Albert Salemgareev – GIS Assistant	XXX
Alexander Viktorovich Putilin – Field mammologist	XXX
Zhasulan Zhumashev – Field mammologist	XXX
Evgeniya Nikolaevna Senyak – Field botanist	XXX
Sergey Sklyarenko – National Project Manager	XXX
O Abakhov – motorcyclist for saiga catching	XXX
TOTAL	XXX

Capital items – description	Capital items – cost (£)
N/A	
TOTAL	

Other items – description	Other items – cost (£)
DNA analysis of saiga blood samples and development of microsattellites	XXX
TOTAL	XXX

All the co-funding indicated in the original budget (marked *) was secured:

Source of funding for project lifetime	Total (£)
RSPB*	XXX
Frankfurt Zoological Society*	XXX
GEF/UNDP Steppe Project*	XXX
Gregor Louisoder Foundation*	XXX
German Development Service (GTZ)*	XXX
German Development Service / CIM (CIM = Secondment Programme)*	XXX
Additional funding for saiga collars	XXX
TOTAL	XXX

Source of funding for additional work after project lifetime	Total (£)
Various small project funds: nesting ecology of black larks	XXX
Conservation Leadership Project: white-headed ducks	XXX
GEF small projects fund: birds and power lines in Kazakhstan	XXX
Research Institute for Biological Safety: saiga collars	XXX
RSPB: support for post-project follow-up work	XXX
FZS: support for post-project follow-up work	XXX
TOTAL	XXX

8.2 Value for Money

Throughout the project, we have taken care to achieve the most work for the least expenditure. A few examples of this include:

- Recycling of satellite tags; care was taken to retrieve satellite collars that had fallen from saiga at the end of their battery life or retrieve collars from dead animals. Where possible, these were reconditioned, fitted with new batteries and redeployed on new animals, making the sample size of tracked animals much greater than the number of collars purchased.
- Where possible, different taxon specialist groups worked together in the field to reduce the number of cars needed and limit fuel consumption. Camping greatly reduced fieldwork costs.
- The data received from collared saiga reduced the need for expensive overflights for saiga surveillance, leading to a surrender of unspent funds to Darwin in Y2 of the project

Annex 1 Report of progress and achievements against final project logframe for the life of the project

Note: For projects that commenced after 2012 the terminology used for the logframe was changed to reflect DFID's terminology.

Project summary	Measurable Indicators	Progress and Achievements	Actions required/planned for next period
<p>Goal/Impact:</p> <p>The Altyn Dala in Kazakhstan is restored and preserved as a unique ecological system:</p> <ul style="list-style-type: none"> Protected area network established to protect widest possible range of species and ecosystems Extent of range and population levels of threatened or biome-endemic species at t⁰ maintained or increased by t³ 		<p>Both indicators of the Project Sub-Goal as set out in the original logframe have already been partly achieved:</p> <ul style="list-style-type: none"> In November 2012, the government of Kazakhstan officially signed the designation document for the new nature reserve "Altyn Dala", covering nearly half a million hectares. The boundaries of this new protected area were based largely on data collected by this project. After the extension of the Irgiz-Torgai reserve, this is the second big step on the way towards an effective network of protected areas in the wider ADCI project area. It also lays the basis for a successful reintroduction of Przewalski's Horse in the area. Data provided by the research team to anti-poaching patrols have helped greatly to reduce poaching in ADCI, leading to a significant increase in Saiga numbers. 	Do not fill not applicable
<p>Purpose/Outcome</p> <p>To protect threatened species and ecosystems in Central Asia by supporting the ground-breaking Altyn Dala Conservation Initiative (ADCI) through state-of-the-art</p>	<ul style="list-style-type: none"> Impact of land use changes on steppe birds and mammals understood to inform ADCI conservation strategy Current and future threats to steppe biodiversity identified to inform ADCI conservation 	<p>All these indicators have been met or exceeded. A number of scientific papers have been produced or are in preparation demonstrating the impacts of land use changes on birds, plants and mammals and likely future trajectories in their populations. These</p>	Do not fill not applicable

Project summary	Measurable Indicators	Progress and Achievements	Actions required/planned for next period
research and strengthening of local capacity in landscape-scale conservation.	strategy <ul style="list-style-type: none"> • Preliminary boundaries for Altyn Dala protected areas defined by habitat data, land use mapping and saiga movements • ADCI strategy strengthened by the inclusion of scientific outputs by t³ and promoted to key stakeholders 	research outputs have been circulated to all stakeholders and presented at an international scientific conference in March 2013. The boundaries of the new Altyn Dala reserve, signed into existence in November 2012, were drawn up largely using data on Saiga movements generated by this project. The project's research outputs form a central part of the management plan for the new reserve and will be used to identify future protected areas.	
Output 1 Status and trends of land use in all vegetation zones of the Altyn Dala established and socio-economic drivers of land use changes established	<ul style="list-style-type: none"> • Area of different habitat and land use types quantified and mapped by t² • Changes in livestock numbers and agriculture within the ADCI area quantified and their drivers identified 	Output fully achieved and both indicators met – see scientific papers listed in Annex 5 (particularly Kamp et al. 2011) and the maps provided in the supplementary information in Annex 7.	
Activity 1.1 Collect available historical and current data on land-use in the ADCI area, especially from official statistical agencies, as well as socio-economical data		Completed – see list of scientific published outputs in Annex 5	
Activity 1.2 Analyse and ground-truth remote sensing data and develop maps showing the current distribution of different land-use types in Altyn Dala		Completed – see list of scientific published outputs in Annex 5	
Activity 1.3 Analyse data on land-use for trends in number of livestock and area ploughed		Completed – see list of scientific published outputs in Annex 5	
Activity 1.4 Analyse data on socio-economy and governmental programs for correlations with land-use in order to understand drivers for changes in land-use		Completed – see list of scientific published outputs in Annex 5	
Activity 1.5 Write and submit scientific papers		Completed and ongoing – see Annex 5. Further papers are in preparation	
Output 2 Baseline data on natural vegetation communities mapped and community dynamics/changes in the Altyn	<ul style="list-style-type: none"> • Distribution of natural vegetation communities in selected study areas mapped 	Output largely achieved and both indicators met – see scientific papers listed in Annex 5 (particularly Kamp et al. 2011) and supplementary information in Annex 7. A further piece of analysis needs to be undertaken using the vegetation data collected by the bird transects; this will be undertaken at the same time as the	

Project summary	Measurable Indicators	Progress and Achievements	Actions required/planned for next period
Dala documented	<ul style="list-style-type: none"> Correlates of vegetation dynamics identified (e.g. fire, grazing, climate) 	analyses of bird data (Output 3)	
Activity 2.1 Undertake fieldwork to assess vegetation structure in relation to grazing pressure in 2 study areas representing different climatic conditions		Completed – see list of scientific published outputs in Annex 5	
Activity 2.2 Develop maps of vegetation structures for study areas		Largely completed – see list of scientific published outputs in Annex 5, further analyses will be undertaken under Output 3	
Activity 2.3 Assess recovery of steppe vegetation in fallow fields of different ages		Analyses completed – see list of scientific outputs in Annex 5; paper yet to be published	
Activity 2.4 Analyse data received from field work for correlations between vegetation and grazing pressure as well as ages of fallow fields and develop recommendations for optimal land-use intensity		Analyses completed – see list of scientific outputs in Annex 5; paper yet to be published	
Activity 2.5 Write and submit scientific papers and student theses		Ongoing – see list of scientific outputs in Annex 5	
Output 3 Distribution and habitat associations of key bird and mammal species of the Altyn Dala understood	<ul style="list-style-type: none"> Past and current distribution and abundance for key species understood by t3 Predictive habitat models developed and performance evaluated by t3 	Completed, pending some further analyses. The quantity of data collected, particularly for birds, has been significantly greater and its collection continued for longer than initially envisaged (see Annex 7), with the result that a large amount of data has been collated but not yet fully analysed. However, the capacity built within the local partner organisation is sufficient for the analyses of these data to be completed in-country, with continued support from all project partners. Some papers have already been published, others will be published in due course.	
Activity 3.1 Collate data on steppe birds and small mammals (incl. literature review) and identify conservation and threat status of key steppe bird species		Completed – see project published outputs (Annex 5)	
Activity 3.2 Conduct field bird and small mammal surveys of all major habitat types of the Altyn Dala region		Completed – a huge number of bird transects have been undertaken throughout the ADCI area and, for comparative analyses, beyond. See the map of transects in Annex 7. A smaller number of small mammal surveys have been undertaken in different steppe zones.	
Activity 3.3 Collect data on distribution of birds and mammals and habitat model covariates in steppe zone		Completed – see above	

Project summary	Measurable Indicators	Progress and Achievements	Actions required/planned for next period
Activity 3.4 Model bird and small mammal abundance, species richness etc. in relation to land use and other habitat covariates		Ongoing – see above	
Activity 3.5 Write and submit scientific papers and PhD thesis		Partly completed and ongoing – see list of scientific outputs in Annex 5 and comments above	
Output 4 Research and conservation capacities among conservationists in Kazakhstan enhanced and secured in the long term	<ul style="list-style-type: none"> • Proportion of research undertaken by partners increases through life of project • Strategies for future research developed by partners by t³ • International conference on steppe/semi-desert research planned and key papers given by partners 	All these indicators have been met or exceeded. Even by Y2, almost all of the work was being undertaken by in-country partners with minimal external supervision. Further research ideas have been developed by partners and funding has been sought. In 2012, ACBK was formally recognised as a research institute by the Government of Kazakhstan, allowing the organisation to apply for Government science funding. In 2013, no fewer than three research projects led by staff trained through the project were underway in Kazakhstan. ACBK successfully planned and organised a major international conference in Almaty in 2013 at which ACBK staff presented a number of talks. The conference has firmly established ACBK as the leading authority on steppe ecology and conservation in Central Asia.	
Activity 4.1 Run training workshop on field survey methods for project staff in Kazakhstan		Completed – a training course was run in April/May 2010 for all project staff and for university students from around Kazakhstan who were attached to the project. Additionally, the project opportunistically co-financed and contributed to a training course led by the Conservation Leadership Programme in collaboration with the Wildlife Conservation Society and the Association for the Conservation of Biodiversity of Kazakhstan on “Statistics and Experimental Design for Biological Monitoring and Conservation” in September 2011, in which all students attached to the project and several ACBK staff participated and developed skills in data analysis for their diploma and masters theses. ACBK played a key role in organising this highly successful event.	
Activity 4.2 Experiential training of host country researchers and students during fieldwork		Completed – in each year of the project, project staff worked alongside experts to develop their skills. Furthermore, in each year up to 10 undergraduate students from across Kazakhstan were trained in biological fieldwork methods and worked alongside project staff, the work often contributing to their university diplomas.	
Activity 4.3 Produce bilingual (Russian, Kazakh) training materials		Not needed, since similar manuals were produced by a GEF-funded project. These were distributed to project staff. Instead, training resources were diverted to a workshop on data analysis (see above).	

Project summary	Measurable Indicators	Progress and Achievements	Actions required/planned for next period
Activity 4.4 Partners in Kazakhstan develop future research strategy to support ADCI		This is an ongoing process, and already ACBK are developing research ideas to support future work in the ADCI area, particularly with respect to identifying the impacts on game species of the non-hunting zones that they manage.	
Activity 4.5 Support at least 5 students in Kazakhstan to Diploma qualification		This target has been exceeded – see Annex 4. One student attached to the project attained a MSc at a UK university (with the assistance of a Darwin Scholarship). Two core project staff members have attended training courses in the UK.	
Output 5 Movements and habitat use of saiga antelope in the Altyn Dala clarified using satellite telemetry and significance of the species in the steppe/semi-desert ecosystem understood	<ul style="list-style-type: none"> • Boundaries of important calving areas and winter distribution outlined • Spatial and temporal patterns of migration and habitat use mapped • Impacts of saiga grazing on vegetation and animal communities documented 	All these indicators have been met, although because satellite tags are still transmitting data at the time of writing, full data analysis and publication of the results will now take place after the end of the project. Data from tagged animals are fed regularly to anti-poaching patrols and have proved so useful in preventing poaching that the scheduled over-flights in light aircraft were deemed unnecessary and cancelled, resulting in a project under-spend in Y2. The data have been used to identify important calving areas, which the boundaries of the new Altyn Dala reservat were designed to include (see maps in Annex 7). ACBK is now the leading authority on the movements and ecology of this keystone steppe species, and a number of scientific papers are in production.	
Activity 5.1 Train local staff in catching, handling, and collaring saigas		Completed – see section 2.3	
Activity 5.2 Catch saiga antelopes and fit satellite tags		Completed – 90 animals tagged within and outside ADCI area	
Activity 5.3 Process submitted location data and permanently inform ADCI rangers and governmental institutions about saiga accumulations		Completed - data from tagged animals are fed regularly to anti-poaching patrols and have proved so useful in preventing poaching that the scheduled over-flights in light aircraft were deemed unnecessary and cancelled, resulting in a project under-spend in Y2	
Activity 5.4 Analyse the data, produce maps, and draw conclusions about saiga ecology and migration		Ongoing – maps have been produced (see Annex 7) but full statistical analysis of the data is awaiting the cessation of data collection	
Activity 5.5 Use the data to develop and validate a saiga habitat model		Because satellite tags are still transmitting data at the time of writing, full data analysis and publication of the results will now take place after the end of the project	
Activity 5.6 Prepare and submit scientific papers		Because satellite tags are still transmitting data at the time of writing, full data analysis and publication of the results will now take place after the end of the	

Project summary	Measurable Indicators	Progress and Achievements	Actions required/planned for next period
		project	
<p>Output 6 Species and site conservation strategy developed incorporating findings and recommendations from Output 1,2,3 and 5 and incorporated into ADCI strategy</p>	<ul style="list-style-type: none"> • ADCI project/conservation strategy revised based on outcomes of this DI project • Boundaries of optimal protected areas determined and proposed to Government • Vulnerability of key species to different threats assessed and suggestions for conservation measures outlined by t³ • Sustainable land-use practices identified, summarised in a document and approved by the government • Key papers for international conference on steppe/semi-desert research given by partners 	<p>All these indicators have been met or exceeded. The boundaries of the new Altyn Dala reserve, and the extension of the existing Irgiz-Turgai reserve, were based largely on the results of the project, particularly the saiga satellite telemetry. Management plans for the new Altyn Dala reserve were also based on project outputs. Future likely trends in populations of key bird species have been estimated and published. Project staff presented numerous key papers and posters to the international conference.</p>	
<p>Activity 6.1 Set up data bases and GIS containing all data gathered</p>		<p>Completed – GIS (ArcGIS 9.3) databases with customisable query functions created and updated by ACBK project staff</p>	
<p>Activity 6.2 Analyse available data for interrelations between different components of the geocosystems of Altyn Dala as well as with anthropogenic impacts</p>		<p>Completed – results published</p>	
<p>Activity 6.3 Identify threats for key species and required conservation measures</p>		<p>Completed or ongoing – results published and in preparation</p>	
<p>Activity 6.4 Identify potential sites for protected areas and map them</p>		<p>Completed – new protected areas actually signed into existence during the lifetime of the project, based on project outputs</p>	

Project summary	Measurable Indicators	Progress and Achievements	Actions required/planned for next period
Activity 6.5 Develop recommendations for sustainable land-use		Ongoing – ACBK is now regarded as the leading authority on steppe conservation in the region. Project staff, with RSPB assistance, helped develop the management plan for the new Altyn Dala reservat, declared in 2012, using data from the project. Work is ongoing to develop ecological corridors to connect the three elements of the new reservat.	
Activity 6.6 Include all project findings into the ADCI species and site conservation strategy		Ongoing – ADCI is a long-term initiative to which the data generated by the project will contribute	
Activity 6.7 Launch the conservation strategy in Astana and seek formal governmental endorsement		Ongoing – ACBK holds regular meetings with relevant national authorities. The creation of a new state reserve in 2012 was based on the outputs of this project.	
Output 7 Importance of the Altyn Dala and Central Asian steppe/semi-desert and threats to it more widely known, especially amongst key decision makers	<ul style="list-style-type: none"> • Key decision makers have greater involvement in ADCI by t3 than in t0 • Decision makers outside Kazakhstan contribute to international conference • Increased media attention (nationally and internationally) to ADCI through the DI project 	All these indicators have been met or exceeded. A new protected area was created in the ADCI in 2012 and an existing protected area is about to be expanded to include saiga calving and rutting areas identified by the project. An international conference was held successfully in March 2013 and included state representatives from other central Asian countries. The ADCI has been promoted to national and international media.	
Activity 7.1 Permanently inform Kazakhstani decision makers about the project progress and results and get them involved in the project process		Completed and ongoing – throughout the project, ACBK was in constant contact with the primary conservation authority of Kazakhstan, the Committee for Forestry and Hunting (CFH), as well as with a number of other stakeholders important to this project: UNDP Kazakhstan, Institute of Zoology of the Ministry of Education, State Enterprise “Okhotzooptom” (the Governmental arm responsible for Saiga conservation). Meetings on the progress of the saiga tracking work were held annually or biannually with CFH and the Okhotzooptom to inform them of progress and to obtain the necessary permissions to track saiga. Meetings were held each year before the summer field season with local and Protected Area administrations to inform them of plans and to obtain the necessary permissions. Data from the saiga tracking work were fed to anti-poaching patrols on a regular basis.	
Activity 7.2 Prepare and organise international conference on steppe		Completed – the conference was successfully held in Almaty in March 2013. Over	

Project summary	Measurable Indicators	Progress and Achievements	Actions required/planned for next period
ecology and conservation		100 delegates attended from 10 countries.	
Activity 7.3 Run international steppe conference and publish proceedings		Completed – the conference was successfully held in Almaty in March 2013. Conference proceedings will appear later in 2013.	
Activity 7.4 Communicate information about the project and its results to the general public		Information about the main project activities and achievements is presented on the ACBK website and presented in quarterly prepared electronic mailing “ACBK News”. UK Press releases have accompanied the publication of certain project papers and the designation of the Altyn Dala reservat in 2012. One national press-release about saiga tagging had been sent in 2011 aiming to invite journalists in Kazakhstan to participate in this event. Astana TV took part in the saiga tagging and prepared a special TV documentary about it. A reporter from Al Jazeera prepared a video about saiga tagging in 1 November 2010: http://www.aljazeera.com/video/asia/2010/10/20101031205022262147.html	Journalists attended the international steppe conference in Almaty in March 2013.

Annex 2 Project's full logframe, including indicators, means of verification and assumptions

Note: Insert your full logframe. If your logframe was changed since your Stage 2 application and was approved by a Change Request the newest approved version should be inserted here, otherwise insert the Stage 2 logframe.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.			
Sub-Goal: The Altyn Dala in Kazakhstan is restored and preserved as a unique ecological system	<ul style="list-style-type: none"> Protected area network established to protect widest possible range of species and ecosystems Extent of range and population levels of threatened or biome-endemic species at t⁰ maintained or increased by t³ 	Lists of protected areas Species monitoring reports	
Purpose To protect threatened species and ecosystems in Central Asia by supporting the ground-breaking Altyn Dala Conservation Initiative (ADCI) through state-of-the-art research and strengthening of local capacity in landscape-scale conservation.	<ul style="list-style-type: none"> Impact of land use changes on steppe birds and mammals understood to inform ADCI conservation strategy Current and future threats to steppe biodiversity identified to inform ADCI conservation strategy Preliminary boundaries for Altyn Dala protected areas defined by habitat data, land use mapping and saiga movements ADCI strategy strengthened by the inclusion of scientific outputs by t³ and promoted to key stakeholders 	Reports, scientific papers GIS-based map system ADCI strategy documents	Any future changes in the political situation of Kazakhstan do not prevent fieldwork for safety reasons

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Outputs 1. Status and trends of land use in all vegetation zones of the Altyn Dala established and socio-economic drivers of land use changes established	<ul style="list-style-type: none"> • Area of different habitat and land use types quantified and mapped by t2 • Changes in livestock numbers and agriculture within the ADCI area quantified and their drivers identified 	Land use map covering the ADCI area Scientific papers, talk at international conference	
2. Baseline data on natural vegetation communities mapped and community dynamics/changes in the Altyn Dala documented	<ul style="list-style-type: none"> • Distribution of natural vegetation communities in selected study areas mapped • Correlates of vegetation dynamics identified (e.g. fire, grazing, climate) 	Scientific papers, progress reports, conference papers and proceedings, maps, GIS database	
3. Distribution and habitat associations of key bird and mammal species of the Altyn Dala understood	<ul style="list-style-type: none"> • Past and current distribution and abundance for key species understood by t3 • Predictive habitat models developed and performance evaluated by t3 	Scientific papers, progress reports, web-site, talk at international conference, GIS database	
4. Research and conservation capacities among conservationists in Kazakhstan enhanced and secured in the long term	<ul style="list-style-type: none"> • Proportion of research undertaken by partners increases through life of project • Strategies for future research developed by partners by t³ • International conference on steppe/semi-desert research planned and key papers given by partners 	Work plans, research strategy documents, training reports, databases Strategy documents, funding proposals Conference proceedings	Students of sufficient calibre are available [Please note: The absence of this assumption was cited as a reason for rejection of this proposal in Round 16. However, our extensive experience Kazakhstan indicates that student capability is most unlikely to be a problem.]
5. Movements and habitat use of saiga antelope in the Altyn Dala clarified using satellite telemetry and significance of the species in the steppe/semi-desert ecosystem understood	<ul style="list-style-type: none"> • Boundaries of important calving areas and winter distribution outlined • Spatial and temporal patterns of migration and habitat use mapped • Impacts of saiga grazing on vegetation and animal communities documented 	Scientific papers, progress reports, live tracking facility on the internet	

Project summary	Measurable Indicators	Means of verification	Important Assumptions
6. Species and site conservation strategy developed incorporating findings and recommendations from Output 1,2,3 and 5 and incorporated into ADCI strategy	<ul style="list-style-type: none"> • ADCI project/conservation strategy revised based on outcomes of this DI project • Boundaries of optimal protected areas determined and proposed to Government • Vulnerability of key species to different threats assessed and suggestions for conservation measures outlined by t³ • Sustainable land-use practices identified, summarised in a document and approved by the government • Key papers for international conference on steppe/semi-desert research given by partners 	<p>ADCI strategy document</p> <p>Maps, strategy documents</p> <p>Scientific papers, talk at international conference</p> <p>Guide for sustainable land-use</p> <p>Conference proceedings</p>	<p>The government makes appropriate use of the conservation strategy. [Please note: Again, the absence of this assumption was cited as a reason for rejection in Round 16. However, the fact that the Ministry of Agriculture is a project partner – together with previous experience – gives us confidence that this will not be an issue.]</p>
7. Importance of the Altyn Dala and Central Asian steppe/semi-desert and threats to it more widely known, especially amongst key decision makers	<ul style="list-style-type: none"> • Key decision makers have greater involvement in ADCI by t3 than in t0 • Decision makers outside Kazakhstan contribute to international conference • Increased media attention (nationally and internationally) to ADCI through the DI project 	<p>ADCI progress report</p> <p>Conference proceedings</p> <p>Press coverage</p>	

Annex 3 Project contribution to Articles under the CBD

Project Contribution to Articles under the Convention on Biological Diversity

Article No./Title	Project %	Article Description
6. General Measures for Conservation & Sustainable Use	20%	Develop national strategies that integrate conservation and sustainable use.
7. Identification and Monitoring	10%	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	10%	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		Adopt ex-situ 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		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	60%	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		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.

Article No./Title	Project %	Article Description
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		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.
Other Contribution		Smaller contributions (e.g. of 5%) or less should be summed and included here.
Total %	100%	Check % = total 100

Annex 4 Standard Measures

Code	Description	Totals (plus additional detail as required)
Training Measures		
1a	Number of people to submit PhD thesis	1
1b	Number of PhD qualifications obtained	1
2	Number of Masters qualifications obtained	2
3	Number of other qualifications obtained	6
4a	Number of undergraduate students receiving training	18
4b	Number of training weeks provided to undergraduate students	25
4c	Number of postgraduate students receiving training (not 1-3 above)	7
4d	Number of training weeks for postgraduate students	36
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification(i.e. not categories 1-4 above)	2
6a	Number of people receiving other forms of short-term education/training (i.e. not categories 1-5 above)	2
6b	Number of training weeks not leading to formal qualification	8
7	Number of types of training materials produced for use by host country(s)	
Research Measures		
8	Number of weeks spent by UK project staff on project work in host country(s)	25
9	Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (s)	2
10	Number of formal documents produced to assist work related to species identification, classification and recording.	1
11a	Number of papers published or accepted for publication in peer reviewed journals	5
11b	Number of papers published or accepted for publication elsewhere	1
12a	Number of computer-based databases established (containing species/generic information) and handed over to host country	2
12b	Number of computer-based databases enhanced (containing species/genetic	

Code	Description	Totals (plus additional detail as required)
	information) and handed over to host country	
13a	Number of species reference collections established and handed over to host country(s)	
13b	Number of species reference collections enhanced and handed over to host country(s)	
Dissemination Measures		
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	2
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	5
15a	Number of national press releases or publicity articles in host country(s)	2
15b	Number of local press releases or publicity articles in host country(s)	
15c	Number of national press releases or publicity articles in UK	
15d	Number of local press releases or publicity articles in UK	
16a	Number of issues of newsletters produced in the host country(s)	4
16b	Estimated circulation of each newsletter in the host country(s)	250
16c	Estimated circulation of each newsletter in the UK	
17a	Number of dissemination networks established	
17b	Number of dissemination networks enhanced or extended	2
18a	Number of national TV programmes/features in host country(s)	2
18b	Number of national TV programme/features in the UK	
18c	Number of local TV programme/features in host country	
18d	Number of local TV programme features in the UK	
19a	Number of national radio interviews/features in host country(s)	
19b	Number of national radio interviews/features in the UK	
19c	Number of local radio interviews/features in host country (s)	
19d	Number of local radio interviews/features in the	

Code	Description	Totals (plus additional detail as required)
	UK	
Physical Measures		
20	Estimated value (£s) of physical assets handed over to host country(s)	£28,457
21	Number of permanent educational/training/research facilities or organisation established	
22	Number of permanent field plots established	
23	Value of additional resources raised for project (See Section 8.2 above)	£242,535
Other Measures used by the project and not currently including in DI standard measures		

Annex 5 Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)	Cost £
Scientific paper	Kamp, J., Urazaliev, R., Donald, P.F., Hölzel, N., 2011. Post-Soviet agricultural change predicts future declines after recent recovery in Eurasian steppe bird populations. <i>Biological Conservation</i> 144 : 2607–2614, doi:10.1016/j.biocon.2011.07.010.		Copies of all these publications are available on request free of charge from the authors of this report	
Scientific paper	Kamp, J., Siderova, T.V., Salemgareev, A.R., Urazaliev, R.S., Donald, P.F., Hölzel, N. 2012. Niche separation of larks (Alaudidae) and agricultural change on the drylands of the former Soviet Union. <i>Agriculture, Ecosystems and Environment</i> 155 :41-49. doi: 10.1016/j.agee.2012.03.023			
Scientific paper	Urazaliev, R., Iskakov T., Kamp, J. 2012. Aggressive intraspecific behaviour in Black Larks <i>Melanocorypha yeltoniensis</i> in winter. <i>British Birds</i> 105 : 40-42			
PhD thesis	Kamp, J. 2012: Post-Soviet land-use change and conservation of avian biodiversity across the Eurasian steppe belt. PhD thesis, Institute of Landscape Ecology, University of Münster. 141pp.			
MSc thesis	Koshkin, M. 2011: Habitat preferences of steppe breeding birds in Central Kazakhstan, in relation to different forms of land use. MSc thesis, University of East Anglia, Norwich (UK)			
Conference paper	Zuther S., Salemgareyev A.R. and Shaimukhanbetov O.K. 2012. Application of satellite telemetry for research and protection of saiga antelopes of the Betpak-Dala population in Kazakhstan. In: Zoological and game management researches in Kazakhstan and adjacent countries: Materials of International theoretical and			

	practical conference (Almaty, March 2012)			
Scientific paper	Brinkert, A., Kamp.J., Siderova, T.V. & Holzel, N. 2012. Vegetation development on abandoned fields in the dry steppe zone of Kazakhstan and the importance of grazing for restoration [in Russian]. <i>Steppe Bulletin</i> , 36 : 13-15.			
Scientific report	Geismar, J. & Nowac, C. 2013. Fine-scale Genetic Structure Within and Among Populations of the Saiga Antelope in Kazakhstan. Research Report, version 01, June 2013. Senckenberg Society for Nature Research.			
Conference proceedings	Proceedings of the International Conference on the Ecology and Conservation of Eurasian Steppes. In prep. (due late 2013)			
MSc thesis	Brinkert, A. 2012. Vegetation development on old fields in the southern steppe zone of Central Kazakhstan. MSc thesis, Institute of Landscape Ecology, University of Münster.			
Scientific report	Dieterich, T., Sarsenova, B. & Koslenko, J. 2011. Examination of the forage basis of Saiga in the Ural population on the background of the mass death in May 2010. ACBK, Astana.			
Scientific paper	Sheldon, R. <i>et al.</i> 2013. Breeding ecology of the globally threatened Sociable Lapwing <i>Vanellus gregarius</i> and the demographic drivers of recent declines. <i>Journal of Ornithology</i> , 154 : 501-516.			

Annex 6 Darwin Contacts

Ref No	18-004
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Annex 7 Additional supporting materials

List of contents:

7.1 Maps

7.2 Photographs

7.3 Letter from RSPB to the Prime Minister of Kazakhstan, sent on completion of project

7.4 Selected publications

7.5 Conference programme (as separate attachment)