



# ***FINAL REPORT ON THE “TENGIZ MONITORING PROJECT”***

**Monitoring of Globally Threatened Bird Species  
in the Tengiz Lakes Region in Central Kazakhstan**

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## CONTENTS

- 1. Report summary*
- 2. Project background*
- 3. Expected results and outputs at the start of the project*
- 4. Actual results and concrete outputs of the project*
- 5. Follow up of the project*

*Annexes*

## ***1. Summary.***

The Tengiz Monitoring Project was carried out from April 2003 until March 2004 on the territory of the Tengiz Region in Central Kazakhstan. The Tengiz–Korgalzhyn Lakes and their surroundings (Tengiz Lakes Region) as the largest of very few major wetland areas are of great importance for birds to stop during their annual migration across the dry steppes of Central Kazakhstan. The invertebrate organisms living in the water (zooplankton and benthos) are good forage for birds and fish. During seasonal migrations up to 20 million birds feed on Lake Tengiz and the surrounding lakes. This wetlands and the surrounding steppe is home for a large amount of breeding bird species as well. A large proportion of the Globally Threatened Species listed in IUCN Red List for Kazakhstan are found in the Tengiz Region (13 of 17 species) and eight local species of birds are endemic to the Eurasian Steppe biome (BIRDLIFE INTERNATIONAL 2000, HEINECKE & KOSHKIN 2000).

The economical crisis in the country after the collapse of the Soviet Union almost led to a complete absence of any zoological monitoring activities due to a lack of technical equipment (such as binoculars, telescopes and other scientific and field equipment) and resources (human but also transport). In addition to that, no modern standardized and comprehensive methodology was applied. For the Tengiz Lakes region we could say, that a detailed overview of the status of birds and their habitats was urgently needed for prioritizing and carrying out conservation measures in the region. The project activities throughout the project year aimed to reach the priority results, which were identified at the start of the project.

First of all, as one of the main results of the project field work, detailed and updated information on the status of migrating and breeding bird species and their habitats in the Tengiz Lakes Region was gathered and entered in a data base. Apart from the involvement of young local specialists and professionals into the monitoring activities, standardized and comprehensive monitoring methods were applied and will be used in the future. The methodological approach included training – theoretical and practical- by a foreign researcher experienced in the region. During the field work special attention was granted to selected focus species (like White-headed Duck *Oxiura leucocephala* and Sociable Plover *Vanellus gregarius*) of the region. The project team carried out search for the breeding sites and assessed numbers including the post-breeding and migration concentrations. In addition to that the most important sites in the project region were covered by regular monitoring using fixed itineraries. Counts have been carried out by standardized methods.

Large amount of important data on various bird species was gathered in the process of the field work. A lot of new potential sites were surveyed; more detailed monitoring was carried out within the sites known to be important for breeding and post-breeding concentrations of above mentioned Globally Threatened bird species. After the field work phase the central administration and procession of the data was organised and at the end of the project its accessibility for the use of interested people is done. As well, the base for long-term sustainability of the monitoring activities in the region was established through training young researchers.

## ***2. Project background***

The Tengiz Lakes region is located in the middle of the steppe territories of Central Kazakhstan. It is identical with the area proposed as a future UNESCO Biosphere Reserve. The core zone of this region is formed by the Korgalzhyn State Nature Reserve (KSNR), which was founded in 1958. For more than 40 years the rich biodiversity of these lakes has been preserved untouched by this largest Nature Reserve in the country of Kazakhstan. The biodiversity of the region includes more than 800 species of plants, 56 species of mammals and over 325 species of birds.

During the Soviet period the reserve's staff was able to conduct sample research, and nature conservation work was carried out within the reserve's territory. After the collapse of the Soviet Union, governmental support has almost completely been cut until today, and only very limited research work could be continued. Due to the difficult economical situation especially in rural areas during this period qualified researchers have left the region. This development has led to an almost absence of any monitoring activities due to a lack of technical equipment (such as binoculars, telescopes and other scientific and field equipment) and resources (human but also transport). In addition to that no modern standardized and comprehensive methodology was applied. For the Tengiz Lakes region we could say, that a detailed overview of the status of birds and their habitats was urgently needed for prioritising and carrying out conservation measures in the region.

Since in many cases the borders of the KSNR do not represent the importance of the biodiversity in the region, a monitoring system that also covers important areas outside those borders was needed to be established. The planned Biosphere Reserve mostly covers these sites and most of them require conservation action and a sustainable management strategy.

*Pic.1. Overnight camp at one of the most distant sites for White-headed Duck post breeding concentrations (photo by Maxim Koshkin).*



The Tengiz–Korgalzhyn Lakes and their surroundings (Tengiz Lakes Region) as the largest of very few major wetland areas are of great importance for birds to stop during their annual migration across the dry steppes of Central Kazakhstan. The region is located on the crossroads for birds migrating along the Central Asian-Indian and the Eurasian-African migratory flyways. The invertebrate organisms living in the water (zooplankton and benthos) are good forage for birds and fish. During seasonal migrations up to 20 million birds feed on Lake Tengiz and surrounding lakes.

The region is outstanding as breeding and staging place not only in terms of pure numbers but also due to the occurrence of large numbers of rare species: 42 of the recorded bird species are listed as endangered in the Red Book of Kazakhstan (NATIONAL ACADEMY OF SCIENCE et al. 1996). Nearly all Globally Threatened and Near Threatened Species living in Kazakhstan are also found in the Tengiz Region (21 of 25) and eight local bird species are endemic to the Eurasian steppe biome (BIRDLIFE INTERNATIONAL 2000, HEINICKE & KOSHKIN 2000). Every year up to 10,000 pairs of Greater Flamingo (*Phoenicopterus ruber*) breed on Lake Tengiz - the northernmost breeding site in the world for this species. Here breed up to 10% of the world breeding population of Dalmatian Pelican (*Pelicanus crispus*) and about 40% of the world population of White-headed Duck (*Oxyura leucocephala*) (BIRDLIFE INTERNATIONAL 2000; EICHHORN & KHROKOV 2002; HEINICKE & KOSHKIN 2000; LACHMANN 2001; LI & MUNDKUR 2002; SCHIELZETH 2003; WETLANDS INTERNATIONAL 2002 a.o.). The region qualifies many times as an internationally Important Bird Area according to the recently put up internationally standardized criteria for the starting IBA-programme for Kazakhstan (LACHMANN 2002).

## Threatened species

Globally Threatened Species (GTS), Near Threatened Species (NTS) and species endemic to the Eurasian Steppe Biome found in the project region are (according to BIRDLIFE INTERNATIONAL 2004):

### Critically endangered:

Slender-billed Curlew *Numenius tenuirostris*, rare passage migrant  
 Siberian Crane *Grus leucogeranus*, rare passage migrant to vagrant  
 Sociable Lapwing *Vanellus (Chettusia) gregarius (gregaria)*, rare breeder

### Endangered:

White-headed Duck *Oxyura leucocephala*, breeding

### Vulnerable:

Lesser White-fronted Goose *Anser erythropus*, passage migrant  
 Red-breasted Goose *Branta ruficollis*, passage migrant  
 Pallas's Fish-eagle *Haliaeetus leucoryphus*, vagrant  
 Greater Spotted Eagle *Aquila clanga*, passage migrant  
 Imperial Eagle *Aquila heliaca*, passage migrant  
 Lesser Kestrel *Falco naumanni*, breeding  
 Great Bustard *Otis tarda*, vagrant  
 Dalmatian Pelican *Pelecanus crispus*, breeding  
 Relict Gull *Larus relictus*, vagrant

### Near threatened:

Corncrake *Crex crex*, vagrant  
 Pygmy Cormorant *Phalacrocorax pygmeus*, vagrant  
 Ferruginous Duck *Aythya nyroca*, breeding  
 White-tailed Eagle *Haliaeetus albicilla*, breeding  
 Cinereous Vulture *Aegypius monachus*, vagrant  
 Pallid Harrier *Circus macrourus*, breeding  
 Little Bustard *Tetrax tetrax*, breeding  
 Houbara Bustard *Chlamydotis undulata*, vagrant  
 Asian Dowitcher *Limnodromus semipalmatus*, rare breeder

### Data deficient:

Black-winged Pratincole *Glareola nordmanni*, breeding

### Note:

“Critically endangered”, “endangered” and “vulnerable” are Globally Threatened Species, while the rest are Near Threatened Species.

At least eight local bird species can be regarded as **endemic** to the Eurasian Steppe Biome. These are according to HEATH & EVANS 2000 and LACHMANN 2002:

- Pallid Harrier *Circus macrourus*
- Imperial Eagle *Aquila heliaca*
- Demoiselle Crane *Anthropoides virgo*
- Black-winged Pratincole *Glareola nordmanni*
- Sociable Lapwing *Vanelus gregarius*
- Great Black-headed Gull *Larus ichtyaetus*
- White-winged Lark *Melanocorypha leucoptera*
- Black Lark *Melanocorypha yeltoniensis*

**Pic.2.** *Sociable Plover* – one of the focus species, which needs detailed study and urgent conservation action (photo by Lars Lachmann).



### ***3. Expected results and outputs at the start of the project.***

The aims of the project were:

1. To gather detailed and up-to-date information on the status of migratory and breeding bird species and their habitats of the Tengiz Lakes Region using standardized methods
2. To involve and train local students and scientists to make sure, that knowledge stays in the region and helps to develop “sustainable” monitoring activities

3. To edit the data and enter it in a electronic data base system to guarantee uncomplicated use in further research and conservation projects

Measurable outputs of the project were:

- 1 two week training camp for young researchers+
- 2 three week field excursions +
- 2 training visits by German team member/trainer +
- 1 adequate database on status of focus birds and focus habitats established +
- 1 informational booklet for the local public (circulation 1,000 copies)
- 3 open field excursions for the public
- 3 public talks in the project region +
- 5 talks at schools in the project region +
- 3 talks/lectures or seminars at the Eurasian University in Astana +
- 4 articles in national environmental and scientific bulletins +
- 2 scientific articles in national and international scientific journals
- 1 presentation and round-table discussion with project partners and conservation bodies +
- 1 project report (circulation: 100 copies)

**Note:**

It has to be mentioned that not the whole of the suggested budget was granted and therefore the project activities had to be adapted to the new smaller budget (See Annex 3).

***4. Actual results and concrete outputs of the project.***

- **Detailed and updated information and a database on the status of migrating and breeding bird species and their habitats of the Tengiz Lakes Region is given.**

One of the main aims of the project was to collect updated information on the status of migrating and breeding bird species and to establish a relevant data base to store this information. As a base the ‘Tengiz Bird Data Base’ (TBDB) was used. This is an MS Access-based programme, elaborated by Holger Schielzeth, an ornithologist from Germany, who used to work as a volunteer student in the project region in 2001 and 2003 and has good knowledge of the territory and rich experience of bird monitoring. This type of data base is very handy for data procession and extraction, and it is especially important to start it now to have full, detailed and high-quality information in the future.

In 2004 this data was already used in the process of preparation and conducting of the Sociable Lapwing Pilot Project (see chapter ‘Long-termed sustainability’).

The local NGO ‘Rodnik’, one of the project partners, is participating in a large-scaled Wetlands Project, which was started in 2004 and is co-funded by the Global Environmental Facility (GEF) and implemented through the United Nations Development Programme (UNDP).. The existing

information is widely used by the project executors for their present monitoring activities at Tengiz Lakes region, as one of the three Wetlands Project pilot sites.

It is important to mention that there is an international Action Plan for White-headed Duck (WhD), which is in the process of preparation under the leadership of the UK based Waterfowl and Wetlands Trust (WWT) , and a lot of contribution into it is being made by Holger Schielzeth on the basis of TBDB data.

- **A standardized and comprehensive monitoring method is applied by local scientists.**

### **Two Three-week Monitoring Periods.**

Following the working plan the team was monitoring birds through out the periods using standardised survey methods. Generally three different approaches were used:

***Species focus.*** During the first field work period the team members were actively searching for breeding sites and assessing the number of breeding pairs for the globally threatened species, such as Dalmatian Pelican, White-headed Duck, Sociable Lapwing and Black-winged Pratincole. This included finding colonies or broods and monitoring them within the breeding season (more detailed information on monitoring will be given in the scientific report, please see Annex 1). In addition to this it was very important to continue the monitoring during August-September to search and count post-breeding concentrations of the named species. The counts were conducted in most cases by visiting potential sites-lakes or villages - (Sociable Lapwing colonies) by car. Sometimes boats were used to reach distant pelican colonies or to survey the number of young WhD in remote reed stands.

***Fixed itineraries.*** Alongside with the point counts and lake counts two fixed itineraries were used to guarantee the comparability of the data over the year and with the future years' data. Itineraries, which included the most important sites in the region (lakes), were visited regularly and bird numbers on these lakes were assessed using standard counting methods.

***Identification of new key sites.*** Many breeding and post-breeding sites within the reserve and its surroundings had been already known thanks to monitoring activities of previous researchers (carried out by the KSNR staff and ASA projects volunteers- young researchers from a German scholarship programme). But there are still a great number of potentially suitable sites for breeding or post breeding concentrations of the above listed GTS. It was very important to visit and survey these sites, since they are located mainly outside of the reserve's borders and are very spread out and remote. These last monitoring activities gave us knowledge about several new locations of White-headed Duck post-breeding concentrations and even the negative information (zero data) was of great use, because this gave us the opportunity to be more concentrated on the sites where the species are known to be present.



**Pic.2.** Students using theoretical knowledge on practice in field while identifying and counting waterfowl at one of the fresh water lakes (photo by Maxim Koshkin).



### **Data on Globally Threatened Species**

The data collected is mostly referred to the breeding population and distribution of four most important threatened species found in the region. These are:

- White-headed Duck (*Oxyura leucocephala*)
- Sociable Lapwing (*Vanellus gregarius*)
- Dalmatian Pelican (*Pelicanus crispus*)
- Black-winged Pratincole (*Glareola nordmanni*)

For more details, please, see Annex 1

### **Local involvement**

Great amount of work was done, and could be done only with the help of local stakeholders. During the first stage of the field work we collaborated with people which are connected directly or indirectly to wildlife. Such stakeholders as shepherds, fishermen, villagers, farmers and hunters were introduced to the project and shared their knowledge and experience with the team. These people were very helpful, especially in searching for new potential sites or in providing useful information about interesting bird observations. And of course, a valuable contribution into the project's success was made by the researchers and rangers of the reserve. Some rangers were involved into monitoring, other were providing information and helping in search for potential breeding sites and places of concentration of a species. Two researchers from the reserve's staff were involved into monitoring practically and were trained the same standardized methods as the student team.

- **The data is well and centrally administrated, processed and made accessible for others.**

### **Tengiz Bird Data Base**

On the last stage of the project compilation all the bird monitoring data gathered during the field work, as well as the data of the previous years was loaded into a MS-Access Database. The Tengiz Bird Data Base (TBDB) was designed by one of the previous international researchers specially for analysing the bird monitoring data gathered in the region. At the moment it still undertakes some improvements. This database fulfils all the peculiarities of the study area, such as the size of the territory, huge number of sites (lakes, rivers, peninsulas, bays, and islands) and site names, and large number of species. At the same time TBDB allows to carry out different types of analysis, as well as to easily extract needed information and to exchange it with other interested people. Another advantage of this programme is the possibility of a connection with a Geographic Informational System (GIS). This allows depicting data spatially, which is of a particular importance in the study region. This data base is stationary stored on two computers in the local NGO 'Rodnik' and in the office of KSNR. Besides, everyone connected with the past, present or future monitoring in the region has or will have this data base. The data base and all the data will be accessible via Email or on a CD.

- **Long-termed sustainability of the monitoring activities in the Tengiz Lakes Region is developed by training young researchers.**

### **Two-week training camp**

Between the 1st and the 14<sup>th</sup> of May 2003 a two week training course for the team members took place in the researcher's station located on the territory of the Korgalzhyn State Nature Reserve. There was a group of four students trained during this period by the international trainer/co-leader of the team, Lars Lachmann. The main objectives of the training were to teach the main identification skills, to give basic impression of the project region and to establish productive and sustainable working relationships between the team members.

The first days of the training camp were used for an introduction to the project in general, its main objectives and expected results, and for explanation of the BP Conservation Programme role in nature conservation worldwide and as the project donor. As well, there was made a short overview of all published and unpublished data, articles and reports of the previous researchers and small projects on status and distribution of the Globally Threatened Species in the region.

Basic identification skills were given by the trainer with the help of most updated bird guides, photos and special references. Then the theoretical knowledge was strengthened in field, during few days of excursions within the study territory. A large amount of work was done on introduction and explanation of the standardized monitoring methods which were used then during the field work. Location and map orientation experience students received through dealing with the very detailed maps of the territory and on practice, searching for the first few potential sites for focus species presence.

All team members were provided with suitable monitoring equipment (scopes, binoculars, counters and photo cameras) and were well trained how to use it.

*Pic.3. Students in field with a trainer (in the centre) during the first days of the training camp (photo by Maxim Koshkin).*



### **Long-termed sustainability of the monitoring**

Through all the project period the idea of long-termed sustainability of monitoring in the region was one of the most important priorities for the team. All necessary activities have been taken to establish a stable base for the future involvement of students and local people into the nature conservation work in the Tengiz Region. The two week training camp for the team members was conducted by a professional ornithologist from Germany. He provided the local students with necessary theoretical and practical knowledge needed to carry out monitoring in a reliable way and on a sufficient level.

First of all team members received bird identification skills and knowledge on survey methods specially selected and improved by the previous researchers for the use in the project region. Many days of driving through the vast territory of the Tengiz region gave to the group of students good knowledge of those locations, which will play a very important role in the future.

Considering the fact that the number of local ornithologists in Kazakhstan is very limited this number of young and well-trained specialists gives a real hope that conservational monitoring in the country, and in the region in particular, will go on in the future. Two students from the project group were participating in the Sociable Lapwing Project 2004 ( see below). The team leader, Maxim Koshkin, became a employee of the newly-established Association for the Conservation of Biodiversity in Kazakhstan (ACBK), which unites five largest environmental NGOs in the country. The other two are planning to join nature conservation work in the region in the nearest future. One

of them, Evgeny Murzahanov, who is studying in Russia now, is planning to work in the KSNR as an ornithologist, as soon as he is graduated.

*Pic.4. On-boat monitoring of White-headed Duck during the chick period (photo by Maxim Koshkin).*



### **Public awareness**

During the project and after its completion the members of the project team organized, first of all, several lectures and slide shows in the local schools. This was done with the help of the local environmental NGO 'Rodnik', which has a rich experience in working with children. Popular and interesting information was also shared with the children of the summer eco-camp organized in the reserve.

Special meeting with the NGO and the administration of the reserve took place after the completion of the field work. In autumn-winter period several meetings were organized with the students of the biological and ecological faculties of the Eurasian State University-the largest and the most popular high school in Kazakhstan. At these meetings representatives of the team were providing students with information about the project. Pictures, maps and posters were used to have a better illustration of the field work. As well there was established a base for the involvement of the students in future nature conservation projects.

*Pic.5. Project leader presenting the project at one of the meetings with students and professors of the biological faculty (photo by Sergey Khomenko).*



After the completion of the project few articles, describing the main point of work done by the international team, were published in local newspapers.

A scientific article based on the results of the monitoring and the data base analysis is planned to be published until the end of the year in “Ornithological Bulletin”, the most important environmental magazine in Kazakhstan. As well, some information will be shared through Internet- for example small newsletters will be sent on websites of BirdLife, RSPB, NABU and Living Lakes.

## **5. Followup of the project.**

### **Sociable Lapwing Project 2004**

Following the BP Conservation Project-Monitoring of Globally Threatened Bird Species in the Tengiz Lakes region, The Sociable Lapwing Project (SLP) initiated and managed by Birdlife International was started in 2004. It was only a pilot project, which aimed to identify the factors determining the breeding habitat requirements and breeding success of the currently critically endangered (until 2004 it was still listed as vulnerable) Sociable Lapwing *Vannellus gregarius*, so that a long-term research and conservation project (2005-2008) could address the reasons for the species' decline.

The project is run by BirdLife International in collaboration with St. Andrews University, Scotland, the Royal Society for the Protection of Birds (RSPB) the German Society for Nature Conservation (NABU) as well as the national NGO “Association for the Conservation of Biodiversity” (ACBK). The main scientific work was done by researchers from St Andrew’s University of Scotland and included a four-month field period to make an initial assessment of breeding productivity and factors that may be affecting this at the two largest of the only three known remaining breeding sites of Sociable Lapwing in Kazakhstan. The results of the study were used as a part of a proposal submitted to other international donors in autumn 2004, to seek funding for a larger-scale conservation research and management project to understand and halt the global decline of the Sociable Lapwing.

In 2005 a team consisting of English (RSPB), German (Oldenburg University) and Kazakh (ACBK) ornithologists continued field work within the frame of the Sociable Lapwing Project. A very serious and detailed work was done while the team continued the activities of the previous year and tried some of the methods of practical protection of Sociable Lapwing on its breeding sites.

Two students from the Tengiz Monitoring Project team were participating in this project as local field assistants. Additionally it is planned to involve and train more students the following year, including those who participated in the TMP. The SPP team really appreciates the help of the young local researchers and students, who share with them knowledge of the bird, its breeding sites, the locality and many other peculiarities of the region and the people. At the same time the students receive professional skills in nest and brood monitoring, post-breeding monitoring, as well as in catching and ringing of the birds.

### **Timetable of the Main Activities**

<i>Date</i>	<i>Activity</i>	<i>Comments</i>
01.05.03-14.05.03	Training Camp	Theoretical knowledge was distributed among the team members by the international trainer. The theoretical part was completed by 3 days of training in field.
23.06.03-14.07.03	First three-week field work period	The first field work session was carried out with participation of the whole team including the trainer.
18.08.03-08.09.03	Second three-week field work period	Participation of all team members excluding the trainer.
15.09.03	A presentation in the local school.	Distribution of popular information among the students of the 1-5 grade.
01.10.03	A round-table discussion.	This discussion was organised by the team leader to discuss the sustainability of the monitoring with the KSNR administration and ‘Rodnik’ representatives.

25.03.04	A presentation in the Eurasian University.	This was the project presentation organized specially for the students of the Biological faculty.
01.04.04	An article published in a local newspaper.	An article about the project activities was published in the most popular weekly public newspaper of Astana, "Akmolinskaya Pravda".
10.04.04	A lecture at the Eurasian University.	This was a 2 hours- long meeting with third and fourth year students of the Faculty of Ecology, organized by the team members.
15.05.04	An article in a local newspaper.	This article was published in the most popular environmental newspaper of Kazakhstan, "Ekovestnik".
April-September 2004	Participation in field work and collaboration with the Sociable Lapwing Pilot Project.	
April-September 2005	Participation in field work of the Sociable Lapwing Project	