ATLAS OF KEY SITES FOR THE SIBERIAN CRANE AND OTHER WATERBIRDS IN WESTERN/CENTRAL ASIA

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ATLAS

OF THE SIBERIAN CRANE SITES IN WESTERN/CENTRAL ASIA

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International Crane Foundation, Baraboo, Wisconsin, USA
2010

Contents

Foreword from the International Crane Foundation

Since the retreat of the Ice Age, Siberian Cranes have crossed a continent on migrations from vast expanses of arctic and subarctic wetlands where they nested to wintering grounds on subtropical wetlands scattered from Egypt to the Orient. Pictures of Siberian Cranes remain on the walls of the tombs of pharaohs and on ancient screens in Japan.

As human numbers increased, especially near the wintering areas and migration staging areas of the cranes, wetlands were reclaimed for agriculture and cranes were hunted. With the birth of the science of ornithology in recent centuries, the great white cranes were reported on breeding areas across the north of Russia, and on wintering grounds in Iran, India and China.

At the founding of the International Crane Foundation (ICF) in 1973, Siberian Cranes were considered extirpated from Iran for more than a half-century, the Indian flock was reduced to fewer than 100 birds, and only a few hundred were known to breed in Yakutia, in the far north of eastern Siberia. To the amazement and delight of all, in 1978 a flock of about a dozen Siberian Cranes were rediscovered wintering on the Caspian lowlands of Iran. In 1981, the breeding grounds of the Indian flock were revealed in the basin of the Kunovat River just south of the Arctic Circle and east of the Ural Mountains in western Siberia. That same year the wintering grounds of the cranes breeding in Yakutia was found at Poyang Lake on the floodplain of the Yangtze River, and the first Siberian Crane reared in captivity hatched at ICF. In 1996, a tiny radio that transmitted signals to a satellite was attached to a Siberian Crane in Iran. The signals led to a vast wilderness wetland in western Siberia about 1000 km south of the breeding ground of the Indian flock. Satellite telemetry of all three populations indicated that Siberian Cranes migrate great distances in a single flight, then rest at large wetlands where they build up reserves for the next stage of their passage. These wetlands are like a string of pearls, teeming with biodiversity, across a continent of wide expanse of boreal forest, farmland, grassland, deserts and high mountains.

Unfortunately, following this period of unraveling of the mysteries of the ranges of the Siberian Cranes, the flocks that migrated to India and Iran were extirpated. Presumably the cranes were shot as a consequence of lack of enforcement of hunting regulations in former republics of the USSR and in Pakistan, and from wars in Afghanistan. Although the last pairs were seen at the traditional wintering sites in India in 2003 and in Iran in 2006, there are still reports of a few Siberian Cranes in Uzbekistan, Kazakhstan and in the Volga Delta of Russia. Russian colleagues' dream of re-establishing their flocks by training captive reared cranes to follow microlight aircraft along the migration route as has successfully been done in North America for Whooping Cranes.

But all is not doom and gloom. Through protection of the Eastern Asian population throughout its wide range in Russia and China, numbers appear stable at between 3,000-3,500 birds. In addition, a flourishing captive population of several hundred birds has been established at some breeding centers. Young cranes from the captive flocks are available for reintroduction experiments.

So what is the future for Siberian Cranes? Will climate change in the arctic create larger lakes that submerge crane breeding areas, or will new breeding areas be created? Will increasing demands for water from continually expanding human populations claim the wetlands vital to Siberian Cranes along migration corridors and on the wintering grounds? We are hopeful that through the continued efforts of conservationists, the Siberian Cranes will always have a place on Asian landscapes where their beauty has been admired by humans since times untold.

George Archibald
Co-founder
International Crane Foundation
Project "Sterkh"

Foreword from the Convention on Migratory Species

The Convention on the Conservation of Migratory Species of Wild Animals (also known as the Convention on Migratory Species) is an intergovernmental treaty that aims to conserve terrestrial, marine and avian migratory species throughout their range. Since its entry into force in 1983, the Convention's membership has grown steadily to include well over 110 States from Africa, Central and South America, Asia, Europe and Oceania.

The Secretariat of the Convention on Migratory Species (CMS) has long been associated with efforts to protect the Siberian Crane. This majestic bird is a flagship species for what the Convention strives to achieve: conservation of essential habitats for migratory species, development of innovative strategies to deal with recognised threats, exchange of vital scientific knowledge, and fostering cooperation among nations with a common natural heritage.

In the early 1990s, it was recognised that the dedicated efforts of researchers and conservationists to study and protect the Siberian Crane would benefit from a more solid institutional framework. The threads of these various international efforts were pulled together with the drafting and adoption in 1993, under CMS' aegis, of a dedicated Memorandum of Understanding concerning Conservation Measures for the Siberian Crane. The so-called "Siberian Crane MoU" was the first instrument of its kind developed under CMS. Its pragmatic conservation approach was designed to stimulate practical cooperation among all of the countries which host these rare birds.

Eventually, the Memorandum of Understanding came to be signed by all eleven Siberian Crane Range States, as well as several partner organisations, notably the International Crane Foundation, the Cracid & Crane Breeding and Conservation Centre (Belgium), Wetlands International, and the Wild Bird Society of Japan.

The most important measures for the protection of the Siberian Crane and its habitats are outlined in the Memorandum of Understanding's Conservation Plan, which is renewed every 2-3 years by the signatory countries. Its primary objectives are to reduce direct and indirect mortality of Siberian Cranes; to conduct research and monitoring to improve understanding of the crane's ecology; to increase population numbers and genetic diversity; to improve habitat protection and development of a flyway wetland site network; to improve public awareness and information exchange; and to strengthen national and international cooperation. The Conservation Plan has been very useful for working with governmental agencies and protected area managers. In particular, it has guided decision-making related to legislation, implementation of monitoring programmes, crane reintroduction efforts, and the organization of education events and meetings.

The Siberian Crane Memorandum of Understanding also provided the impetus for the development in the late 1990s of an ambitious project which came to be known as the UNEP/GEF Siberian Crane Wetland Project. With generous funding from the Global Environment Facility and each of the participating countries (China, Islamic Republic of Iran, Kazakhstan and Russian Federation), this recently concluded project made great strides in many aspects of conservation that were beyond the capacity of the MoU to deliver. One of the by-products of this successful initiative is the nascent "Western/Central Asian Site Network for the Siberian Crane and other Waterbirds", which now finds its home under the MoU.

After more than three decades of study, nearly two decades of intensified cooperation within the framework of the CMS MoU, and several years of concerted work through the UNEP/GEF project, can we say that the Siberian Crane has been saved from the brink of extinction? Most certainly, not yet. However, the remarkable work that has been undertaken to date has laid a solid foundation upon which future efforts of equally dedicated conservationists can build, and hopefully devise even more innovative and lasting strategies to address the largely human-induced threats facing the Siberian Crane.

The preparation of this wonderful atlas – by experts who have been associated with the Siberian Crane MoU for many years – represents a unique contribution to the consolidation of current knowledge about these elusive birds. As long as Siberian Cranes remain in the wild somewhere and in our collective memories wherever they have been extirpated, there is reason to hope that one day more favorable circumstances will allow them to flourish again in their native habitats.

Douglas Hykle
Senior Advisor
Convention on Migratory Species

Introduction

The Siberian Crane (*Grus leucogeranus)* is the world's third rarest crane after the Whooping (*Grus americana*) and Red-crowned (*Grus japonensis*) Cranes. It is listed in the IUCN Red List as a Critically Endangered species, and is also listed in regional and national Red Data Books. The Siberian Crane is protected by international conventions (Convention on Migratory Species (CMS) and Convention on International Trade of Endangered Species of Fauna and Flora (CITES)) as well as bilateral agreements on the conservation of migratory birds.

Since the time when Russian researcher P.S. Pallas described a new crane species and named it Grus leucogeranus (Pallas 1773), two centuries passed before the first nest was discovered. The long history of this crane has been a chain of fragmentary learning and accidental observations. Researchers agreed that the Siberian Crane nested in the vast territories of western Siberia, Kazakhstan, Altai, Trans-Baikal and Asiatic tundra, but neither the nest and eggs nor young birds were seen until the middle of the last century when the first nests were discovered. The first ornithologist in the world to see a Siberian Crane nest was the Yakutian researcher V. Perfiliyev: in 1961, during the very difficult crossing of the north-eastern tundra between the rivers Kolyma and Indigirka, he found two nest of this mysterious species (Flint 1970).

In Western Siberia in 1978, an unfledged Siberian Crane chick was captured in the Dvuobie flood plain by a resident of Gorki Village (Pokrovskaya et al. 1988, Pokrovskaya 2007). Locating the chick inspired further investigations. In 1981, specialists from the All-Russia Research Institute for Nature Protection (ARRINP) and Oka Biosphere State Nature Reserve (ONR) conducted a joint aerial survey and found eight breeding pairs in the Kunovat River Basin, a tributary of the Ob River (Sorokin & Kotyukov 1982). In 1996, 15 years after the discovery of the Siberian Crane nests in Kunovat River Basin, breeding grounds in the Upper Tyuma River, the left tributary of the Lower Irtysh River 60 km west of the town of Uvat of Tyumen Region were found (Sorokin & Markin 1996, Kanai et al. 2002).

Thanks to international cooperation in Siberian Crane research and conservation, now we know much more about its biology, migration and habitats, but still there are some gaps in the Siberian Crane study.

The Siberian Crane is a monotypic species with two isolated populations – Eastern Asian and Western/Central Asian (Figure 1). The Eastern Asian population has its breeding grounds in Russia in the Sakha Republic (Yakutia) in the northeast Siberian tundra between the Yana and Kolyma Rivers. It migrates more than six thousand kilometers across Russia and almost all of China to its wintering grounds in Poyang Lake in the Lower Yangtze River Basin.

The Western/Central Asian population is divided into Central Asian and Western Asian flocks. The former breeds in northwest Siberia in the Kunovat River Basin in the Lower Ob River, in Russia. It migrates nearly five thousand kilometers through Russia (Tyumen Region) to northeastern Kazakhstan and then through Uzbekistan, Turkmenistan, Afghanistan and Pakistan to known wintering grounds in Keoladeo (Ghana) National Park in India. The Western Asian flock nests in the central part of western Siberia of Russia, between the Konda and Alymka Rivers in the Lower Irtysh River. It also migrates through Tyumen Region in Russia to northeastern Kazakhstan and then through the Volga Delta in southern European Russia, and along the western coast of the Caspian Sea through Dagestan (Russia) and Azerbaijan to Mazandaran Province in the Islamic Republic of Iran. Here, near the town of Fereydoon Kenar, in flooded rice fields which are used by local people for traditional waterfowl trapping, the wintering grounds of the Western Asian flock are located.

Evidence from West Siberia, Astrakhan Nature Reserve in Russia and Naurzum Nature Reserve in Kazakhstan continues to suggest the presence of alternative wintering grounds of both Western and Central Asian flocks. The annual variation in the number of adult birds observed in Iran at seasons is indicative of the existence of additional wintering grounds. This is confirmed by the sighting of four Siberian Cranes in Astrakhan Nature Reserve almost one month after the arrival of two Siberian Cranes on the wintering grounds in Iran in 2006. In addition, there have been annual observations of 2-7 Siberian Cranes during migration stopovers in Naurzum Nature Reserve in Kazakhstan.

At the present time, the total population size of the Siberian Crane is estimated at 3,000–3,500 birds. Approximately 98% belongs to the East Asian population which is stable or slightly increasing. The Western/Central Asian population is estimated at about 10-20 individuals (CMS/UNEP/ICF 2008).

Unfortunately, while our knowledge is growing, the number of Siberian Cranes is continuing to decline, despite international efforts to conserve the species. Over the past 35 years, the International Crane Foundation (ICF) has been working with a network of experts in the Siberian Crane range states to discover basic information about the Siberian Crane, including the location of its breeding grounds, the migration routes it uses, and the gauntlet of threats it encounters (Sauey 1985, Meine & Archibald 1996).

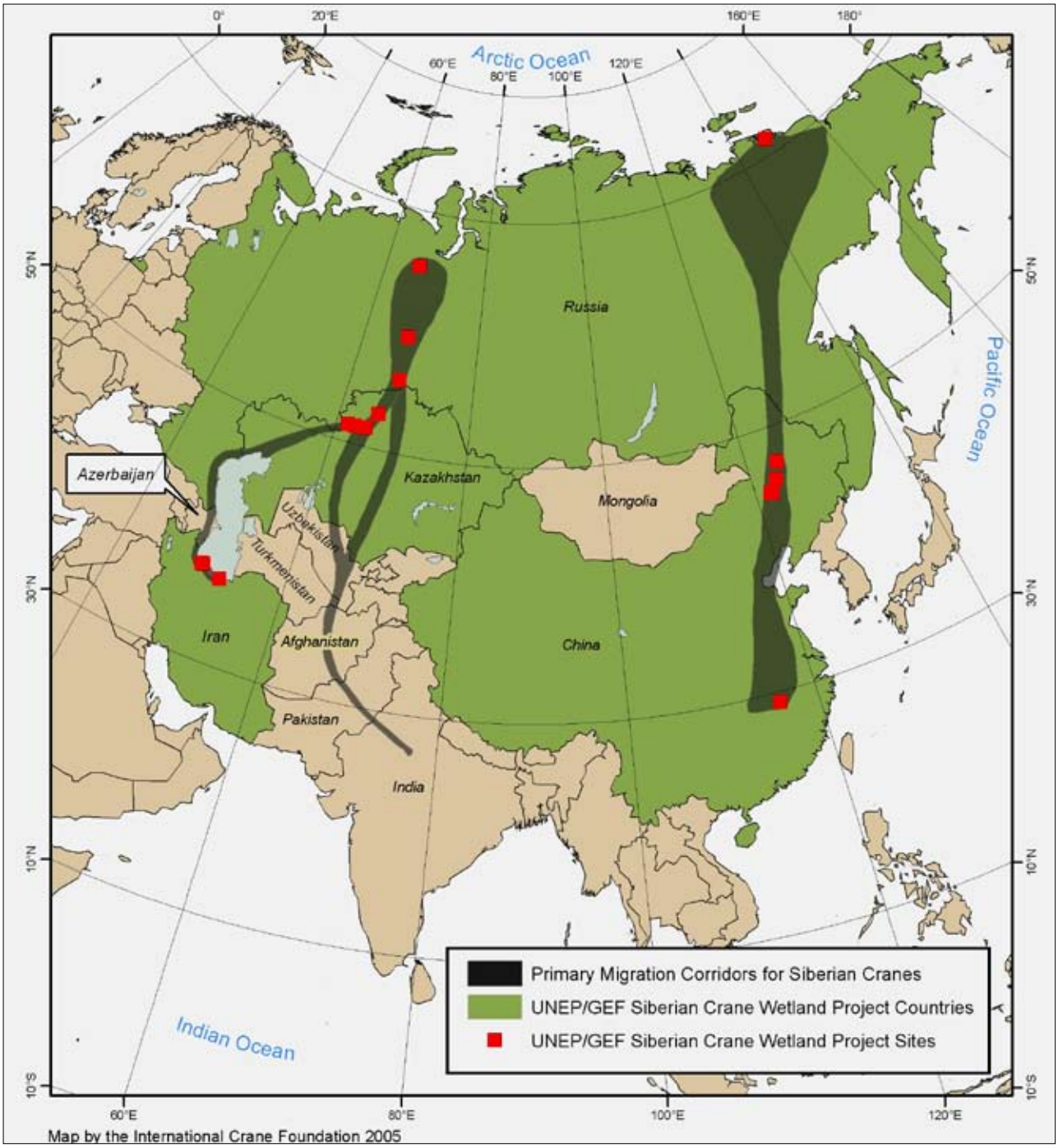


Figure 1. Western/Central Asian Flyway (on the left) and East Asian Flyway (on the right) of the Siberian Crane

This conservation work was expanded to all 11 Siberian Crane Range States which signed a Memorandum of Understanding Concerning Conservation Measures for the Siberian Crane under the Convention on Migratory Species of Wild Animals (CMS) in 1993. For implementation of one of the most important tasks of the MoU's Conservation Plan – improving habitat protection and management, ICF developed a project "Development of a Wetland Site and Flyway Network for Conservation of the Siberian Crane and Other Migratory Waterbirds in Asia" (UNEP/GEF Siberian Crane Wetland Project (SCWP) in cooperation with CMS and the governments of four countries (Iran, Kazakhstan, China, and Russia). SCWP started in March, 2003 and was completed in December 2009. The project had three levels of activities, at regional, national and local levels. The project was implemented at 16 sites located along the Eastern and Western Flyways. It was funded by the Global Environment Facility (GEF) and implemented through the United Nations Environment Programme (UNEP). Its aim was to secure the ecological integrity of a network of critical wetlands needed for the survival of the Siberian Crane, migratory waterbirds and other globally significant wetland biodiversity in Asia. The project successfully directed conservation effort to these threatened wetland ecosystems, benefiting hundreds of plant and animal species as well as human communities that depend on wetlands for water and natural resources (Prentice et al. 2006, Moermond et al. 2008).

The main achievements of SCWP include the following:

– Establishment of four new protected areas - HeXi County Nature Reserve in Poyang Lake in China; Fereydoon Kenar Non Shooting Area in Iran; Zharsor-Urkash Wildlife Refuge in Kazakhstan; and Synsko-Voykarskyi Natural Park in Kunovat River Basin in West Siberia (Russia);

– Expanded size of existing protected areas – Naurzum State Nature Reserve in Kazakhstan, Kytalyk Resource Reserve in Yakutia (Russia), and Bujagh National Park in Iran;

– Upgrading protection of three sites – in China Nanjishan Provincial Nature Reserve (NR) status was changed to National NR, and Duchang County NR - to Provincial NR; in Iran Bujagh Non Hunting Area status was changed to National Park;

– Four project sites in Kazakhstan were designated as Wetlands of International Importance under the Ramsar Convention. In addition, Naurzum Nature Reserve forms part of the recently designated World Heritage Site Saryarka – Steppe and Lakes of Northern Kazakhstan. In Iran, a new Ramsar site was established at Fereydoon Kenar early in the project and the existing Ramsar site at Bujagh was extended in December 2009. Nomination documents for two sites in Yakutia and two in China are in preparation.

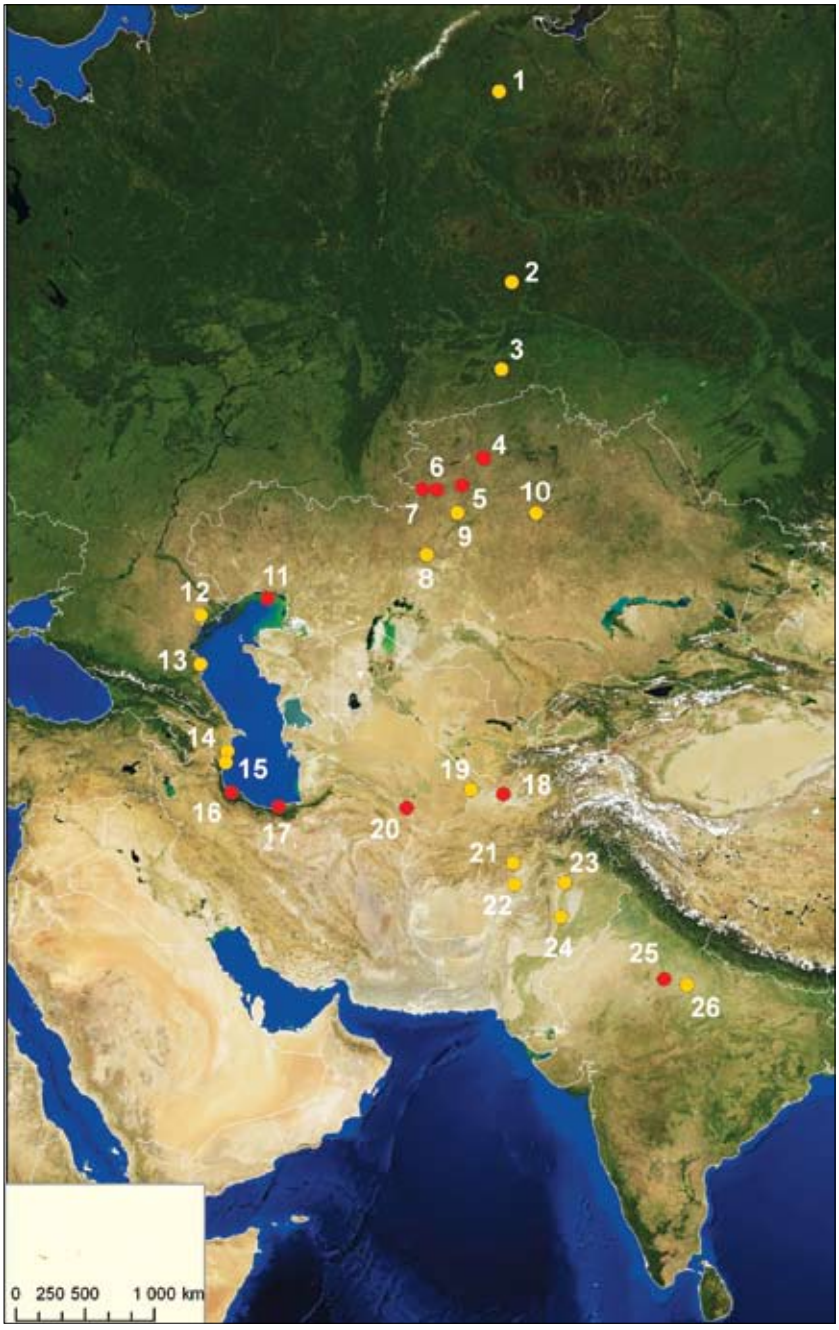


Figure 2. Important Siberian Crane sites in Western/Central Asia

- sites, designated in the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds
- sites, proposed for inclusion to the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds

1 - Kunovat, Russia

2 - Konda-Alymla, Russia

3 - Belozerskiy, Russia

4 - Tyuntyugur-Zhanshura Lake System, Kazakhstan

5 - Naurzum Lake System, Kazakhstan

6 - Zharsor-Urkash Lake System, Kazakhstan

7 - Kulykol-Taldykol Lake System, Kazakhstan

8 - Turgai-Irgiz Lake System, Kazakhstan

9 - Sarykopa Lake System, Kazakhstan

10 - Tengiz-Kurgaljino Lake System, Kazakhstan

11 - Ural Delta and Nearest Caspian Sea Coastal Zone, Kazakhstan

12 - Astrakhan State Nature Biosphere Reserve, Russia

13 - Agrakhan bay abd Terek Delta, Russia

14 - Shirvan National Park, Azerbaijan

15 - Gyzyl-Aghach State Nature Reserve and Adjacent Area, Azerbaijan

16 - Bujagh National Park, I.R. of Iran

17 - Fereydoon Kenar, Ezbaran & Sorkh Rud Ab-Bandans, I.R. of Iran

18 - Termez, Uzbekistan

19 - Tallymerjen & Kelif-Zeyit, Turkmenistan

20 - Durnaly, Turkmenistan

21 - Ab-i-Estada Waterfowl Sanctuary, Afghanistan

22 - Dasht-e-Nawar Waterfowl Sanctuary, Afghanistan

23 - Thanedar Wala Game Refuge, Pakistan

24 - Taunsa Barrage, Pakistan

25 - Etawah-Mainpuri, India

26 - Keoladeo (Ghana) National Park, India

– Management plans have been developed for most project sites, management capacity has also been improved at the sites through training and technical assistance; national legislation has been strengthened.

– In Iran, China and Kazakhstan, Site Management Committees were established for involving local people and related organizations in site management and protection;

– Water management plans were developed for Zhalong, Xianghai, Keerqin and Momoge NNRs in China and Naurzum State Nature Reserve in Kazakhstan;

– Ecological monitoring and applied research into relationships between water levels, Vallisneria spiralis production and waterbird distribution at Poyang Lake NNR in China;

– At all project sites, an active programme of ecological education activities was provided including Crane Celebrations, World Migratory Bird Days, and the ICF Project "Three White Cranes, Two Flyways and One World".

The SCWP has played a key role in collaborating with regional initiatives to facilitate international cooperation. A significant part of this goal was realized with the launching of the Western/Central Asian Site Network (WCASN) for Siberian Cranes and Other Waterbirds on 18 May 2007 at the Sixth CMS MoU meeting in Kazakhstan.

The created Site Network focuses conservation efforts on sites of international importance for the Siberian Crane along its Western and Central Asian flyways in Afghanistan, Azerbaijan, India, Islamic Republic of Iran, Kazakhstan, Pakistan, Russian Federation (West Siberia), Turkmenistan and Uzbekistan.

The first ten sites designated within WCASN included five sites from Kazakhstan, two from Iran and one each from India, Turkmenistan and Uzbekistan. Other Range States (Azerbaijan, Afghanistan, Russia and Pakistan) also proposed their sites and are working on the preparation of nomination documents.

For preparation of the Atlas of the Siberian Crane Sites in Western/Central Asia, Site Information Sheets for designated and proposed sites were used as well as information from the Siberian Crane database, which was created and managed within the framework of SCWP implementation, and data from the literature.

In Atlas information on 23 sites with great importance for the Siberian Crane in 9 counries (Figure 2). For each country a brief overview of wetlands using by the Siberian Crane and detail descriptions of the Siberian Crane historical and recent sightings along western and central flyways are prepared by Elena Ilyashenko. Most important Siberian Crane sites (green square) and known Siberian Crane sightings are presented in country (or its part). Each sighting is detail described in legend with reference to information source. The sightings are divided into 1) regular sightings during the last 20 years as well as in the past; 2) single sightings during the last 20 years; 3) regular sightings in the past; and 4) single sightings in the past. Despite of quite full overview of the Siberian Crane sightings are given, some sighting can be missed, especially which are described in local publications. We will be very appreciated for sending us any additional information about Siberian Crane sightings.

For most important Siberian Crane sites experts from the Siberian Crane Range State presented information including map of site, brief overview of physiographic features, importance for the Siberian Crane with detail description of all sightings, importance for other crane species and other waterbirds; negative factors for wetlands, taken and proposed conservation measures and site international importance.

We are very grateful to the all authors for great cooperation in Atlas preparation. Special thanks to Julie Oesper for editing the English version of the publication, and to Alexander Aleinikov for country maps preparation.

Elena Ilyashenko
ICF/CMS Siberian Crane Flyway Coordinator

WESTERN/CENTRAL ASIAN FLYWAY

Breeding grounds

RUSSIA

Researcher Peter Simon Pallas (1773) was the first to describe the Siberian Crane during an expedition in Russia and proposed that its breeding area is located in southwestern Siberia between the Ural Mountains and the Ob River, particularly in the Ishim and Baraba forest-steppe regions. But reliable information on the Siberian Crane breeding grounds was gathered over a period of 200 years.

Since the late 1800s Siberian Cranes have been reported to nest in the taiga marshes of the Konda and Sosva River basins and also along the west bank of the Ob River as far north as above the town of Beriozovo (Deryugin 1898). V.V. Rayevski (1976) observed a Siberian Crane family with an unfledged chick on the former Konda-Sosva Nature Reserve in 1944. During the next 40 years this sighting was the only documented confirmation of the Siberian Crane breeding in West Siberia.

Central Asian flock. Until the late 1970s only fragmentary and uncertain information on Siberian Crane breeding in northwest Siberia came most frequently from Lower Dvuobie (a swamped floodland between the Big Ob and Small Ob), and the northern taiga marshes in the basins of the east (Kazym, Kunovat, Pitlyar) and the west (Severnaya Sosva, Synya) Ob tributaries (Lykhvar 1982, Lykhvar & Petunkin 1998, Braude 1988, Shilina 2008).

On 26 August 1967, an expedition of the Geographical Institute of the Russian Academy of Science led Eugeny Syroechkovsky conducted the first aerial survey of waterfowl in the Ob Lowland using a helicopter and registered Siberian Cranes in Shuryshkar District (Rogacheva & Syroechkovsky 1968). During this aerial survey two Siberian Crane sightings were recorded: seven birds were feeding in shallow water in Pitlyar Sor and two cranes were sighted in the watershed of the Khanzham-Khulym-lor River between Pitlyar Sor and the Ob River. According to information from local people Siberian Cranes were sighted in the second point annually from 1965 to 1967, and a nest with eggs was found there in 1965 (Eugeny Syroechkovsky, unpublished data).

In 1978, an expedition of the Central Research Laboratory of the State Department of Game Management of the Russian Federation discovered a Siberian Crane which was kept by local people from the settlement of Gorki. This crane was captured by them as an unfledged chick on the Dvuobie floodplain (Pokrovskaya 2007). It was later transferred to the Oka Crane Breeding Centre (OCBC) in the Ryazan Region of Russia. Locating the chick allowed researchers to focus the area for breeding ground searches and investigations.

In 1981, A.G. Sorokin and Yu.V. Kotyukov, as a joined expedition of the All-Russian Research Institute for Nature Protection (ARRINP) and Oka State Nature Reserve, conducted a widely spread aerial survey in the Lower Dvuobie, and for the first time in West Siberia discovered the breeding grounds of the Western/Central Asian population. Five breeding pairs were found nesting in the Kunovat River Basin, Ob River tributary. Another three pairs were located to the north between the Kunovat and Pitlyar Rivers (Sorokin & Kotyukov 1982). Since these 1981 findings, regular aerial surveys in basins of the Kunovat, Khashgort-Yugan, and Pitlyar rivers and periodic surveys in almost the whole north taiga zone in the Yamalo-Nenetskiy Autonomous Region and Beriozovo District of Khanty-Mansiskiy Autonomous Region (KhMAR) were conducted until 2009 (excluding 1983, 1985, 1989, 2004 and 2007).

The breeding grounds of *the Western Asian flock* of the Siberian Crane were only discovered in 1996 after Y.M. Markin marked a wild adult male Siberian Crane from a family group wintering in Iran with a satellite transmitter (Platform Terminal Transmitter, or PTT) (Sorokin & Markin 1996, Kanai et al. 2002). This PTT enabled researchers to follow the crane's spring migration route, which ended on 23 May on the marsh in the Upper Tyuma River, the west tributary of the Lower Irtysh River 60 km west of the town of Uvat. During an aerial survey on 22 June 1996, the Siberian Crane pair was observed with a two-week-old chick. Next season, in 1997, during an aerial survey in early August, this pair was located at the same breeding territory and had a two-month-old chick. Seven kilometres away, another pair with a chick of the same age was found. Over the last ten years, aerial surveys were provided with support by the UNEP/GEF Siberian Crane Wetland Project (SCWP) in 2002, 2004, and 2005.

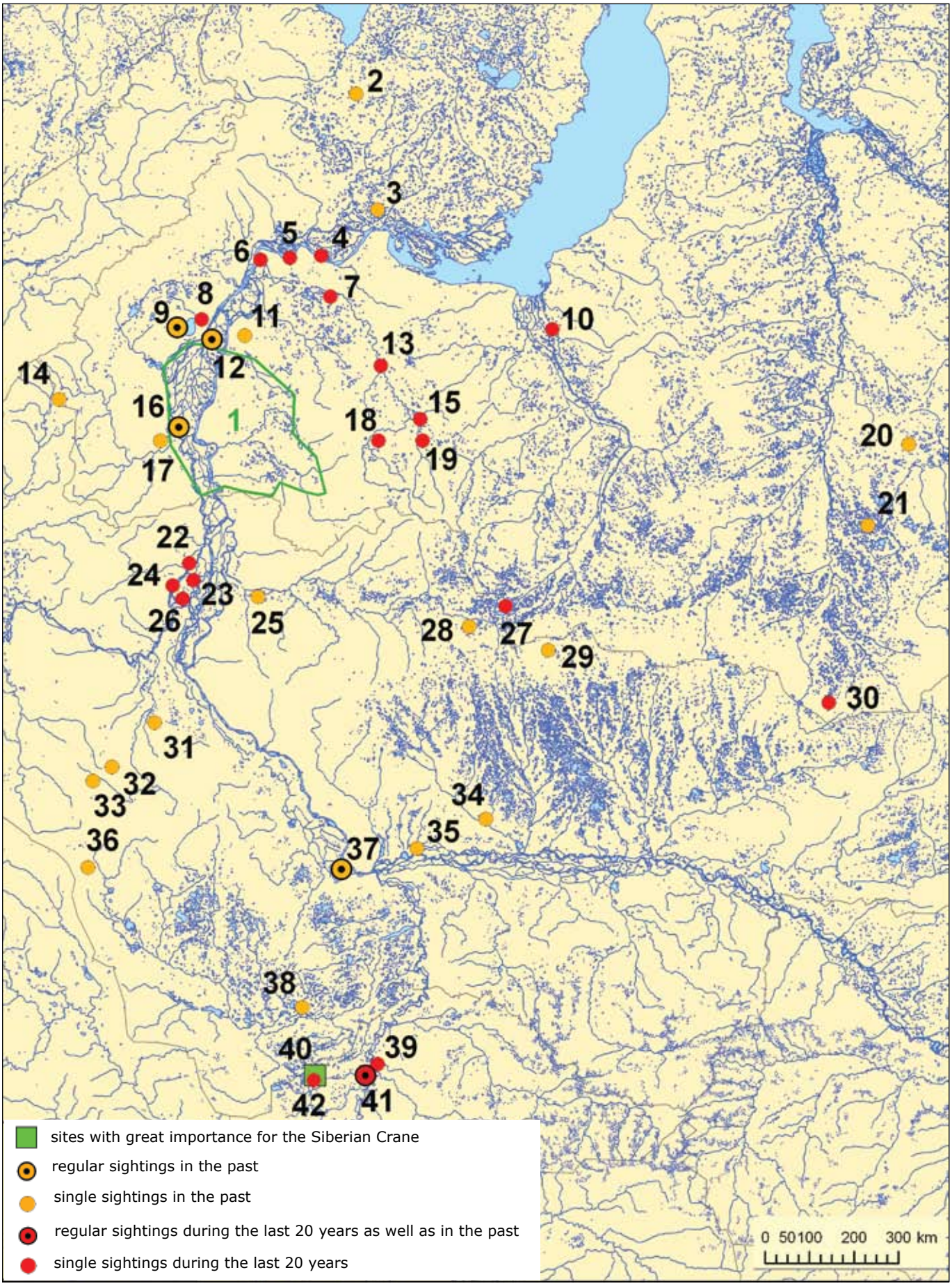


Figure 1. Breeding grounds and sightings of the Siberian Crane of Western and Central Asian flocks in West Siberia, Russia

LEGEND TO FIG. 1

1 – Kunovat, Yamalo-Nenetsky Autonomous Region (YaNAR) (see Siberian Crane sightings description and distribution of breeding sites in the section on this site);

2 – YaNAR: a Siberian Crane chick was sighted in 1981 according to personal communication of V. Kalyakin;

3 – YaNAR: one Siberian Crane in 1980 according to personal communication of V. Kalyakin;

4 – Near the village of Aksarka, YaNAR: two Siberian Cranes in flight on 15 May 2007 (Markin et al 2007);

5 – Between the town of Salekhard and the village of Aksarka, YaNAO: two flying Siberian Cranes were sighted from helicopter on 20 May 2006 (Markin et al. 2007);

6 – Near the town of Salekhard, YaNAR: two Siberian Cranes flew over fishing factory on 30 June 2005, according to personal communication of V. Valeev (Sorokin et al. 2005); seven flying Siberian Cranes on 6 or 7 August 2008, according to personal communication of A. Ermakov;

7 – Near 100 km from the town of Salekhard, YaNAO: two Siberian Crane on the right bank of Polui River, near Ovrazhnoye Lake, on 29 September 2007, according to personal communication of Yu. Klimov;

8 – Shuryshkarsky Shor, YaNAR: two Siberian Crane were sighted north from shor on 30 August 2008, according to personal communication of M. Istomin;

9 – West part of Shuryshkar Shor, YaNAR: regular breeding of the Siberian Crane pair was recorded 10 km to the north from the village of Shuryshkary in the middle of 1970s, according to personal communication of S. Moskvin;

10 – Middle Khambu-Yakha River, YaNAO: a Siberian Crane pair was sighted between Nadym and Nori rivers, on the right bank of Nadym River, in 10-15 km from the river in the middle June 1992, according to personal communication of P. Anufriev;

11 – YaNAR: Siberian Crane breeding was recorded in 1972 and 1973, according to personal communication of A. Molochayev;

12 – Dvuobie, Khul-Loity Chanel, YaNAR: regular sightings of Siberian Cranes 15 km from the village of Shuryshkary in 1981 and 1982, according to personal communication of G. Kelchin;

13 – Poluiskiy Widlife Refuge, YaNAR: one Siberian Crane in flight in June 2006 (Markin et al. 2007);

14 – Upper current of Khulga and Mokraya Synya rivers, YaNAR: breeding of a pair of the Siberian Crane was recorded near Tanyuraty Lake in 1979, according to personal communication of P. Miroshnichenko;

15 – Sukhoi Polui River, YaNAR: 17 Siberian Cranes in flight in early October 1992, according to personal communication of V. Tibaikin;

16 – Center of Low Dvuobie, YaNAR: regular sightings of a Siberian Crane pair in 1984 and 1985, according to personal communication of A. Kochergin;

17 – To west from Great Synskoi Sor, YaNAR: breeding of a Siberian Crane pair in 1979, according to personal communication of P. Miroshnichenko;

18 – Glubokiy Polui River, YaNAR: two Siberian Cranes near the village of Kedrovka in late May 2004, according to A. Ermakov personal data of helicopter pilots;

19 – Verkhnepoluiskiy Wilflife Refige, YaNAR: two Siberian Cranes in flight on 26 May 2006 (Markin et al. 2007);

20 – Lake system of Upper Khetilki River (right tributary of Taz River), YaNAR: pair of the Siberian Crane in late May 1981, according to personal communication of M. Edelveis;

21 – Wetlands around Chaselskiye Lakes, YaNAR: regular summer sightings of Siberian Cranes from 1979 to 1980, according to personal communication of M. Besedin;

22 – Near town of Beriozovo, Khanty-Mansiskiy Autonomois Region (KhMAR), three sightings: two Siberian Cranes in flight on 8 May 2006 (Markin et al. 2007); one Siberian Crane on the bank of Polui River in June 2006 (Sorokin et al. 2005); one Siberian Crane in September 2006, according to inquiry data of A. Maiorov;

23 – Severnaya Sosva, KhMAR: one Siberian Crane 4.5 km from Berezovo in early September 2001, according to inquiry data of V. Graf;

24 – Beriozovo Region, Shaitanka River, KhMAR, two sightings: six Siberian Cranes in August 2004; and three Siberian Cranes (pair with chick) in September 2004, according to personal communication of S. Abayev;

25 – Kazym River floodplain, KhMAR: four Siberian Cranes on 29 August 1980, according to personal communication of S. Kozyrev;

26 – Severnaya Sosva, KhMAR: three Siberian Crane 10 km from the town of Beriozovo in September 2001, according to personal communication of M. Volkov;

27 – Near Numto Lake, border between KhMAR and YaNAR, two sightings: one Siberian Crane in June 1977, according to personal communication of A. Molochayev and V. Mirutenko; a Siberian Crane pair on the river bank in early 1990s, according to personal communication of P. Anufriyev;

28 – Watershed of Siberian Uvals, KhMAR: one Siberian Crane in June 1977, according to personal communication of A. Molochayev and V. Mirutenko;

29 – Watershed of Siberian Uvals, KhMAR: one Siberian Crane in June 1977, according to personal communication of A. Molochayev and V. Mirutenko;

30 – Yety-Pur River (south of Purovskiy District), YaNAR: two Siberian Cranes were feeding on river bank on 20 May 2006 (Markin et al. 2007);

31 – Near Nyargi-Tor Lake, KhMAR: two Siberian Cranes in the third decade of 1982 (Lykhvar & Petunkin 1988);

32 – Near Eva-Tor Lake, KhMAR: three Siberian Cranes on 4 May 1983 (Lykhvar & Petunkin 1988);

33 – Near Emun-Tor Lake, Upper Malaya Sosva River, KhMAR: one Siberian Crane on 1 October 1983 (Lykhvar & Petunkin 1988);

34 – Middle Lyamin River, KhMAR: a Siberian Crane pair on 18 May 1984 (Lykhvar & Petunkin 1988);

35 – Near the village of Skripunovo, KhMAR: two Siberian Cranes on 4 May 1984 (Lykhvar & Petunkin 1988);

36 – Soltia River (upper of Eitia River), KhMAR: a Siberian Crane pair on 2 May 1982 (Lykhvar & Petunkin 1988);

37 – Elizarovskiy Wildlife Refuge, KhMAR, four sightings during spring migration: two Siberian Cranes on 29 April 1983; two Siberian Cranes on 14-15 May 1983; four Siberian Cranes on 14 May 1983; two Siberian Cranes on 29 April 1984 (Lykhvar & Petunkin 1988);

38 – Podurmanka River, KhMAR: four Siberian Cranes near the settlement of Kondinsk on 2 May 1982 (Lykhvar & Petunkin 1988);

39* – Bank of Irtysh River, Tyumen Region: two Siberian Crane in flight near settlement of Uvat on 11 September 2006 (Markin et al. 2007);

40 – Konda-Alymka, Uvat Region, KhMAR (see sightings description in the section on this site););

41 – Uvat District, Tyumen Region, three sightings: three birds near the village of Luchkino on 13 September 2006 (Markin et al. 2007); one or two cranes near the village of Luchkino on 22 April 2008, according to inquiry data of E. Kobozev; four Siberian Cranes near the village of Luchkino on 12 September 2008, according to inquiry data of E. Kobozev;

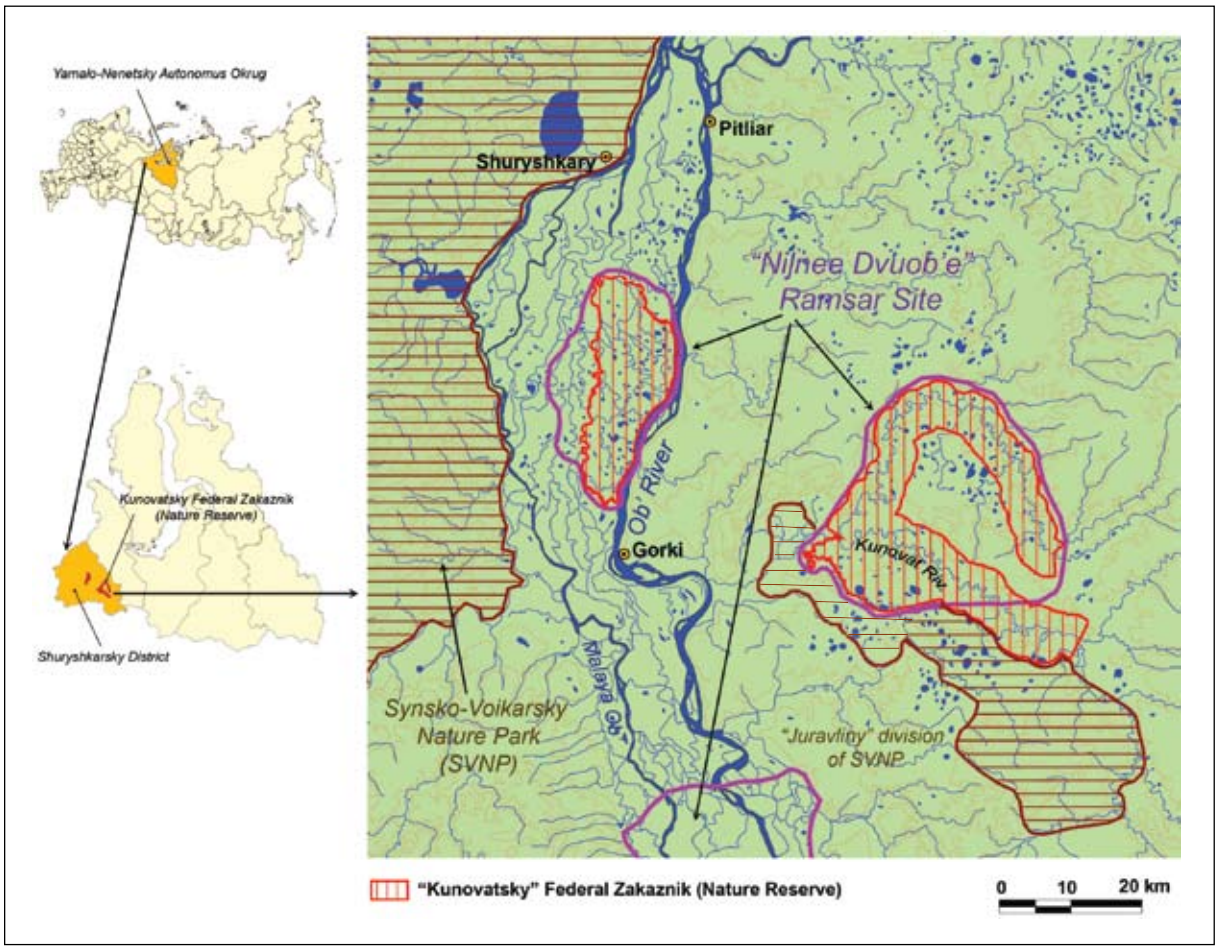
42 – Near Chernenkoye Lake, border between KhMAR and Tyumen Region: three Siberian Cranes in summer 2006 (Markin et al. 2007).

***Notes:** these data deserve special attention. This information was received from two separate respondents who live in native villages and for whom the Siberian Crane is a well-known bird. In previous years we also received information about Siberian Crane sightings from these sites.

1. Kunovat

Central Asian Flock

Compilers:
A.G. Sorokin & A.P. Shilina, All-Russian Research Institute for Nature Protection and Reserves of the Ministry of Natural Resources and Ecology
(Some paragraphs are given from description of Ramsar site "Lower Dvuobie" compiled by A.V. Molochaev and V.G. Krivenko (1998))



GEOGRAPHICAL COORDINATES

Kunovat Complex: 64°50'N; 66°50'E
Bolsheobsk Complex: 65°15'N, 65°27'E

ALTITUDE

10-50 m above sea level

AREA

538,000 ha

OVERVIEW

The site is located in the Yamalo-Nenetskiy Autonomous Region (YaNAR). Its area covers the basins of the eastern tributaries of the Lower Ob River (Shuryshkar District of YaNAR) from Zazhimchar River in the south to Pitlyar River in the north as well as part of the Lower Dvuobie located to the west between the settlements of Kyzym-Mys and Khashgort. The core area of the site is Kunovat Federal Wildlife Refuge consisting of the two wetlands complex of Kunovat and Bolsheobsk. These complexes are the most valuableareas for conservation of the Siberian Crane and breeding grounds for other waterbirds.


Photo by A. Sorokin

The Kunovat Complex. This is a vast lake-swamp area amid northern taiga forests with a developed river and lake network. It is situated at the natural border between the Lower Ob lowland and Poluyskaya Highland, on the first and third fluvial terraces above the Ob floodplain. The landscape is predominantly a slightly dissected plain.


Photo by A. Sorokin

The site is covered in a series of sedge-willow fens, associations of so-called "sor" vegetation, swamp and peat meadows, groves, and shrubby willows. The temporary lakes are the most important feature of the vast floodplain islands. The northern taiga forest type is characterized by narrow strips of floodplain forest, with forest patches among marshes and rare forest on uplands.

The Bolsheobsk Complex is located in the eastern part of the Ob River floodplain between the settlements of Gorki and Khashgort. It is a marsh floodplain with a great number of streams and lakes.


Photo by Yu. Markin

The Ob River floodplain is dissected by a series of river channels. The main river channel, called the Big Ob is two to three kilometres wide in its eastern part. Many smaller channels, ranging in width from several meters to several hundreds of meters, cut through the floodplain in various directions, dividing it into numerous islands of different sizes. The shores of these islands are usually more elevated and irregular than their central parts. As a result, inside each island, round or oblong lakes and temporary wetlands, called "sors" by local habitants, are formed, ranging in size from several dozens to several thousands of hectares. The bottoms of such lakes are flat with thick layers of muddy deposits. While the depth of permanent lakes varies from a maximum of 2 to 3 m during floods to a minimum of 0.3 to 0.7 m between floods, most "sors" dry out completely between floods.

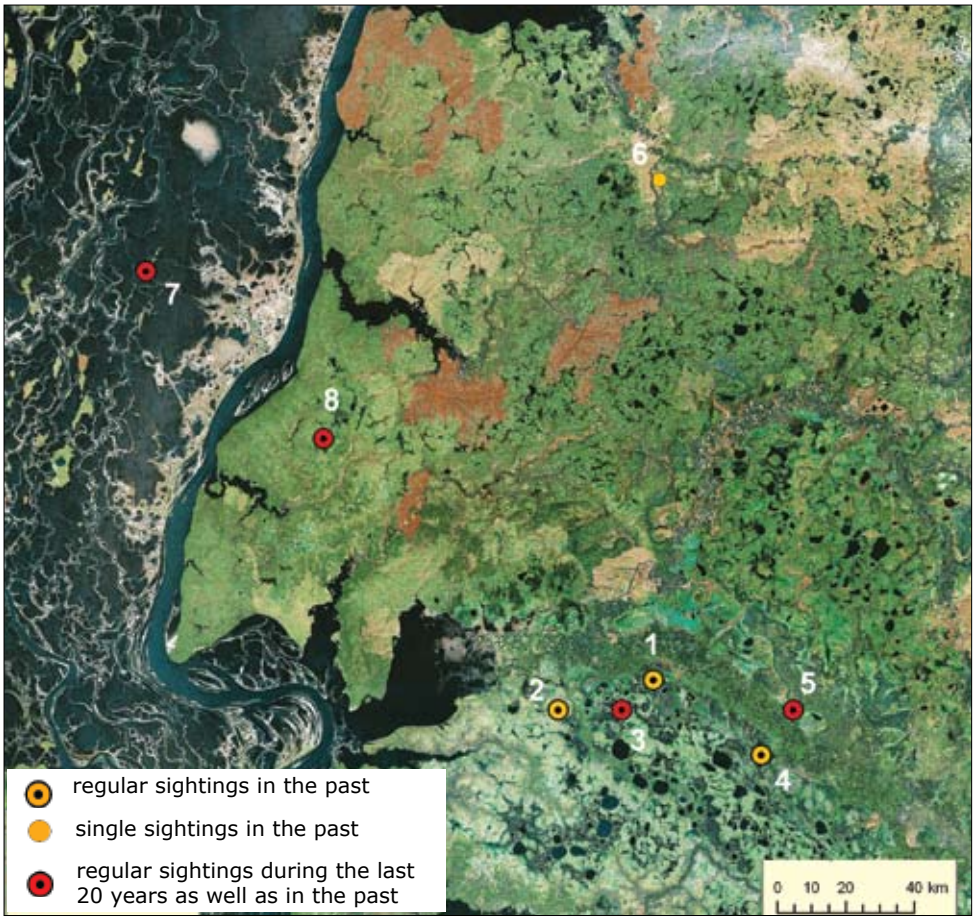
The climate is extremely continental; winter lasts for 6 to 6.5 months, with average January temperatures of –18°C or even –20°C; spring is usually short (30 days) and cold, with sudden weather changes and frequent returns of light frosts. The average temperature during July is +15°C. Autumn is warm and short, with sharp temperature changes and frequent early frosts.

IMPORTANCE FOR THE SIBERIAN CRANE


Photo by A. Sorokin

The territory is an important Siberian Crane breeding site and also summering area for non-breeding birds. Six to seven pairs nested there until the end of the 1980s. In 1987 the highest numbers of breeding (12 pairs) and non-breeding Siberian Cranes was registered. Since then, the number has become less, and from 1994 to 2001 only one breeding pair was known and regularly monitored (Sorokin & Markin 2001, Shilina 2008). Siberian Cranes have been not confirmed breeding at Kunovat since 2001 (Markin et al. 2003). In August 2002, only one bird of this pair was sighted (Shilina 2008).

However, during the last 8 years, Siberian Cranes (pairs and single birds) have been regularly recorded in Kunovat and nearby areas during aerial surveys, questionnaires and interviews with local people provided by ARRINP staff. There is also some unofficial unconfirmed data on the nesting of 1 to 2 pairs (Table 1).



Legend:

1-5 – Kunovat River Ba-sin, Yamalo-Nenetskiy Autonomous Region (YaNAR)

1 – Breeding from 1981 to 1994

2 – Breeding from 1981 to 2001

3 – Breeding from 1986 to 1995

4 – Breeding from 1981 to 1987

5 – Breeding from 1987 to 1990

6 – Breeding in Pitlyar River Basin, YaNAR, in 1986

7 – Breeding in Upper Khash-gort-Yugan River, YaNAR, from 1981 to 1994

8 – Breeding in Upper Longi-Vozh-Yugan River, YaNAR, from 1981 to 1994

Figure 1. Distribution of known breeding sites of the Siberian Crane of Central Asian flock in Kunovat and adjacent areas since 1981

Table 1. Sightings at breeding grounds of the Siberian Crane of Central Asian flock in Kunovat in 2001-2008

#	Data	Place	Number of Siberian Cranes	Data Sources
1	Spring 2002	Low Ob River, Votinskiy Islands, YaNAR	2	Inquiry data, A. Tyrlin
2	Late May 2004	Pitlyarskiy Sor, YaNAR	2	A. Ermakov, personal data of helicopter pilots
3	Summer 2005	Wetlands on the east bank of Kunovat River, upper of Pittayugan River, YaNAR (data was received from local people: A. Konev, U.Tyrlin from the village of Lopkhari)	2 (пара)	Sorokin et al. 2005
4	Early September 2005	Zazhimchar River Lake (it seems cranes are from the Pittayugan River marshes), YaNAR (data of A. Shestak-ov, Director of Kunovat Wildlife Refuge)	2	
5	June 2006	Near New Kievat, Lower Dvuobije, on the bank of small river, YaNAR (crane had reddish spots on its feathers, probably a one-year-old bird)	1	Markin et al. 2007
6	The second part of August 2006	The bank of Zazhimchar River, 12 km east of village of Kyzym-Mys, YaNAR (cranes were observed during two days; they were feeding on the bank)	2*	
7	From middle August to early Setember 2005 and 2006	Wetlands with lakes on the west bank of Zazhimchar River, YaNAR (these pairs kept at a distance of 4 km from each other; looked like nesting pairs)	4 (2 pairs)*	
8	May 2008	Middle Logas River, the east tributary of Kunovat River, YaNAR	1	Personal data, Yu. Shestakov

IMPORTANCE FOR OTHER CRANE SPECIES

Up to 20 pairs of Eurasian Cranes (*Grus grus*) breed here.

IMPORTANCE FOR OTHER WATERBIRDS


Photo by A. Sorokin

The site is located on an important migration route for waterfowl breeding on the vast floodplains of the Ob River and its tributaries, the Yamal tundra and the Taz Peninsula, which overwinter in Western Europe, southwest Asia and Africa. The total number of waterbirds migrating through the area has been estimated at 300,000 to 500,000 (Molochaev 1983).

Ducks are the most numerous waterfowl migrating through the Dvuobie area. Dabbling ducks – Pintails (*Anas acuta*), Wigeons (*A. penelope*), Teals (*A. crecca*), Mallards (*A. platyrhynchos*), Garganeys (*A. querquedula*), Shovelers (*A. clypeata*) – account for 80 to 85% of the total, and diving ducks – Tufted Ducks (*Aythya fuligula*), Scaups (*A. marila*), Goldeneyes (*Bucephala clangula*), Velvet Scoters (*Melanitta fusca*) and Black Scoters (*M. nigra*) – account for 10%. The remaining 5 to 10% are Whooper Swans (*Cygnus cygnus*), Bewick's Swans (*C. bewickii*), Bean Geese (*Anser fabalis*), White-fronted Geese (*A. albifrons*), Lesser White-fronted Geese (*A. erythrophus*), Greylag Geese (*A. anser*), and Red–breasted Geese (*Branta ruficollis*).

Average numbers of waterfowl breeding in the site were 700,000 dabbling ducks, 85,000 diving ducks, 200 geese and 6,000 Whooper Swans. The total number of waterfowl after breeding and moulting seasons is between two and three million birds (Krivenko et al. 1980).

The site provides habitat for ten species of birds listed in the Russian Red Data Book: the Siberian Crane, the Osprey (*Pandion haliaetus*), Golden Eagle (*Aquila chrysaetos*), the White-tailed Eagle (*Haliaeetus albicilla*), the Eurasian Eagle Owl (*Bubo bubo*) are breeding species; the Red-breasted Goose, the Lesser White-fronted Goose, Bewick's Swan, the Gyrfalcon (*Falco rusticolus*), the Peregrine Falcon (*F. peregrinus*) are passage migrants.

Three species, Siberian Crane (Critically Endangered), Red-breasted Goose (Endangered), and Lesser White-fronted Goose (Vulnerable) are listed in the IUCN Red Data List.

NEGATIVE FACTORS

The Kunovat Complex. Currently there are no sinificant anthropogenic impacts. Potentially, exploration for oil and other mineral resources and mining on the floodplains of the Kunovat and Logas-Yugan Rivers can be considered as limited factors.

The Bolsheobsk Complex. Oil pollution and industrial waste from the upper and middle Ob River produce negative effects on all aquatic ecosystems in the Lower Dvuobie. High floods can considerably reduce breeding success of waterbirds in the Lower Dvuobie, but catastrophic floods are rare. In some areas near rivers and tributaries, disturbance from spring and autumn hunting, fishing, haymaking, and berry picking are very sizeable.

CONSERVATION MEASURES TAKEN/PROPOSED

The 220,000-ha Kunovat State Wildlife Refuge, of federal level, is located in the site. It includes two sites: Kunovat and Bolsheobsk complexes. Its protection status provides limited commercial and private fishing.

Currently, the wildlife refuge is under the responsibility of the Ministry of Natural Resources and Ecology of the Russian Federation. The YaNAR branch of the Federal Service on Control for Nature Use is responsible for protection of biological resources of the wildlife refuge.

Near the southern border of the Kunovat Federal Wildlife Refuge, a newly created natural complex of Synsko-Voikarskiy Natural Park of regional level is located. One of the sites of the natural park, Zhuravliny Site, has been established by the Administration of YaNAR for improving conservation of large lakes and marshes, which are very valuable for breeding of the Siberian Crane and other waterbirds.

Proposed measures include the following:

1. Hiring permanent staff for Kunovat Federal Wildlife Refuge and providing material and technical basis.
2. Complete establishment of Zhuravliny Site of the Synsko-Voikarskiy Natural Park.

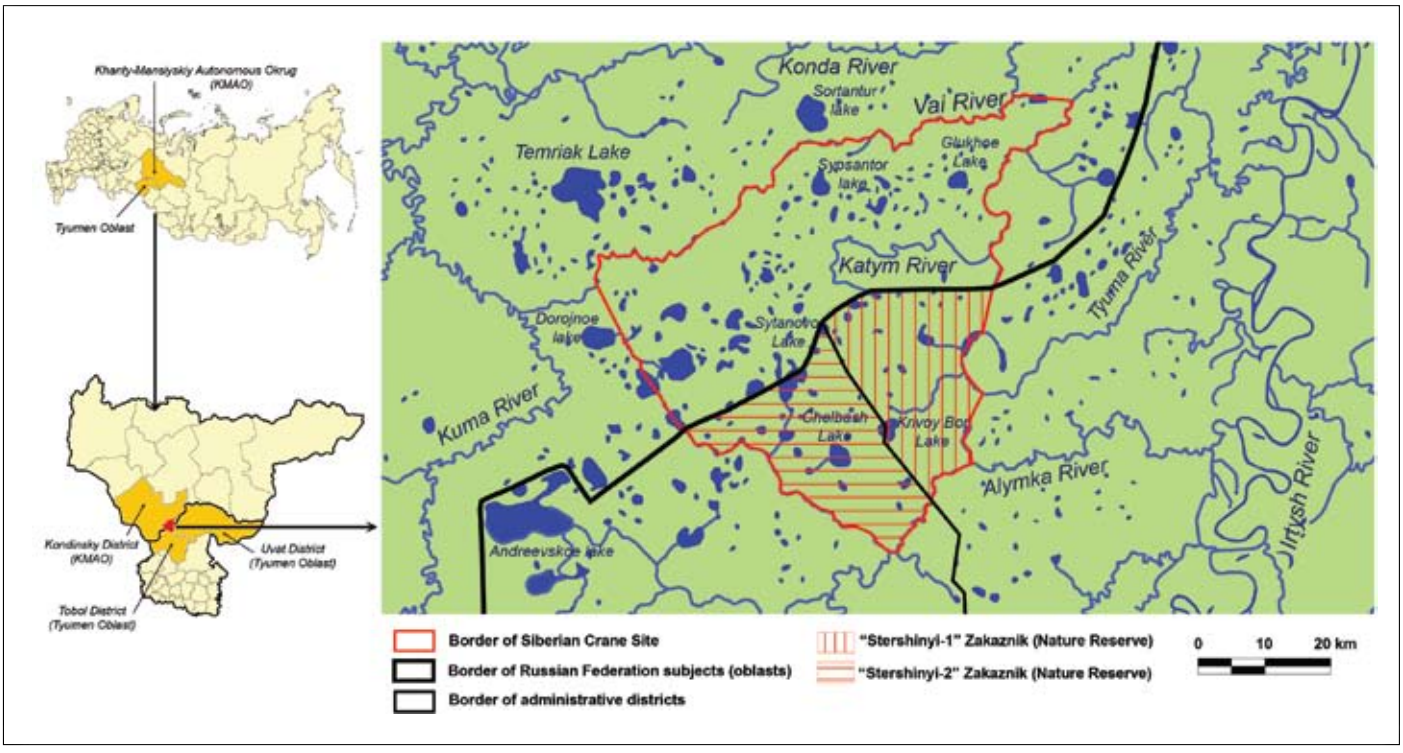
INTERNATIONAL IMPORTANCE

The site is included in *the List of Wetlands of International Importance (Ramsar)* named "Lower Dvuobie" (Molochayev & Krivenko 1998). It is proposed for inclusion in the *Western/Central Asian Site Network for the Siberian Cranes and Other Waterbirds*.

2. Konda-Alymka

Western Asian Flock

Compilers:
A.G. Sorokin & A.P. Shilina
All-Russian Research Institute for Nature Protection and Reserves of the Ministry of Natural Resources and Ecology



GEOGRAPHICAL COORDINATES	ALTITUDE	AREA
59°02'N, 67°40'E	70 m above sea level	88,552 ha

OVERVIEW

The site lies within the following coordinates: northernmost point 59°25'N, 68°30'E; southernmost point 58°20'N, 67°50'E; easternmost point 59°15'N, 68°04'E; and westernmost point 59°16'N, 67°00'E. It is located in the southwestern part of the West Siberian Lowland (Konda and Alymka Interfluves on the west side of the Irtysh River). The north part of the site occupies the Kondinsky District of the Khanty-Mansi Autonomous Region, and the south part is located in the Uvat and Tobol Districts of the Tyumen Region.

It is a flat, wet/humid/waterlogged/sodden plain occupied by a watershed lake-swamp complex. Forest vegetation is poorly represented in low uplands and along rivers as well as around marshes.

The site territory supports numerous small and large lakes. Together with streams and rivers, they give rise to an intricate network of wetlands and channels cutting through the territory in various directions. Meandering is a characteristic feature of all local rivers. Climatic factors, especially various combinations of high temperature and humidity, are the main contributors to the formation of superficial run-off and the entire hydrological regime of the territory. Rivers and lakes are fed by swamp and ground waters and rainfall.

Climate is continental. Summer is moderately warm; the mean July temperature is +17°C. Winters are cold, with a mean January temperature of –18°C.

IMPORTANCE FOR THE SIBERIAN CRANE

One to three nesting pairs of Siberian cranes have been recorded for the last 10 years (Figure 1). An aerial survey was conducted in June 2005 in the Kondo and Alymka Interfluves, in Uvat District, with support from UNEP/GEF SCWP. Nests were not found, but two single Siberian Cranes were seen on different days, with the distance between sighting points less than 10 km. One of the sighted cranes was in breeding plumage (feathers stained), and it is possible that it was not alone. The other crane was not seen clearly (Sorokin et al. 2005).

In addition, information on Siberian Crane sightings was collected from local people as a part of the UNEP/GEF SCWP through questionnaires and interviews with local people. Target groups included hunters, fishermen, pilots, and other people connected to and interested in nature. Special attention was given to obtaining accurate data. There were seven sightings in Uvat District for the period 2005 to 2008, mostly in spring and autumn (Table 1) (Markin et al. 2007, Shilina 2008).

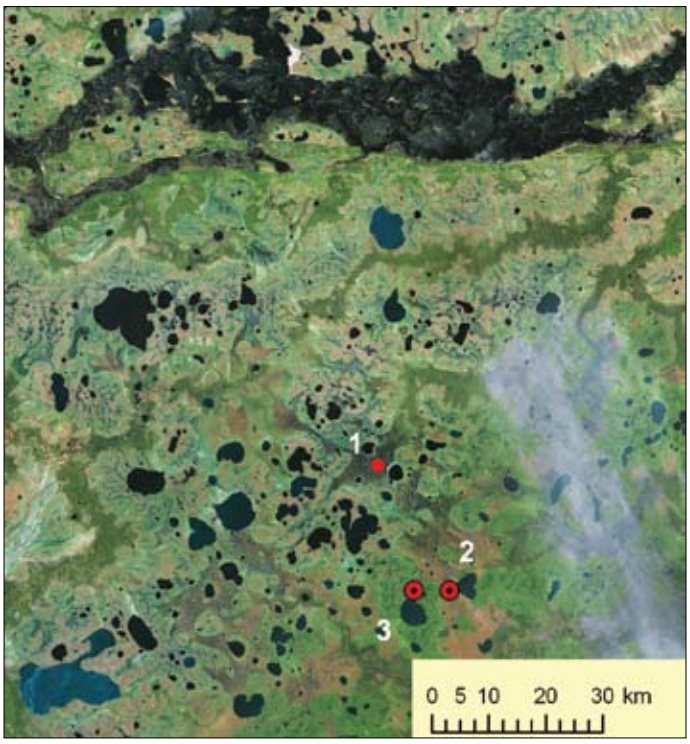



Photo by A. Sorokin

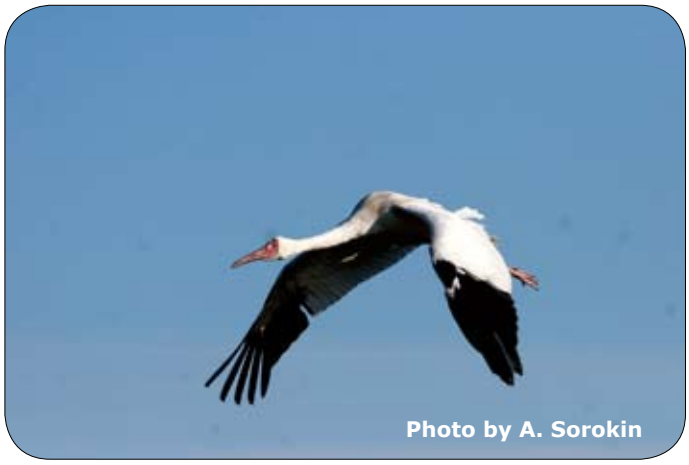


Photo by A. Sorokin


Photo by A. Sorokin

Figure 1. Distribution of known breeding sites of the Siberian Crane of the Western Asian flock in Konda-Alymka and in adjacent areas

Legend:

1 - Breeding since 1996 in Uvat District, Tyumen Region

2 - Breeding since 1996 in Tobol District, Tyumen Region

3 - Breeding near Chernenkoye Lake, Kondinskiy District, Tyumen Region

regular sightings during the last 20 years as well as in the past

single sightings during the last 20 years

Table 1. Sightings of the Siberian Crane at breeding grounds of the Western Asian flock in Konda-Alymka since 2005

#	Data	Place	Number of Siberian Cranes	Data Sources
1	June 2005	Konda-Alymka Interfluvial Areas, KhMAR	Two Siberian Cranes in distance of 10 km from each other. One of them was in breeding plumage	Sorokin et al. 2005
2	Early October 2005	"Stershiny-1" Wildlife Refuge, Uvat District, Tyumen Region	1	Inquiry data, S. Zinchenko
3	Summer 2006	Chelbash Lake, Tobol District, Tyumen Region	3	Markin et al. 2007

IMPORTANCE FOR OTHER CRANE SPECIES

In the central part of the site, an unusually high density of breeding Eurasian Cranes (*Grus grus*) was recorded (Sorokin & Markin 1996). Up to 300 pairs of the Eurasian Crane breed in Konda-Alymka.


Photo by A. Sorokin

IMPORTANCE FOR OTHER WATERBIRDS

The site regularly supports 20,000 or more migratory waterbirds during both spring and autumn migration periods.

The site provides nesting grounds for numerous dabbling ducks: Mallards (*Anas platyrhynchos*), European Wigeons (*A. penelope*), Common Teals (*A. crecca*), Garganeys (*A. querquedula*), Pintails (*A. acuta*), and Shovelers (*A. clypeata*), and diving ducks: Tufted Ducks (*Aythya fuligula*), Greater Scaups (*Aythya marila*), Velvet Scoters (*Melanitta fusca*), Goldeneyes (*Bucephala clangula*), Red-breasted Mergansers (*Mergus serrator*), and Smews (*M. albellus*). Whooper Swans (*Cygnus cygnus*) are also common breeding species.


Photo by A. Sorokin

Nesting waders are represented by the following species: Ruffs (*Philomachus pugnax*), Snipes (*Gallinago gallinago*), Great Snipes (*G. media*), Jack Snipes (*Lymnocryptes minimus*), Bar-tailed Godwits (*Limosa lapponica*), Curlews (*Numenius arquata*), possibly, Slender-billed Curlews (*N. tenuirostris*) (Markin, pers. com.), Greenshanks (*Tringa nibularia*), Wood Sandpipers (*T. glareola*), Green Sandpipers (*T. ochropus*), and Common Sandpipers (*Actitis hypoleucos*). The breeding density of Greenshank is the highest for West Siberia.


Photo by A. Sorokin

The site is of primary importance as a staging area for migratory birds such as Red-breasted Geese (*Branta ruficollis*), Lesser White-fronted Geese (*Anser erythropus*), Golden Eagles (*Aquila chrysaetos*), Bewick's Swans (*Cygnus bewickii*), and Peregrine Falcons (*Falco peregrinus*).

The site provides habitat for 10 species listed in the Red Data Book of the Russian Federation, including the Siberian Crane, the White-tailed Eagle (*Haliaeetus albicilla*), and the Osprey (*Pandion haliaetus*) as breeding species. Unique breeding sites of the Gyrfalcon (*Falco rusticolus*) and Imperial Eagle (*Aquila heliaca*), located nearly 1,000 km outside their normal range, have been recorded at this site.

Six species, Siberian Crane (Critically Endangered), Slender-billed Curlew (Critically Endangered), Red-breasted Goose (Endangered), Imperial Eagle (Vulneravle), Lesser White-fronted Goose (Vulneravle), and Great Snipe (Near Threatened) are listed in the IUCN Red Data List.


Photo by C. Prentice

NEGATIVE FACTORS

Despite that the site location is comparably close to administrative centres (50 to 60 km), it is almost completely isolated by huge marshes in summer. The site can be reached only by helicopter and therefore disturbance to the site is minimal.

A potential threat is exploration of oil and other minerals as the site is located in a prospective oil and gas exploration area. An oil exploration rig was removed from the site in 2006 and clean-up measures undertaken.


Photo by A. Sorokin

CONSERVATION MEASURES TAKEN/PROPOSED

Two regional wildlife refuges Stershinyi-1 (Uvat District) and Stershinyi-2 (Tobol District)) on the south part of the site have been established by the Administration of Tyumen Region. The protection regime includes a hunting ban from spring to autumn, prohibition of commercial fishing, mining and public access. Protection is controlled by a joint district inspection on conservation of biological resources of Tyumen Region.

Proposed measures include the following:

1. Strengthen and enforce the existing regimes of two wildlife refuges (Stershinyi-1 and Stershinyi-2) with improved staff and management capacity.

2. Organize a regional level wildlife refuge (~100,000 ha) in the Kondinskiy District of the Khanty-Mansi Autonomous Region on a territory adjacent to Stershinyi-1 and Stershinyi-2.

3. Enforce ecological control over oil and gas exploration on the territories adjacent to protected areas.


Photo by A. Sorokin

INTERNATIONAL IMPORTANCE

The site is proposed for inclusion in the *Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

Migratory Stopovers

RUSSIA

Both the Western and Central flocks use the same migration route—from their breeding grounds in Russia to their wintering grounds in Kazakhstan.

In Russia, cranes can stop for a short rest in spring and autumn on the Tobol-Ishim forest-steppe at the trans-boundary area of the Tyumen and Kurgan Regions (Figure 1). This is confirmed by data received through ground surveys, questionnaires and interviews with local people (hunters, fishermen, farmers and so on), provided by the All-Russian Research Institute of Nature Protection (ARRINP) (Shilina 2008). Satellite tracking of the Siberian Crane chick banded with a PTT in 1998 on the breeding grounds of the Western Asian flock, identified its short-term migration stopover in Armizon Districtin in southern Tyumen Region, where Eurasian Cranes gather for pre-migratory congregations.

Here in southern Tyumen Region, Belozerskiy site is located. This is the most important Russian staging area for the Siberian Crane and other waterbirds along the Western/Central Flyway.

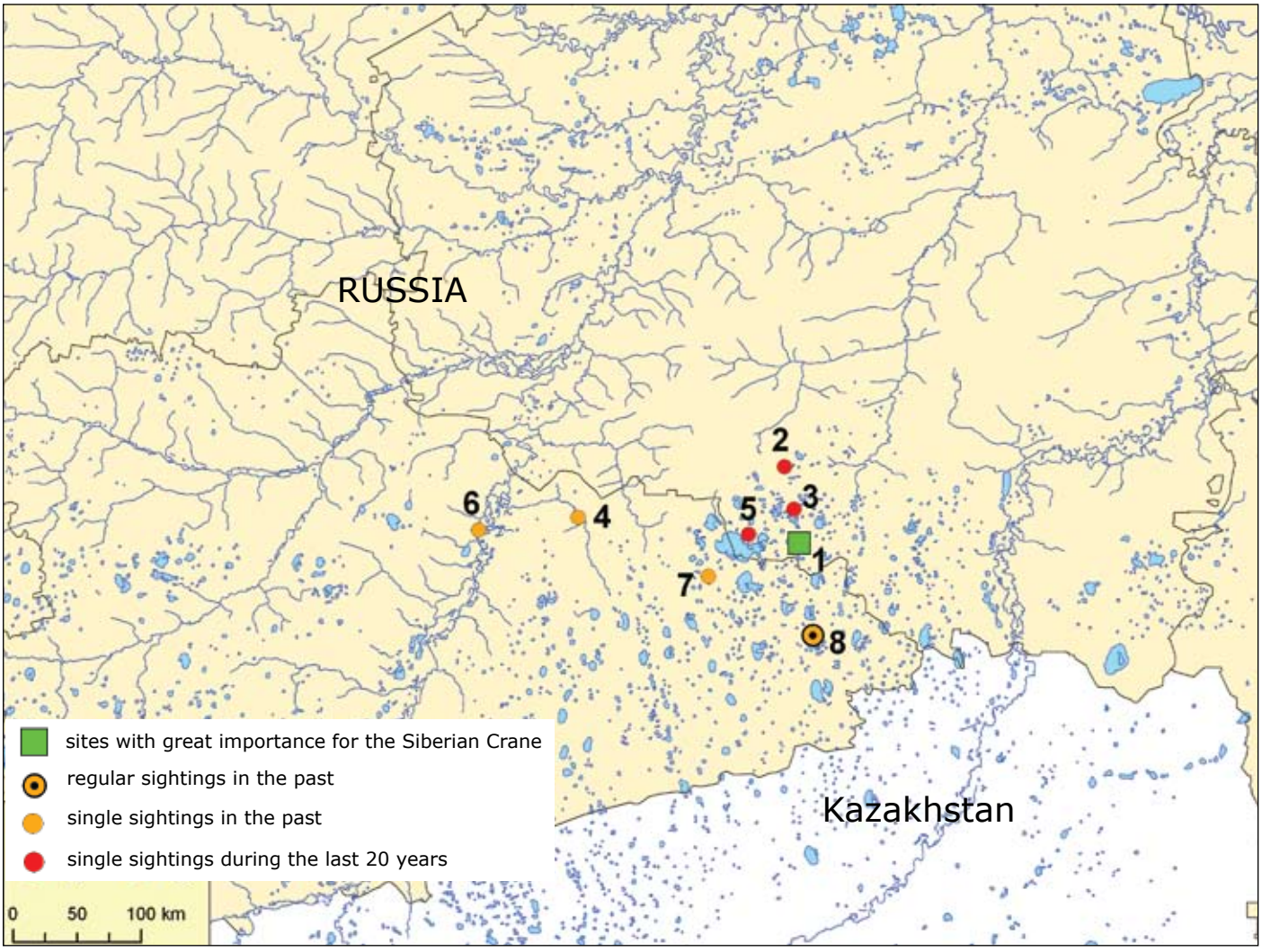


Figure 1. Sightings of the Siberian Crane in Russia along the Western/Central Asian Flyway

LEGEND TO FIG. 1

1 – Belozerskiy, Armizon District, Tyumen Region (see description below in a section about the site);

2 – Omutninsliy District, Tyumen Region: two Siberian Cranes near the village of Ivanovo in spring 2001, according to personal communication of V. Azarov;

3 – Armizon District, Tyumen Region: one Siberian Crane near the village of Tavolzhanka in spring 2003, according to inquity data of I. Turkanskiy;

4 – Vargashinskiy District, Kurgan Region, two sightings (Kalinin 1988): one Siberian Crane in a flock of Eurasian Cranes near Verkhnesuerskoye Village in April or May 1984; a few Siberian Cranes in Mostovskiy Game Economy in late September 1984;

5 – Armizon District, Tyumen Region: one Siberian Crane near the village of Zhiryaki in summer 2002, according to personal communication of V. Azarov;

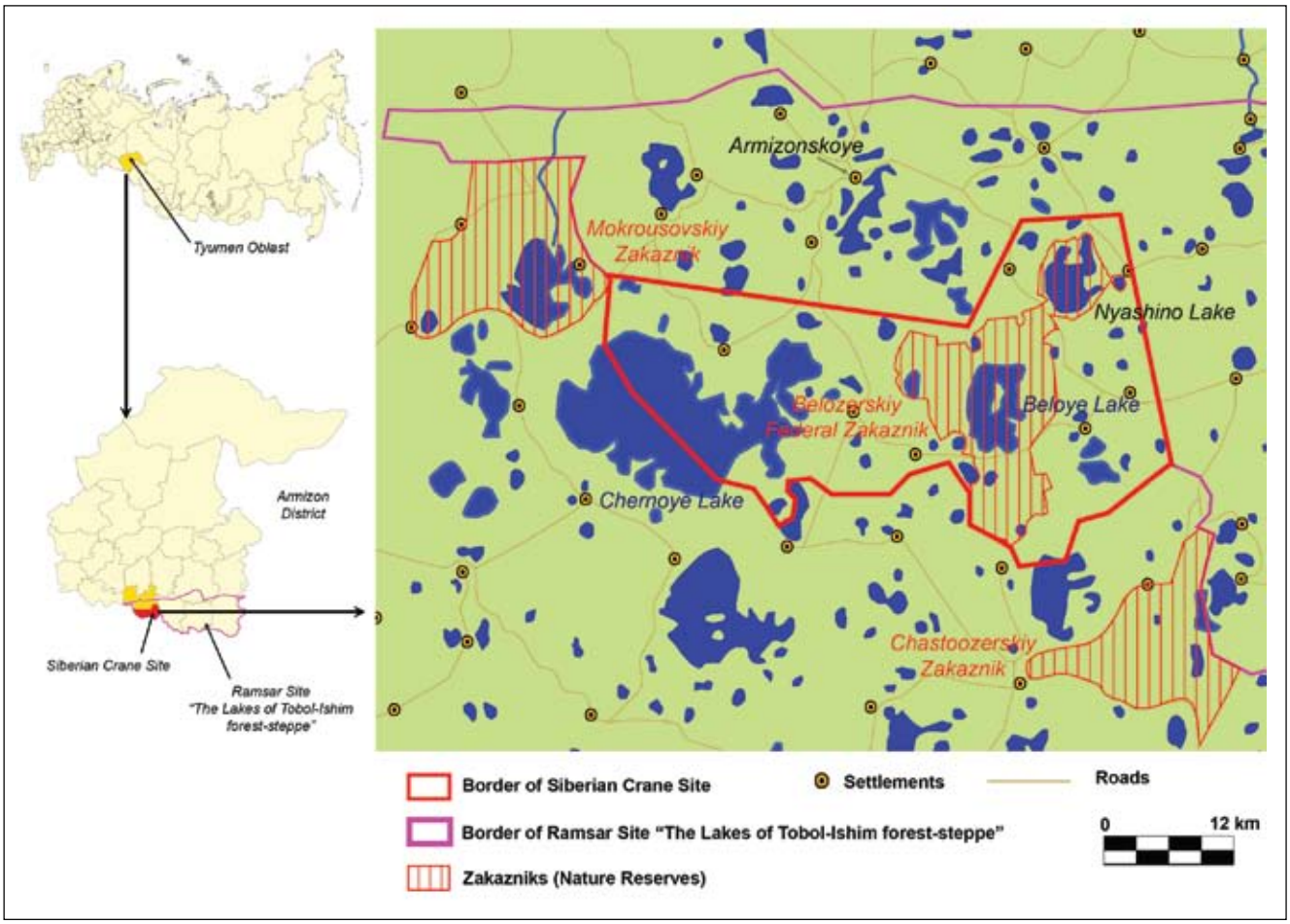
6 – Mokrousovskiy District, Kurgan Region, two sightings (Kalinin 1988): seven Siberian Cranes near the village of Kurtan in September 1973; one crane in the same place on 17 May 1981;

7 – Belozerskiy District, Kurgan Region: one Siberian Crane near the village of Ikovskoye on 28 May 1970 (Kalinin 1988);

8 – Chastoozerskiy District, Kurgan Region, three sightings (Kalinin 1988): one Siberian Crane in Igashevo Marsh, border between Kurgan and Tyumen Regions, in July 1977; one Siberian Crane near Gorkoye Lake, 10 km from Igashevo Marsh, in spring 1981; one Siberian Crane in the northeast of the district on 20 May 1981.

3. Belozerskiy

Compilers:
A.G. Sorokin & A.P. Shilina
All-Russian Research Institute for Nature Protection and Reserves of the Ministry of Natural Resources adn Ecology
(Some paragraphs are given from description of Ramsar site "Lakes of Tobol-Ishim Forest-steppe" compiled by V.I. Azarov, V.A. Lezin, and V.G. Krivenko (1998)



GEOGRAPHICAL COORDINATES

55°60'N; 67°00'E

ALTITUDE

100 m above sea level

AREA

17,850 ha,
buffer zone – 2,168 ha

OVERVIEW

The site is located in the southwestern part of the Ishim Plain in southern Armizon District in the Tyumen Region.

The Tobol-Ishim forest-steppe is a flat plain with a great number of fresh and brackish water lakes of different dimensions and lowland swamps. Freshwater lakes sometimes become brackish; medium-sized and small lakes dry out or become transformed into marshes, salt grounds or meadows.

The Great White Lake belongs to a water-meadow lake type. Such kinds of lakes are characterized by a complex structure with littoral belts of reeds and marshy shores. Other lakes of the wildlife refuge – Large Reed and Nyanshino - have reeds along their edges.

Waterbird habitats during different stages of their life are located not only in lakes and marshes, but also on their shores, as well as in adjacent meadows, steppe, forest patches and contiguous forest areas, and in agricultural fields.

The climate is continental. Sudden changes in weather are quite frequent, especially in spring and autumn, due to the unobstructed passage of cold air masses from the north, and hot, dry air masses from Central Asia and Kazakhstan. The area is subject to drought, with extremely dry periods occurring one to three times each decade. The summers are warm and short, and the winters are severe with strong winds. The area has a mean annual air temperature of +0.5 to +0.7°C (–18.9°C in January, +18.6°C in July).


Photo by A. Sorokin


Photo by Yu. Markin


Photo by Yu. Markin

IMPORTANCE FOR THE SIBERIAN CRANE

Since 2000, three sightings of one to five cranes were recorded at this site. Most interesting is the record of 5 (3+2) Siberian Cranes in a flock of Eurasian Cranes on a field of the Belozerskiy Wildlife Refuge in 2007, provided by V. Drobyshevskiy, Director of the refuge (Table 1).

Table 1. Sightings of the Siberian Crane along its Central/Western Flyway in the southern Tyumen Region since 2000

#	Data	Place	Number of Siberian Cranes	Data Sources
1	Early August 2006	Belozerskiy Wildlife Refuge	1 (in flight)	Markin et al. 2007
2	29 September 2006	Great White Lake, Belozerskiy Wildlife Refuge, according to personal data of V. Drobyshevskiy and questionnaire data	1	
3	25 August 2007	Belozerskiy Wildlife Refuge, according to personal data of V. Drobyshevskiy. Siberian Cranes were in a Eurasian Crane flock	5 (3+2)	Shilina 2008

IMPORTANCE FOR OTHER CRANE SPECIES

Up to 20 pairs of the Eurasian Crane (*Grus grus*) breed on the site. Up to 10,000 Eurasian Cranes stop over during autumn migration (August through September) on the Belozerskiy site. During the period of highest concentration, up to 3,000 Eurasian Cranes were counted at one of the main roosting sites (Omelino Island in Great White Lake).

IMPORTANCE FOR OTHER WATERBIRDS

Wetlands of the Tobol-Ishim forested steppe, together with its floodplains, meadows, agricultural fields, and patches of steppe and forest, support a great number of waterbirds that use these habitats during different seasons and/or at different stages of their life cycles. The site regularly supports more than 20,000 waterfowl throughout the year. The total number of waterbirds migrating through the Tobol-Ishim forest-steppe is estimated at 3 to 5 million. The Tobol-Ishim forest-steppe is an important moulting area for dabbling ducks and geese breeding over an extensive area of West Siberia.

The site is a breeding ground of Grey Herons (*Ardea cinerea*), Great Egrets (*Egretta alba*), Bitterns (*Botaurus stellaris*), and Little Bitterns (*Ixobrychus minutus*). Breeding colonies of White Pelicans (*Pelicanus onocrotalus*) and Great Cormorants (*Phalacrocorax carbo*) are located on Great White Lake.

The site is the habitat of rare and threatened species listed in the Red Data Book of the Russian Federation: White Pelicans, White-tailed Eagles (*Haliaeetus albicilla*), Black-winged Stilts (*Himantopus himantopus*) are breeding species; and Black Storks (*Ciconia nigra*), Bewick's Swans (*Cygnus bewickii*), Lesser White-fronted Geese (*Anser erythropus*), Red-breasted Geese (*Branta ruficollis*), White-headed Ducks (*Oxyura leucocephala*), Ospreys (*Pandion haliaetus*), Golden Eagles (*Aquila chrysaetos*), Imperial Eagles (*A. heliaca*), Tawny Eagles (*A. nipalensis*), Lesser Kestrels (*Falco naumanni*), Saker Falcons (*F. cherrug*), Peregrine Falcons (*F. peregrinus*), Siberian Cranes (*Grus leucogeranus*), Avocets (*Recurvirostra avosetta*), Sociable Lapwings (*Vanellus gregarius*) and Great Black-headed Gulls (*Larus ichthyaetus*) are passage migrants.

Globally threatened species include Sociable Lapwing (Critically Endangered), Red-breasted Goose (Endangered), White-headed Duck (Endangered), Saker (Endangered), Lesser White-fronted Goose (Vulnerable), Imperial Eagle (Vulnerable), and Lesser Kestrel (Vulnerable).

NEGATIVE FACTORS

In the past two decades, due to rapidly decreasing agricultural activity, negative factors such as chemical pollution and land reclamation have not had as strong an impact as in previous times. But these factors continue to be potential threats related to prevailing economic conditions.

Wildfires and fires caused by burning of hay fields in spring, destroy vast areas of waterbird habitat and negatively affect their breeding. Harvesting of reeds with heavy machinery not only eliminates the reed thickets, but also disturbs breeding birds and destroys their nests.

Disturbance in the breeding season by commercial fishermen and tourists also negatively impact waterbirds.

If control on hunting is decreased, cases of poaching will increase.

CONSERVATION MEASURES TAKEN/PROPOSED

Belozerskiy Wildlife Refuge of federal level was established on 1 December 1986 with the goal for conservation, recovery and reproduction of valuable, rare and threatened animals and their habitats, as well as rare, endangered and medicinal plants. Main nature conservation objects are all terrestrial vertebrate animals and the unique complex of lakes, steppe and forest in the Tobol-Ishim forest-steppe.

Urgent measures that have been taken are a ban on spring hunting of waterbirds, building of artificial nests for waterfowl, as well as strict regulation of economic development and water bodies used for hunting and fishing.

Currently, the Belozerskiy Federal Wildlife Refuge is under responsibility of the Ministry of Natural Resources and Ecology of the Russian Federation. Protection is controlled by a joint district inspection on conservation of biological resources of Tyumen Region.

Proposed conservation measures include the following:

1. Provide appropriate capacity and staff for the management of the wildlife refuge;

2. Establish a wildlife refuge on the regional level or site belonging to Belozerskiy Federal Wildlife Refuge at Black Lake;

3. Strengthen nature protection control outside Belozersliy Federal Wildlife Refuge during spring and autumn waterfowl hunting periods.

4. Develop and implement a complex of measures for preventing conflicts between farmers and cranes and geese on agricultural fields.


Photo by Yu. Markin


Photo by A. Sorokin


Photo by Yu. Markin

INTERNATIONAL IMPORTANCE

The site is included in *the List of Wetlands of International Importance (Ramsar)* named "Tobol-Ishim partially-wooded steppe". It is proposed for inclusion in the *Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

KAZAKHSTAN

Kazakhstan is the only country where long-term migration stopovers are known. Siberian Cranes can stay here for up to 1.5 to 2 months. Migration stopovers are used by both Western and Central Asian flocks. After resting in Kazakhstan, Siberian Cranes can continue their migration in two directions: along the Central Asian Flyway through Uzbekistan, Turkmenistan, Afghanistan, and Pakistan to India; and along the Western Asian Flyway through Russia (Volga Delta and Dagestan) and Azerbaijan to Iran.

Historically, Siberian Cranes were regularly recorded in a number of regions in Kazakhstan: The Naurzum Lake System and lakes in the Turgai Lowland of the Kostanay and Aktyubinsk Regions in north Kazakhstan, the Kurgaljino Lakes in central Kazakhstan, the north and east coast of the Aral Sea, the north Caspian Sea coast, and the Ural Delta in western Kazakhstan. Most intensive migration went through Naurzum, the Turgai Lowland, and the Kurgaljino Lakes.

Since the middle of the last century, 95 sightings, with known data and with a total number of 338 to 344 birds, were registered in the territory of Kazakhstan. More than 60% of all Siberian Crane sightings in Kazakhstan were recorded in Naurzum Nature Reserve (NNR), where regular monitoring has been conducted since 1933, when the nature reserve was established (Bragin 2008). Moreover, during the last 20 to 25 years Siberian Cranes were sighted mostly in Naurzum, with the exception of a record of two Siberian Cranes in a flock of Demoiselle Cranes in West Tien Shan on 18 April 2005 (Gavrilov & Gavrilov 2006). However, the number of records depends on various factors, including regularity of observations. Thus, it was very low in the 1950s, when NNR was closed, and it increased again in the 1960s after renewal of NNR activity (Bragin 2008).

Since 1998, thanks to efforts of the International Crane Foundation (ICF) and the Convention on Migratory Species (CMS), Siberian Cranes have been recorded annually in Kazakhstan despite the Western/Central Asian population number having been at a critical level.

Since 2003, regular monitoring has also been conducted under the UNEP/GEF Siberian Crane Wetland Project at all five project sites: Naurzum, Zharsor-Urkash, Kulykol-Taldykol, Tyuntyugur-Zhanshura Lake Systems and in the Ural Delta. All these sites are included in the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.

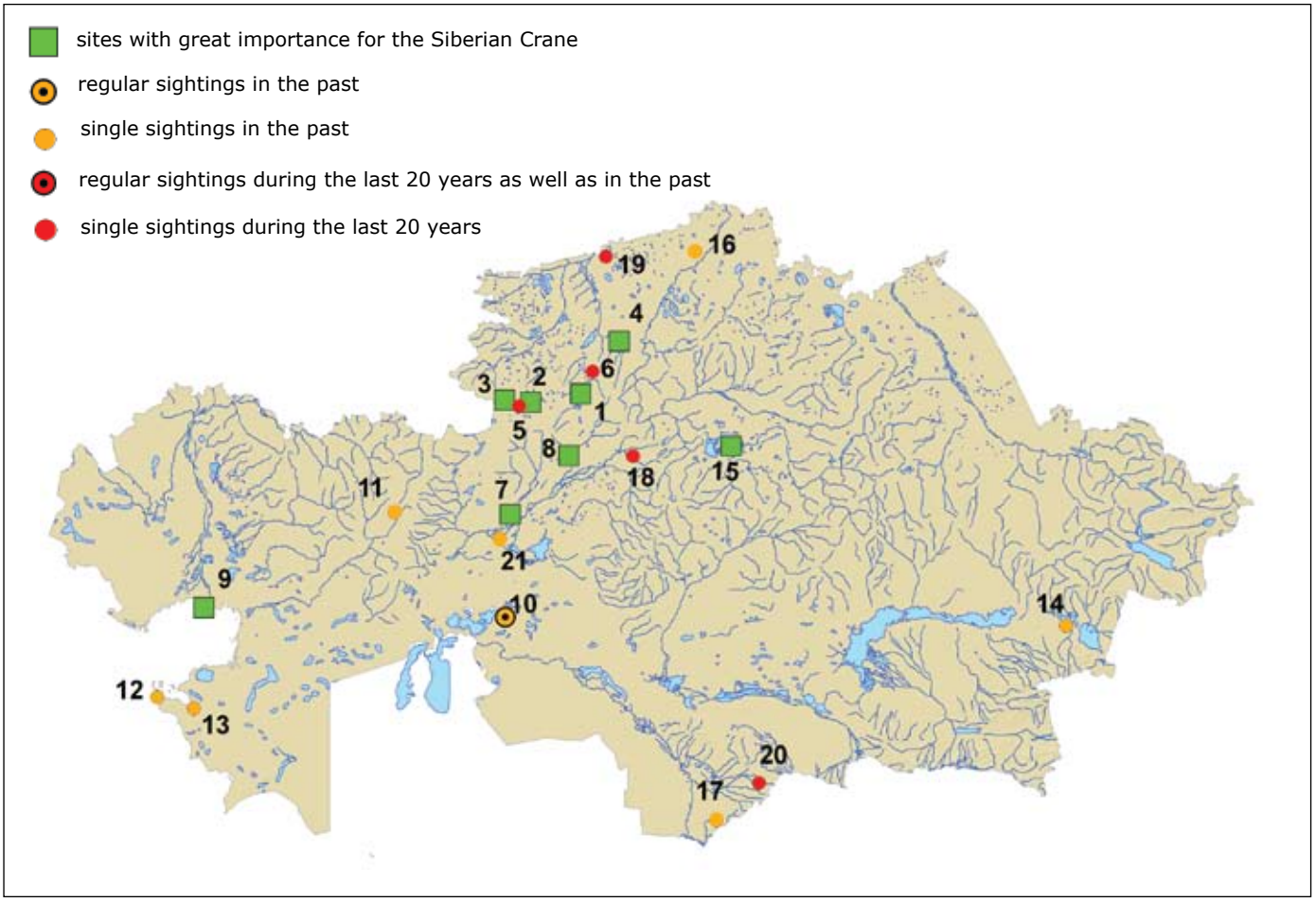


Figure 1. Sightings Siberian Crane in Kazakhstan along the Western/Central Asian Flyway

LEGEND TO FIG. 1

1 – Naurzum Lake System, Kamystin District, Kostanai Region (see Siberian Crane sightings description in the section on this site);

2 – Zharsor-Urkash Lake System, Kamystin District, Kostanai Region (see Siberian Crane sightings description in the section on this site);

3 – Kulykol-Taldykol Lake System, Kamystin District, Kostanai Region (see Siberian Crane sightings description in the section on this site);

4 – Tyuntyugur-Zhanshura Lake System, Karasu District, Kostanai Region (see Siberian Crane sightings description in the section on this site);

5 – Tounsorskiy Wildlife Refuge, between Kulykol-Taldykol and Zharsor-Urkash Lake Systems, Kostanai Region, one sighting: two Siberian Cranes on 30 August 2002 at Shukyrkol Lake, according to information from local ranger (Yerokhov & Berezovikov 2003);

6 – Chili Lake, Ubagan River Valley, Auliekol District, Kostanai Region, four sightings: two adult cranes on 2 October 1999; three adult cranes on 12 September 2000; three adult cranes on 22 August 2002 (Bragin 2006, 2008); two Siberian Cranes in a field with a flock of 28 Eurasian and 2 Demoiselle Cranes from 15 through 19 April 2008, 14 to 15 km from the lake (Bragin, pers. com.);

7 – Turgai-Irgiz Lake System, Aktyubinsk Region, a historical migration stopover on the way to wintering grounds in India (see Siberian Crane sightings description in the section on this site);

8 – Sarykopa Lake System, Jangeldinsky District, Kostanai Region, a historical migration stopover (see Siberian Crane sightings description in the section on this site);

9 – Ural River Delta and Adjacent Caspian Sea coast, Atyrau Region, a historical migration stopover (see Siberian Crane sightings description in the section on this site);

10 – Northeast coast of Aral Sea, Syrdaria Delta and adjacent Karakum Desert, seven sightings: on 14 April 1927 near Solotyube Station (Spangenberg & Feigin 1936); six cranes on 24 April 1952, nine on 14 October 1956, three on 1 May 1957, eight on 12 April 1958, one on 25 March 1978 (Varshavski et al. 1977, Kovshar 1982); three cranes on 15 October 1979 in south part of Syrdaria Delta on Aral coast (Berezovski 1991);

11 – Kazbek tract of the Emba River, one sighting: eight cranes on 24 March 1960 (Poslavskiy 1976, Kovshar 1982);

12 – Mangyshlak Peninsula, 15 km from Fort Shevchenko, one sighting: 11 cranes on 12 April 1960 (Kovshar 1982);

13 – 35 km east of Taushik Village, one sighting of nine cranes on 24 April 1961 (Kovshar 1982);

14 - Ucharal Village, Tentek River Delta, Balkhash-Alakol Hollow, one sighting of seven birds on 25 November 1965 (Auezov & Grachev 1977, Kovshar 1982);

15 – Kurgaljino Nature Reserve, Tengiz Lake, Akmolinsk Region (see Siberian Crane sightings description in the section on this site);

16 – Jambul District, North Kazakhstan Region, three sightings: 11 Siberian Cranes on 20 May 1971 not far from village of Maibalyk (Drobovtsev 1983, Kovshar 1982); one crane on 28 May 1988 on Balykty Lake (Vilkov & Drobovtsev 2002); three Siberian Cranes feeding on shallow shore of Long Lake between 20 and 25 September 1978 (Dubinin 1991);

17 – Keles River, Middle Syrdaria, between Chimkent and Tashkent, Uzbekistan, one sighting of two cranes on 8 April 1972 (Kovshar 1982);

18 – 70 km east from town of Amangeldy, one sighting of one bird in the first half of September 2000, but information is not reliable (Bragin 2003);

19 – Mokhovoye Lake, Uzunkolskiy Region, one sighting: one bird in a flock of Eurasian Cranes on 4 through 6 May 2007 (Bragin 2007);

20 – West Tien Shan, one sighting of two Siberian Cranes in flock of Demoiselle Cranes on 18 April 2005 (Gavrilov & Gavrilov 2006);

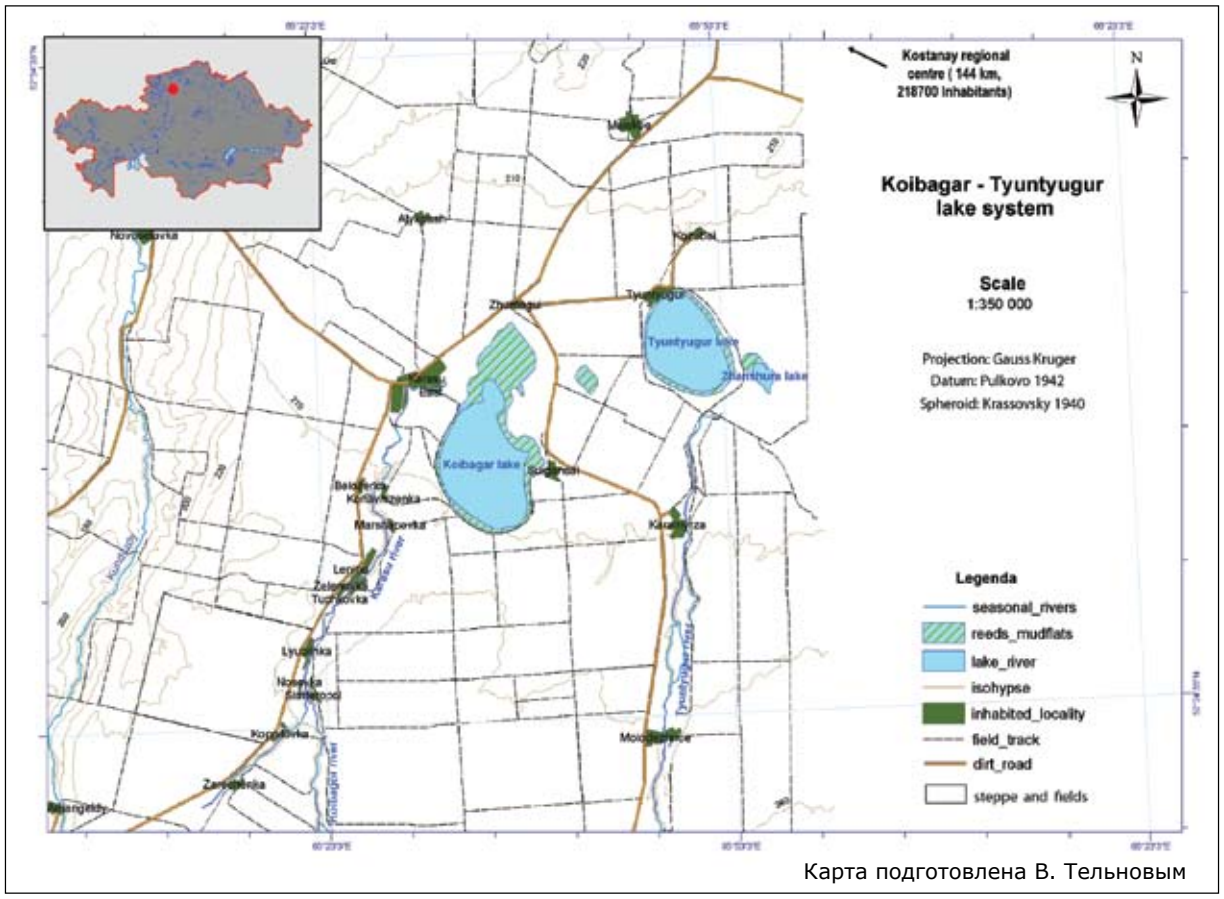
21 – Irgiz River Lowland, one sighting in October 1956 (Varshavski et al. 1977);

22 – Irtysh River Valley, Pavlodar Region, two sightings: one Siberian Crane in autumn 1987 near Shiganai Lake (Solomatin 1999); one crane in autumn 1988 in Krasnokutsk District (Solomatin 1999);

23 – Altai, Eastern Kazakhstan Region, two sightings: Siberian Cranes were recorded in December 1882 in Altai foothills near Bukhtarma in Katon-Karagai (Nikolskiy 1883); a pair of the Siberian Crane was feeding on 6 September 1986 in wetland in Altai foothills near Saur Range at the altitude of 1,500 m (pictures are taken) (Scherbakov 1999).

4. Tyuntyugur-Zhanshura Lake System

Compiler:
Eugeni Bragin, Naurzum National Nature Reserve



Карта подготовлена В. Тельновым

GEOGRAPHICAL COORDINATES

Tyuntyugur Lake – 52°40'N, 65°46'E
Zhanshura Lake – 52°36'N, 65°52'E

ALTITUDE

200-210 m
above see level

AREA

near 1,0000 ha, including
Tyuntyugur Lake – 5,430 ha,
Zhanshura Lake – 1,570 ha

OVERVIEW

The site is located in the Karasu District of the Kostanay Region in northern Kazakhstan; 140 km southeast of the administrative center, Kostanay City, and 20 km east of the district center, Karasu Village.

The Tyuntyugur Hollow is located in the Ubagan-Ishim watershed at the foot of a slightly outlined ledge, separating the Tyuntyugur Plain (or Plateau) from the Kostanay Plain.


Photo by V. Potansky

The hollow includes five large freshwater or slightly brackish lakes, which flood seasonally and have a cyclic hydrological regime: Alabota, Koibagar, Tyuntyugur, Zhanshura and Biesoigan. In the past, this group of lakes was instead one large lake. Currently, Koibagar, Tyntyugur and Zhanshura are connected with one another only in spring, and only when the water level is high. In the periods with shallow water, Alabota, Biesoygan and Zhanshura lakes dry up in the shortest time, and quite often they dry up completely. Koibagar and Tyuntyugur Lakes do not dry up completely; meadows and marshes are formed in their places during long-lasting shallow periods. The total area of the lakes is about 23,000 ha, of which the largest, Koibagar Lake, is 10,721 ha.

The lakes support the existence of wet meadow ecosystems, which have the most productive grass associations and also make a considerable contribution to the biodiversity of the region.

With a semi-arid and continental climate, this area is characterized by cold winters, hot summers and strong winds. The average annual air temperature is +1.5^{0}C. The average temperature in July is +21^{0}C; in January, is –19^{0}C, with an absolute minimum of –43^{0}C.

IMPORTANCE FOR THE SIBERIAN CRANE

The site was once an important migration stopover area for the Siberian Crane situated along its western and central flyways. The Koibagar-Tyuntyugur lake group is situated on the flyway of the western and central populations of Siberian Cranes. Koibagar Lake is probably not suitable for cranes because it is rather deep and the shores are fully overgrown with a vast expanse of thick reeds. The remaining lakes of the group, having smaller depths and partly open shores, are quite suitable for Siberian Cranes as places of rest and feeding. As a result of a questionnaire, two sightings have been identified for the last 10 years: two adult birds in September 1992 on Biesoigan Lake (Bragin 2008) and two birds in April 2006 at Alabota Lake, of the Koibagar-Tyuntyugur Lake System (Bragin 2007).

IMPORTANCE FOR OTHER CRANE SPECIES

In the periods when the lakes are filled with water, Eurasian Cranes (*Grus grus*) nest at Zhanshura Lake. Summer groups of up to 40 to 50 Eurasian Cranes were recorded at Tyuntyugur Lake in some years. During autumn migration the lake serves as a stopover site for migratory birds (in 2002 and 2003, 400 to 500 birds were counted) (Yerokhov & Berezovikov 2003, 2004).

IMPORTANCE FOR OTHER WATERBIRDS

During migration, all five lakes of the Tyuntyugur-Zhanshura system support up to nearly 100,000 waterbirds, including, in years 1996 through 1999, up to 69,500 geese and tens of thousands of ducks and sandpipers. During 1996 to 2000, the number of geese in one count at the end of September or the beginning of October was from 8 thousand to 69,500 (Yerohov et al. 2000, Tolvanen et al. 1999, Tolvanen et al. 2000). In October 2006, 16,228 geese were recorded. The estimated number of ducks, coots, grebes and gulls at the end of September 2005 was 40,600. During spring migration tens of thousands of sandpipers stopover at the shores of Tyuntyugur Lake (on 30 May 2000 12,000 to 15,000 birds were counted).


Photo by A. Salemgareev


Photo by A. Salemgareev

In years with favorable ecological conditions, Tyuntyugur and Zhanshura lakes support some endangered species, such as Lesser White-fronted Geese (*Anser erythropus*) and Red-breasted Geese (*Branta ruficollis*). The maximum number of Lesser White-fronted Geese, recorded in 1997, is 1,600, which is more than 6% of the western population. The number of Red-breasted Geese in 1996 and 1997 reached 15,000 to 27,000, which is over 17% of the world population. In 2005 and 2006 the number of this species decreased due to changes in ecological conditions. In some years the numbers of Whooper Swans (*Cygnus cygnus*) and some other waterbird species exceed 1% of their populations.

NEGATIVE FACTORS

Currently the main factors are hunting and a considerable amount of commercial fishing on the Tyuntyugur and Koibagar lakes. Widespread use of motorboats creates an especially great negative impact on birds during nesting and migration seasons. Constant disturbance results in a decrease in the number of birds and in suc-

cessful breeding, and there are cases of bird mortality (grebes, divers and coots) due to fishing nets. In spite of measures taken, poaching occurs at both lakes.

A considerable threat to the lake ecosystems is made by dry grasses burning in the fields in autumn. These fires quite often expand to thick bulrush areas. Fires are also sometimes caused by hunters. In the near future, the impact of fire on the coastal main nesting grounds of river ducks will likely become greater.

It is possible that the existing practice of dam construction and water use from rivers, as well as the full plowing of catchment areas, have a negative impact on the hydro regime. Special study of this issue is necessary.

Before the economic crisis of the 1990s a great amount of fertilizers, toxic chemicals and manure were released into the lakes from the fields and farms located on the shore. Currently, pollution of the lake is not considerable, but this problem may appear again.


Photo by V. Potansky


Photo by V. Potansky

According to a special resolution of the Government of the Republic of Kazakhstan (dated 28.09.2006),

CONSERVATION MEASURES TAKEN/PROPOSED

the Koibagar Lake and Tyuntyugur-Zhanshura Lake System are included in the list of the national nature reserve fund for objects of republican significance. Previously, the lakes were included in the list of the most significant wetlands in the region, according to the proposal of a working group of the World Wildlife Fund (implemented from 1998 to 1999), and according to the order of the Kostanay Region Territorial Department of Forestry and Bioresources (#12, dated 14.03.2001). On the basis of that order, the Kostanay Region Society of Hunters and Fishermen, to which hunting lands of the territory are delivered for use, has established a non-disturbance zone where hunting is prohibited, at Tyuntyugur Lake. The zone includes a 500-meter strip around the shore line. Protection is realized by inspectors of the Region Society of Hunters, and additionally by spot-check groups during hunting season. At this time, the Tyntyugur-Zhanshura site belongs to a private organization.

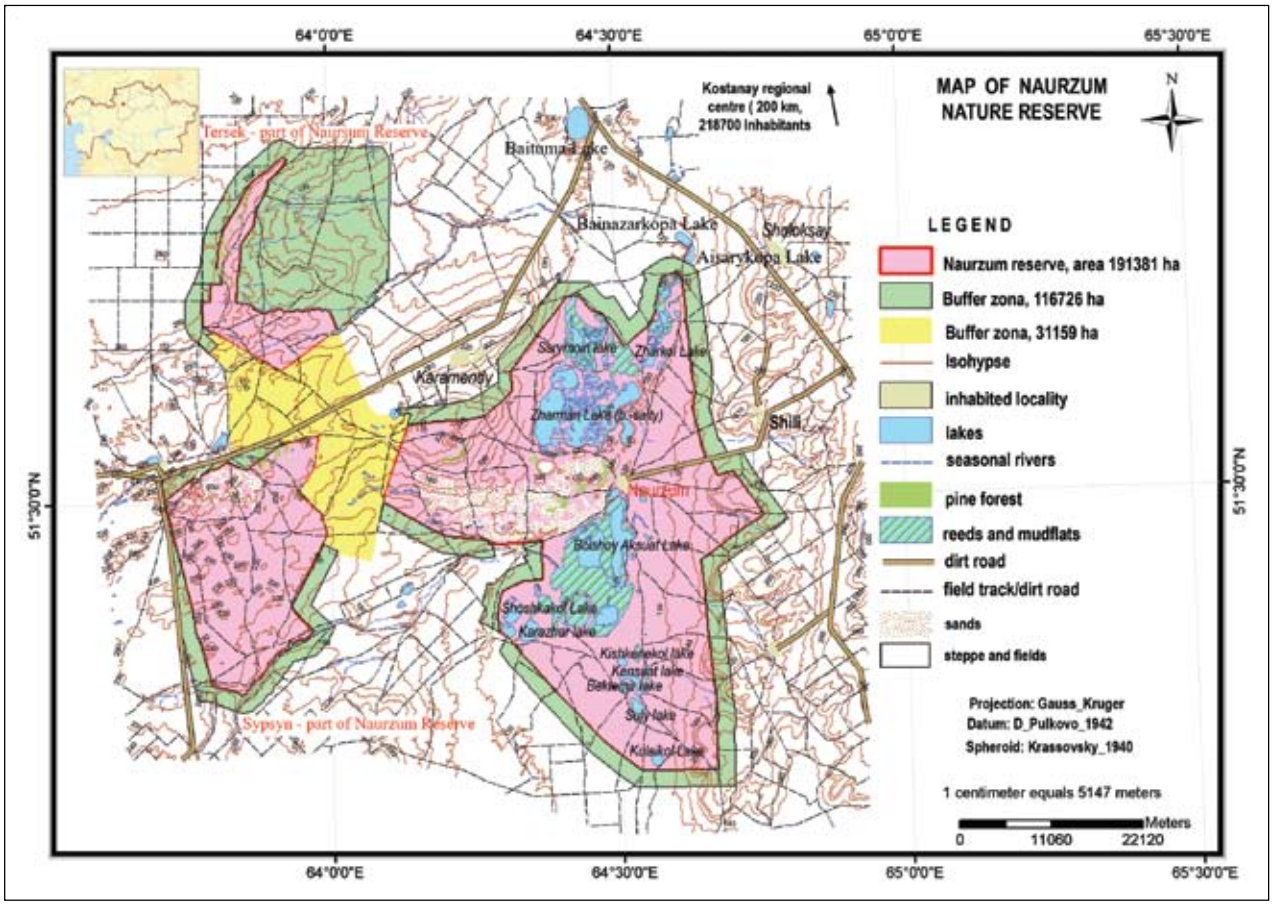
The site's location—in the midst of fully transformed landscapes with a relatively high human population density, a proximity to large centers, a developed network of roads with hard surfaces and therefore easy access—makes it difficult to protect these water bodies. Currently it is one of the most popular places for goose hunting. On the one hand, it is the most important place for long stopovers of a great number of geese during migration, as well as for nesting and moulting of waterbirds. Specialists from the Institute of Zoology of Kazakhstan propose to establish a seasonal wildlife refuge (zakaznik) at Koibagar Lake. The protection regime would include the lake and the coasts west and south of the mouth of the Karasu River to the Suigensay settlement. Within these bounds, the proposal allows limited fishing only after the main waterbird breeding season—from the 15th of July to the beginning of the mass autumn migration, the 15th of September. It was also proposed to organize an ornithological zakaznik with full prohibition of hunting and fishing at Zhanshura Lake and in the southern and western part of Tyuntyugur Lake. The site is one of four project territories under UNEP/GEF's "Development of a Wetland Site and Flyway Network for Conservation of the Siberian Crane and Other Waterbirds in Asia." Within the framework of this project, proposals on protection of lakes and corresponding documents for state management bodies will be prepared in 2007 and 2008.

INTERNATIONAL IMPORTANCE

The Koibagar Lake and Tyuntyugur-Zhanshura Lake System was included in *the List of Wetlands of International Importance (Ramsar)* in May 2009. It is an *Important Bird Area* Birdlife International. In May 2007 the site is designated as a part of the *Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

5. Naurzum Lake System

Compiler:
Eugeni Bragin, Naurzum National Nature Reserve



GEOGRAPHICAL COORDINATES

51°12'-51°47'N, 64°17'-64°36'E;
center of site: 51°32'N; 64°26'E

ALTITUDE

min. 115.4 m and max.
120.1 m above sea level

AREA

total area – 191,381 ha,
area of central site with
lake system – 139,714 ha

OVERVIEW

The site lies in the Naurzum District of the Kostanay Region, Kazakhstan, 200 km south of the administrative center, Kostanay City.

The site is located in the south of the Tobol-Ishim watershed in the central part of Turgay Hollow, which cuts the Turgay Plateau from the north to the south, connecting the West Siberian Lowland and Turan Lowland.


Photo by V. Potansky

The site consists of 14 large lakes, with areas ranging from 190 ha to 12,300 ha, and 12 smaller lakes, divided into two groups by the Naurzum pine forest. When water level decreases, a number of lakes disintegrate, forming several water bodies; when it increases, the lakes are connected by channels and shallow water areas, and at maximum fullness a number of lakes merge, forming a water body with an area of 20,360 ha. According to hydro-chemical water composition, the lakes cover a number of water bodies from fresh water lakes to bitter-salt lakes.

The lakes are considerably important for maintaining the ground water level in the area of the Naurzum pine

forest, providing good conditions for its growth. Overall, the lakes contribute considerably to the biodiversity of the region.

The site is within the West Siberian climatic area of the moderate zone as it is located between the South Ural and Kazakh low hills. It is very arid and continental compared to other areas of the Kazakhstan dry steppe zone.

The average annual air temperature is +2^{0}C to +4^{0}C, during the frost-free period, which lasts from 130 to 140 days. Summer is dry and hot with frequent strong winds and dry thunderstorms. The average temperature in July is +24^{0}C. Winter is frosty and windy. The average temperature in January is –18^{0}C, and the absolute minimum is –45^{0}C.

IMPORTANCE FOR THE SIBERIAN CRANE

The Naurzum Lake System is the most important site within Kazakhstan for Siberian Cranes of the Western and Central flyways. Siberian Cranes stop at this territory both in spring and autumn migration periods (in the spring, for a period of up to one month). For the period from 1997 to 2009 Siberian Cranes have been recorded in Naurzum Lake System annually (Table 1), excluding 2000. Siberian Cranes have been recorded at Naurzum Lake System annually, except for 2000, 2008 and 2009. However, in 2000 they were recorded in the radius of 10 to 60 km from Naurzum Lakes: one young bird was recorded in a flock of Eurasian Cranes passing above the settlement of Dokuchaevka (Karamendy) on 3 May 2000; a pair was sighted near Baituma Lake on 5 and 6 May 2000; and also a pair was recorded near Sankebai Lake from 8 to 14 September 2000 (Bragin 2002b).

Table 1. Sightings of Siberian Cranes recorded at Naurzum Lake System since 1997

#	Data	Place	Number of Siberian Cranes	Data sources
1997				
1	11 May	Naurzum Nature Reserve (NNR), according to information from S. Yerokhov	4 adults	Kovshar 2002
2	16 September (1) and 4 October (7)	NNR	8 (1+7)	Bragin 1999
1998				
3	18-19 April	Baituma and Shoptykul lakes, NNR, according to information from local ranger	1 adult	Bragin 2002b
4	12-15 May	Sarymoin Lake, not far from the nature reserve station, according to information from ranger	1 adult	
5	6-7 September	Zharkol and Kulagol lakes, according to satellite tracking data of the Siberian Crane marked in breeding grounds in Uvat District, West Siberia	1	Kovshar 2002
6	13-18 September	Kulagul and Big Sankebai lakes, NNR	2 (pair)	
7	3 October	Sarymoin and Aksuat lakes, according to satellite tracking data from the second Siberian Crane marked in breeding grounds in Uvat District, West Siberia. This bird then continued migration through Sary-Kopa Lake and Turgai Lowland	1	
1999				
9	15-20 April	Aksuat Lake, NNR, according to information from local ranger	1 subadult	Bragin 2002b
10	20-27 August	Zharkol Lake, NNR, according to information from local hunters who sighted cranes independently	4 (or 5)	
2001				
11	4-25 September	Kulagol Lake	3 (2+1) (pair and single)	Bragin 2001
12	8-9 September	Baituma Lake	1	Bragin 2008
2002				
13	11 May	12-14 km east from the nature reserve, in a field of wheat stubble, 12 km south of the village of Sholoksai, near Zharkol Lake	?	Bragin 2008

14	9-24 September	Kemel and Large Aksuat Lakes, NNR	2	Bragin 2002b
15	18 September	Small Aksuat Lake, NNR, according to information from nature reserve rangers	1 adult	
2003				
16	Between 12 and 15 August	Zharkol Lake, NNR, according to information from rangers	3	Bragin 2004
2004				
17	26-27 September	Kulagol Lake, NNR, according to information from nature reserve staff	1 adult	Author's data
2005				
18	28 April	Kulagol Lake, according to information from the nature reserve ranger (same birds were probably sighted on 4 May not far from the village of Novonezhinka)	7 adults	Bragin 2008
19	27 и 28 October	Aksuat Lake	1 adult	
2006				
20	From 30 August to 20-22 September	Aksuat Lake	2 single birds	Bragin 2008
21	5-6 October	Aksuat Lake	2 (pair)	
2007				
22	28 August	South part of Aksuat Lake, NNR	1	Bragin 2008

From 1997 to 2007, up to 48 Siberian Cranes were recorded in the site, with 14 sightings occurring during spring migrations and 34 during autumn migrations. The duration of Siberian Cranes staying in the nature reserve in autumn 2001 was near three weeks, in autumn 2002 it was more than 15 days, and in autumn 2006, nearly 20 days.


Photo by E. Bragin

IMPORTANCE FOR OTHER CRANE SPECIES

Eurasian (*Grus grus*) and Demoiselle (*Anthropoides virgo*) Cranes have breeding territories in the site. The number of breeding Eurasian Cranes in 1998 through 2006 varied from 9 to 20 pairs depending on the water level in the lakes. The number of Demoiselle Cranes was 8 to 14 nesting pairs in 2004 through 2006.

The Naurzum Lake System is characterized by the stopping-over of migratory Eurasian Cranes, and in some years summer groups of molting birds were recorded. In autumn, premigratory congregations of Eurasian Cranes consist of up to 3,000 (1993), and of Demoiselle Cranes, up to 132 (2005) (Bragin 1999, 2002b, 2006).


Photo by V. Potansky

IMPORTANCE FOR OTHER WATERBIRDS

During migration, the Naurzum Lake System supports the existence of a great number of waterfowl, including from 40,000 to 237,000 ducks and coots. Depending on water level, the number of flying geese in 1966 to 2005 fluctuated from 20,000 to 500,000 each year.

At the beginning of the 21st century, the Naurzum Lake System regularly supports more than 7% of the Black-Caspian Sea population of Whooper Swans


Photo by E. Bragin

(*Cygnus cygnus*), not less than 5% of the Siberian-Caspian population of Bewick's Swans (*C. bewickii*), up to 2.5% of the Western population of Lesser White-fronted Geese (*Anser erythropus*), up to 7% of the population of Red-breasted Geese (*Branta ruficollis*) in 2003 through 2006, more than 1% of the population of Dalmatian Pelicans (*Pelecanus crispus*) of the Southwest and South Asia (nesting birds: up to 42 pairs, stopping-over and flying birds: 400 individuals), and White Pelicans (*Pelecanus onocrotalus*) (nesting birds: up to 250 individuals; stopping-over and flying birds: 150 to 300 individuals). In the years with favorable ecological conditions, at least 1% of the Sociable Lapwings (*Vanellus gregarius*) population nest in the area.


Photo by V. Potansky


Photo by E. Bragin

NEGATIVE FACTORS

Impact from negative factors within the site has been minimized, and only fires are of significant concern. From areas surrounding the site, the main threats are: plowing of high watersheds and their slopes, overregulation of streams by dams, and fires.

Plowing of watersheds decreases the surface flow when snow is melting, especially in years with low soil moisture. Plowed fields form about 12% of the territory, but they occupy higher levels of the catchment area.

A great number of dams for estuary irrigation have been constructed at three main seasonal rivers that fill the Naurzum Lake System. Currently, 15 dams have been constructed; their total volume of water is more than 7 million m3; that is two to three times more than the volume of some of Naurzum Lakes. Negative impact from dams is made in two ways: in years with little water and during dry periods, a greater amount of surface flow in spring is blocked by dams, and drying up of lake hollows occurs rapidly; in years with increased moisture and a greater amount of surface flow, soil dams are washed out, and rivers become full of silt/become silted.

Fires have become major factors of negative impact on the ecosystems of the region during the last several years. Every year, they expand to vast steppe areas, burning vegetation along riverbeds and lake hollows. Annual burning-out of vegetation changes its character and makes a direct impact on animal populations.

CONSERVATION MEASURES TAKEN/PROPOSED

The site is located within Naurzum National Nature Reserve, the highest category of specially protected natural territories of Kazakhstan.

Within the framework of the UNEP/GEF Siberian Crane Wetland Project proposals are in place to include sustainable use of surface waters in the Naurzum district, with a priority on the Naurzum Lake water supply, into the management plan on water resources of the Kostanay Region and the preparation of a basin agreement. In 2007 and 2008 a draft of the basin agreement was prepared, approved and signed. The agreement has special annex in which water volume for every dam was stated and main measures for reform of hydrological constructions were determined. It was decided to dismantle three dams. In October 2009 the agreement was presented in the meeting of the Tobol-Turgai Basin Council.


Photo by E. Bragin

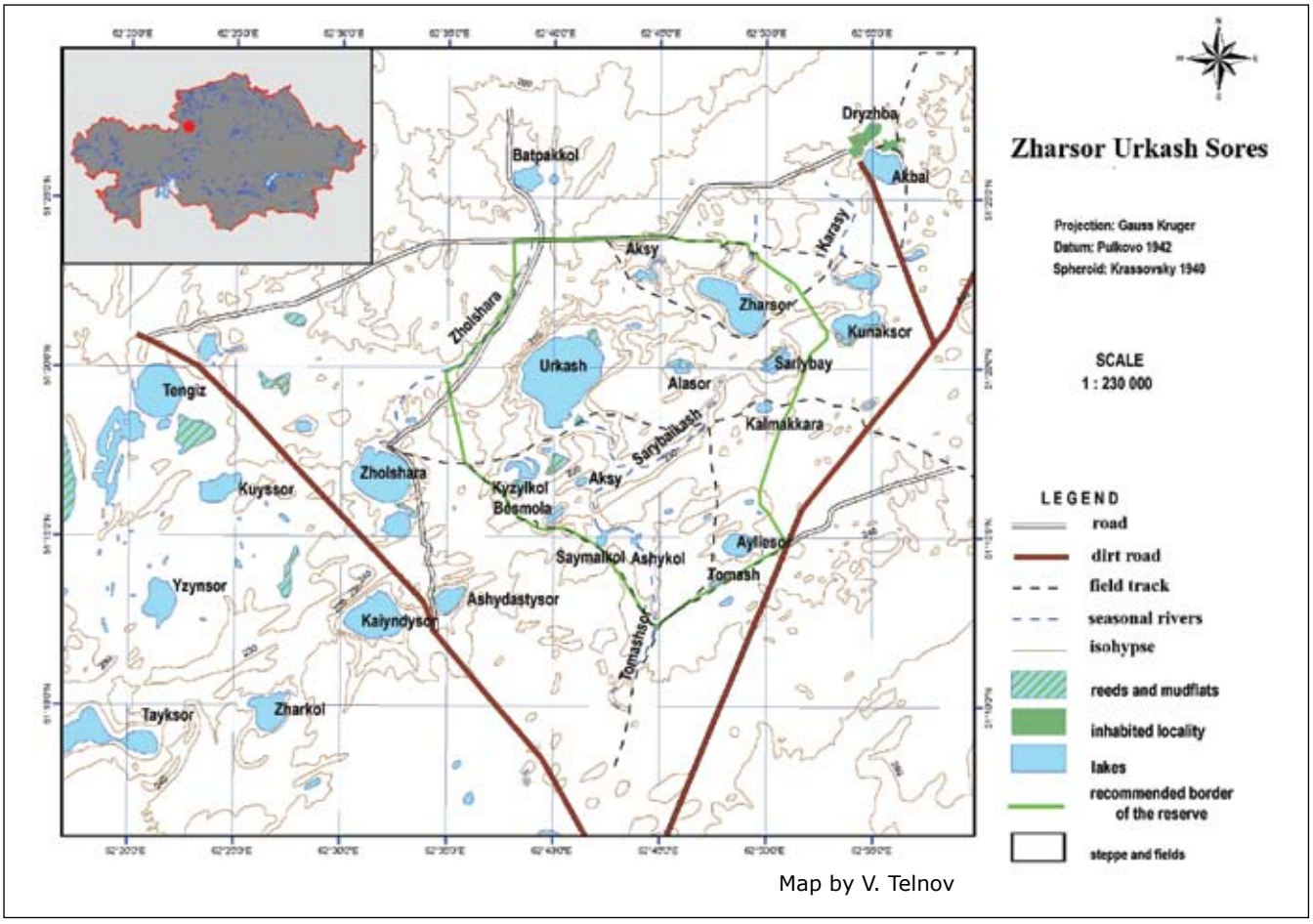
INTERNATIONAL IMPORTANCE

Naurzum Lake System was included in *the List of Wetlands of International Importance (Ramsar)* in July 2009. It is an *Important Bird Area* Birdlife International called "Naurzum State Nature Reserve". The site is a part of World Heritage Site, called "The Saryarka—Steppe and Lakes of Northern Kazakhstan". In May 2007 it is designated as a part of the *Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*


Photo by V. Potansky

6. Zharsor-Urkash Lake System

Compiler:
Eugeni Bragin, Naurzum National Nature Reserve



Map by V. Telnov

GEOGRAPHICAL COORDINATES

51°22'N, 62°48'E

ALTITUDE

202-240 m
above sea level

AREA

the total area is about 41,250 ha, including lakes area – about 3,700 ha

OVERVIEW


Photo by A. Timoshenko

The site lies in the Kamystin District of the Kostanay Region. The nearest city is Lissakovsk, which is located 130 km northward, and the administrative center of the region is Kostanay City, located 210 km to the north-northeast.

The Zharsor-Urkash Lake System is in northwestern Kazakhstan, in the central part of Sapsynagash Hollow (Tobol-Turgay watershed), which, in turn, is located within the Tersek-Adayev Plateau. The site stretches across 160 km, from the hilly Zauralye Plateau to the Turgai Hollow. From the north and south, the hollow is bordered by the clay plains of the Western Turgay Plateau.

Within the site there are 14 salt and freshwater lakes and a number of small water bodies, including tsome of artificial origin. The largest salt lakes are Urkash (1,150 ha), and Zharsor (600 ha). By the end of summer, after considerable water evaporation, depositing of salts begins and some lakes dry up completely. Freshwater lakes include: Batpakkol (350 ha), Akbay (315 ha), Kyzylkol (206 ha), Saumolkol (60 ha), Kaeasor (150 ha), Aksu (130 ha), Yegizbay (50 ha), and others that are loacted much higher than at groundwater level. They are filled by surface flow exclusively during spring, a period of high water. Therefore, depending on the amount of moisture, there are manyfluctuations from year to year, and summer evaporation preconditions water level fluctuation.

The climate is related to a semi-arid continental type, with cold winters, hot summers and strong winds. The average annual precipitation is about 233 mm, 75% of which falls in warm seasons. The average air temperature is +2^{0}C with a fluctuation amplitude from –40^{0}C to +45^{0}C.

IMPORTANCE FOR THE SIBERIAN CRANE

Zharsor Lake is a regular stopover site of the Siberian Crane. From 1997 to 2006 at least four sightings of Siberian Cranes in the spring (one sighting) and autumn (three sightings) migration periods are known (Table 1). Siberian Cranes (single or pairs) were observed in Eurasian Crane flocks as well as separately.

Table 1. Sightings of the Siberian Crane in Zharsor-Urkash Lake System since 1998

#	Data	Place	Number of Siberian Cranes	Data Sources
1	Early May 1998	Kunaksor Lake, east of Zharsor Lake, in a flock of Eurasian Cranes	1 adult	Bragin 2002
2	From late August to early September 2004	North shore of Zharsor Lake, in a flock of Eurasian Cranes	1 adult	Bragin 2005a Bragin 2005b
3	17 September 2005	Zharsor Lake	2 (pair)	
4	28 September 2005	Zharsor Lake	1 adult	

There is also information about a Siberian Crane pair with a flock of Eurasian Cranes in September 2000 or 2001 provided by hunters, but this information should be checked.

IMPORTANCE FOR OTHER CRANE SPECIES

The site territory is of great importance for pre-migratory congregations of Eurasian Cranes (*Grus grus*) and during migration periods. Eurasian Cranes numbered up to 15,000 to 20,000 birds each year, from 1998 through 2002. By the end of September 1998 and into 1999 the number of cranes staying for the night at Zharsor Lake was 8,000 to 10,000 birds, and from 1998 through 2001 there were 15 thousand to 20,000 birds. On 24 and 25 September 2002, from 7,000 to 9,000 birds were counted (Bragin 2002b, 2007b; Kovshar 1999, 2002). In some years, cranes use this site from the middle or end of August to the beginning of October.


Photo by A. Salemgareev

IMPORTANCE FOR OTHER WATERBIRDS

During seasonal migrations, the lake system supports more than 20,000 migratory waterbirds, mainly sandpipers and geese. In spring, at the end of April or May, the most numerous species are sandpipers. Tens of thousands of northern sandpiper species stay at the shores of the salt lakes for feeding. At the end of the migration period on 9 June 2000, at the southern part of Zharsor Lake there were 3,500 Little Stints (*Calidris minuta*), Curlew Sandpipers (*C. ferruginea*), Dunlins (*C. alpina*), Temminck's Stints (*C. temminckii*) and Ruffs (*Philomachus pugnax*). At the end of May 2001, about 11,200 sandpipers were recorded at the same place, including, in addition to those mentioned above, Red-necked Phalaropes (*Phalaropus lobatus*), Sanderlings (*Calidris alba*), Turnstones (*Arenaria interpres*), Terek Sandpipers (*Xenus cinereus*), Grey Plovers (*Pluvialis squatarola*) and others species (Bragin & Bragina 2002, Bragin 2002).


Photo by V. Potansky


Photo by C. Prentice

The number of geese stopping over at the site lakes reaches several tens of thousands each year. Geese stop at Aksu, Kunaksor and Akbay lakes. At Batpakkol Lake, according to reported data on 9 September 1996, there were 22,000 geese; on 6 October 1999, 29,960 geese; on 4 and 5 October 2000, more than 20,000 geese; on 10 October 2005, 10,052 geese. Of the total number of geese, about 80% consists of White-fronted Geese (*Anser albifrons*) and 10 to 10.5% consist of Greylag Geese (*A. anser*). A considerable number of ducks, coots and grebes stopovers here.

During autumn migration, the site supports more than 1% of populations of the Lesser White-fronted Geese (*Anser erythropus*), the Red-breasted Geese (*Branta ruficollis*), probably the White-headed Ducks (*Oxyura leucocephala*) and Sociable Lapwings (*Vanellus gregarius*). The main stopover water body is Batpakkol Lake. At the end of the 1990s the number of Lesser White-fronted Geese on some September days reached 620 to 740 birds (Tolvanen & P. Pynnonen 1998, Tolvanen et al. 1999, Tolvanen et al. 2000); Red-breasted Geese, 1,500 birds. In 2005, 107 Lesser White-fronted Geese and 384 Red-breasted Geese were registered (UNEP/GEF SCWP Report 2005). In addition, on 17 through 19 September 2005, 50 White-headed Ducks were registered at two lakes, and in 2002, two Sociable Lapwings were recorded in the area of Batpakkol Lake and two nesting pairs of this species were found in 2003 in the western area of Urkash Lake.

NEGATIVE FACTORS


Photo by E. Ilyashenko

Fires have been the main cause of negative impact on natural ecosystems of the region for the last several years. Every year, they spread through great steppe areas, burning vegetation along riverbeds and lake hollows. As a result of this annual burning-out of vegetation, it's the site's character is changing; fires also directly impact animal populations. Plowing of land plots for melon fields has alocal impact, reducing the area of virgin steppes and the habitats of aboriginal fauna species. Sometimes there are cases of poaching, including cranes. Cattle grazing, in view of its considerable increase, and also due to the application of toxic chemicals on grain crops for cattle, may be a potential threat.

There is a proposed project for the extraction of bauxite deposits, located at a distance of 5 to 7 km west of Batpakkol and Urkash lakes. Its realization, which will start in 2012, may cause a number of threats related to the development of open quarries and anthropogenic water pollution.

CONSERVATION MEASURES TAKEN/PROPOSED


Photo by C. Prentice

According to the proposal of the working group under the WWF project implemented in 1998 and 1999, Kostanay Region Territorial Department on Forestry and Bioresources issued the order (#12, dated 14.03.2001), which states that Urkash-Zharsor Lake System is included in the list of the most significant wetlands of the region. On the basis of this order the Kostanay Regional Society of Hunters and Fishermen, the group responsible for hunting units in the territory, established non-disturbance zones that prohibit hunting, covering a 500 meter wide strip around the shoreline at Zharsor and Batpakkol lakes. Documents have been prepared for inclusion of the site in IBA network and for nomination for the status of a wetland of international significance.

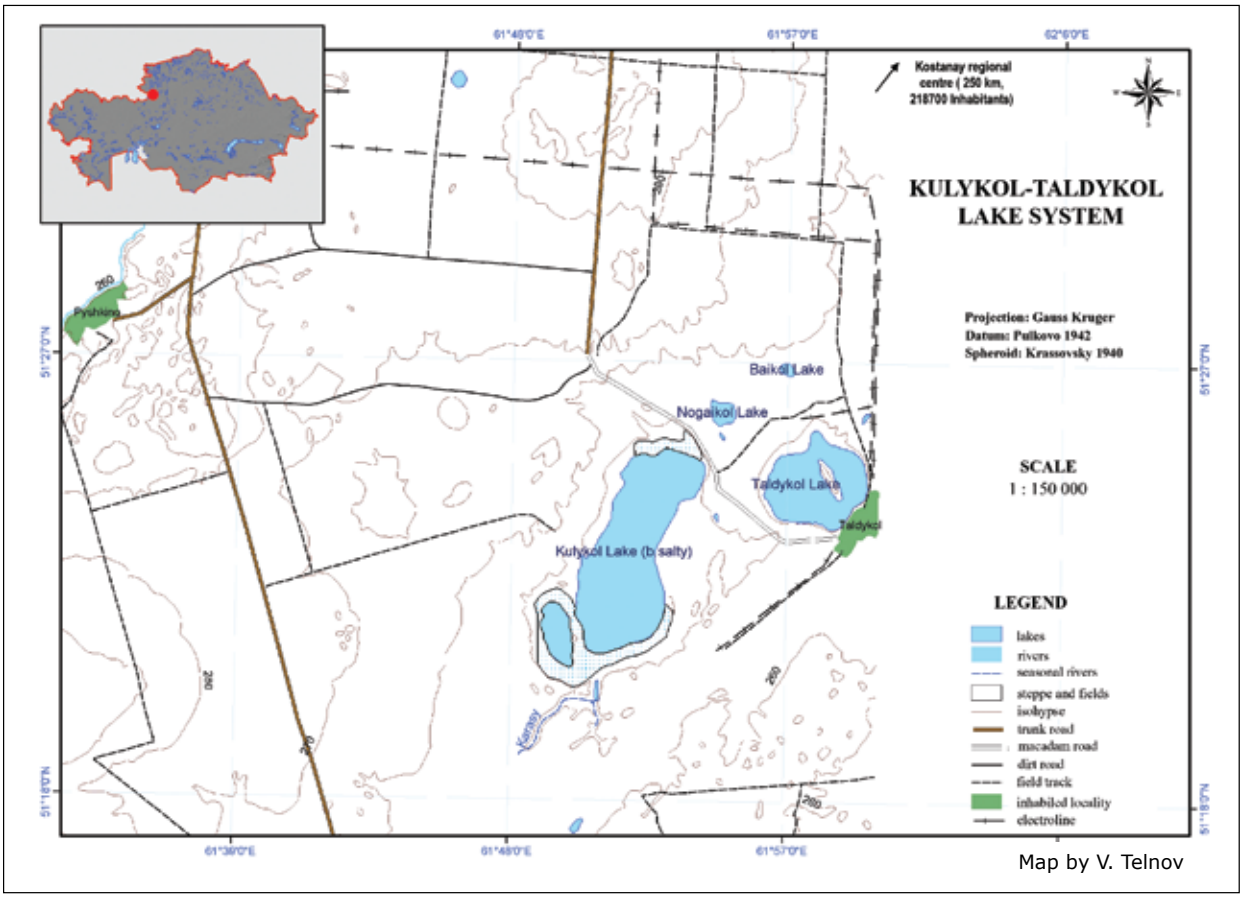
Within the framework of the UNEP/GEF Siberian Crane Wetland Project, activity on the establishment of a national Zharsor-Urkash Wildlife Refuge (zakaznik), which will include more than 70% of the site territory (29,334 ha), is being implemented. The Government of the Republic of Kazakhstan issued the Decree (#570, dated 11.06.2008) on the establishment of Zharsor-Urkash State Wildlife Refuge at the republic level under responsibility of Naurzum State Nature Reserve.

INTERNATIONAL IMPORTANCE

The Zharsor-Urkash Lake System is included in *the List of Wetlands of International Importance (Ramsar)* in July 2009. The site is an *Important Bird Area* Birdlife International called "Zharsor-Urkash Salt Lakes". In May 2007 it is designated as a part of *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

7. Kulykol-Taldykol Lake System

Compiler:
Eugeni Bragin, Naurzum National Nature Reserve



Map by V. Telnov

GEOGRAPHICAL COORDINATES

51°23'N, 61°52'E

ALTITUDE

min. 246.9 m, max. 60.4 m above sea level

AREA

The total area is 8,300 ha, including Kulykol Lake – 3,370 ha, and Taldykol Lake – 1,120 ha

OVERVIEW


Photo by V. Potansky

The site lies in the Kamistin District of the Kostanay Region, Northern Kazakhstan. It is 230 km southwest of the regional administrative center, Kostanay city.

The lakes are located on the east side of the Tobol River on the border of the Tersek-Adayev Plateau and the hilly Zauralye Plateau. Kulykol-Taldykol Hollow is located at a distance of 13 km eastward of the Tobol riverbed on the northwest slope of Sapsinagash Hollow. It is situated in the Tobol-Turgai interfluvial area, with stagnant wetlands and rare network of short rivers that dry up regularly. Besides these large lakes (Kulykol and Taldykol), there are also small lakes in the hollow: Nogaikol (about 200 ha), and Baikol and Dongelekkol.

Kulykol Lake is a freshwater lake, but when the water is shallow it is more saline. All the lakes in the system have cyclically changing hydrological regimes and typical border-curtains or mosaic thick reeds. The latter, with locally developed cattail associations, bulrush and Alismataceae, covers up to 50% of the water area. Taldykol Lake is of a mosaic type, and when it dries up it becomes overgrown with reeds, making it more like

a swamp. In the periods with high and average water level this lake is an area of mass nesting and moulting of water and wetland birds, one of the most important places of stopover for Anseriformes, especially geese, Rallidae and Limicolae during migrations.

IMPORTANCE FOR THE SIBERIAN CRANE

The site is a stopover site for Siberian Cranes during migration. During the last 10 years there were two definite sightings of Siberian Cranes: one bird was registered at Kulykol Lake in September 1997 (Bragin 2002b), and pair of birds was observed between 18 and 20 August 2003 at a hollow near Kulykol Lake (Bragin 2004).

IMPORTANCE FOR OTHER CRANE SPECIES

The site is important for other crane species; 2 to 3 pairs of Eurasian Cranes (*Grus grus*) (Taldykol Lake) and 1 to 2 pairs of Demoiselle Cranes (*Anthropoides virgo*) regularly nest here. About one thousand Eurasian Cranes stop in Kulykol Lake during autumn migration. In some years (2000) there are groups of non-breeding birds in the summer time.

IMPORTANCE FOR OTHER WATERBIRDS


Photo by V. Potansky

The Kulykol-Taldykol Lake System is one of the most important stopover places for migratory waterbirds. When the water level is high, up to 450,000 birds stop at the lakes in the site during autumn migration. During 1996 to 1999, at the peak of migration in the beginning of October, from 86,000 to 160,000 geese were recorded at one count, 57.0 to 65.9% of which were White-fronted Geese (*Anser albifrons*), 8.4 to 10.1% were Greylag Geese (*A. anser*), 2.2 to 7.0% were Lesser White-fronted Geese (*A. erythropus*) and 23.5 to 25.9% were Red-breasted Geese (*Branta ruficollis*) (Tolvanen & Pynnonen 1998, Tolvanen et al. 1999, Tolvanen et al. 2000).

Dominating duck species are Mallards (*Anas platyrhynchos*), Pintails (*A. acuta*), Common Teals (*A. crecca*), Tufted Ducks (*Aythya fuligula*), Smews (*Mergus albellus*), and Eurasian Coots (*Fulica atra*). In some years, Ruddy Shelducks (*Tadorna ferruginea*) reach up to 10,000 to 12,000 birds. In the period of spring migration the main migrants are ducks, the most numerous of which are Tufted Ducks and Common Pochards (*Aythia ferina*), making up 43.0% and 21.5% of the total number of birds. Common Goldeneyes (*Bucephala clangula*) are usually 2.1% of the waterbird population. Other groupsinclude seagulls: Black-headed Gulls (*Larus ridibundus*) at 23.6%, Little Gulls (*Larus minutus*) at 2.1% and Herring Gulls (*L. argentatus*). Also, a mass migration of snipes is common, bringing in: Ruffs (*Phylomachus pugnax*), Little Stints (*Calidris minuta*), Dunlins (*C. alpina*), Red-necked Phalaropes (*Phalaropus lobatus*) and others, as well as gulls, terns, and Eurasian Cranes. In some years there are Great-crested Grebes (*Podiceps cristatus*) and Black-necked Grebes (*P. nigricollis*). In September 2005 the concentration of birds included 314 species, and in 2006 the total number of birds was 77,600.

During autumn migration the site is critically important for the Lesser White-fronted Goose; about 44% of the Western population stopped here from 1998 to 2002. In contrast due to uncontrolled hunding, from 2003 to 2006 - only 1% of the population stopped at the site during migration. Similarly, more than 47% of the Red-breasted Goose population stopped here in 1998, and in 2005 and 2006 only 4% stopped at the site. Dalmatian Pelicans (*Pelicanus crispus*) (27 to 39 pairs) nest in years with favorable ecological conditions.

NEGATIVE FACTORS

In the past, the main negative factors that impacted the ecological conditions of the site were trampling by cattle and mowing of coastal vegetation, pollution by pesticides and manure, disturbance by fishermen, and poaching. Trampling of coastal vegetation resulted in reduction of nesting area and destruction of nests.

Currently, the greatest threat is from fires, which often expand to the steppe and thick reeds in autumn. Every year the character of burned steppe vegetation changes and makes a direct impact on animal populations. Stress from poaching is insignificant.

Plowing of catchment areas, and probably climatic changes as well, have made a considerable impact on the hydrological regime of the lakes. Plowing decreases the surface flow when snow is melting, especially in years with little moisture content in the soil. Outside the boundaries of the lake hollows, plowed fields occupy about

80 to 85% of the site. Since 2007 the lake system has been in a stage of extreme scarcity/severe decline/depreciation; these days, water only remains in Taldykol Lake and in the north part of Kulykol Lake.

Kulykol and Taldykol lakes and the surrounding area are within the economic unit of the society of hunters. However, a non-disturbance zone has been established and hunting has been prohibited at Kulykol Lake within a 3-km coastal zone, according to the decision of administration bodies of the region.

CONSERVATION MEASURES TAKEN/PROPOSED

In 2002 the Kostanay Territorial Department of Forestry and Hunting made proposals (#251 on 21.08.02) on the establishment of a nature monument at Kulykol and Taldykol Lakes for the Forestry and Hunting Committee.

In 2006, within the framework of the GEF/UNEP/WWF "Econet-Central Asia" Regional Project, a national expert group prepared and submitted to the Forestry and Hunting Committee a scheme of Kazakhstan ecological networks. The scheme proposes the organization of a Republic Wildlife Refuge at Kulykol-Taldykol Lake System.

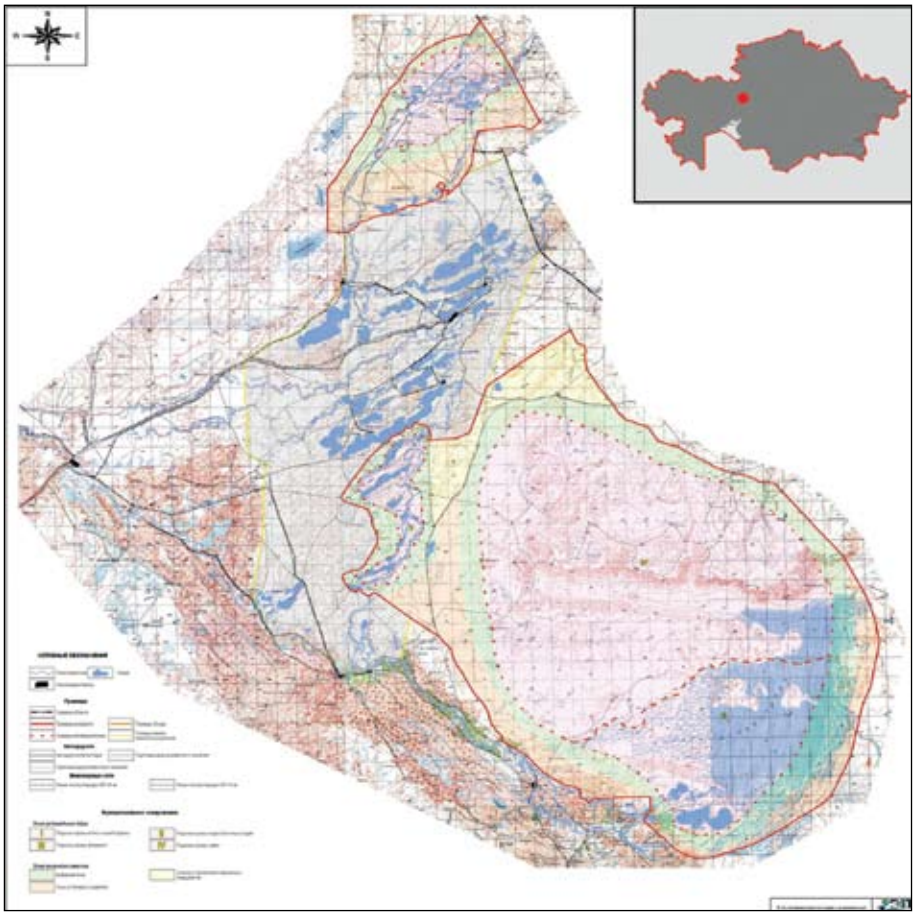
Since 2005 the territory of the wetland has been one of five project sites of the UNEP/GEF Siberian Crane Wetland Project, in the framework of which proposals on lake protection and corresponding documents for state management bodies were prepared.

INTERNATIONAL IMPORTANCE

Kulykol-Taldykol Lake System was included in *the List of Wetlands of International Importance (Ramsar)* in May 2009. It is an *Important Bird Area* Birdlife International. In May 2007 the site is designated as a part of *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

8. Turgai-Irgiz Lake System

Compiler:
Eugeni Bragin, Naurzum National Nature Reserve



GEOGRAPHICAL COORDINATES

48°40'N, 62°08'E

ALTITUDE

75-100 m above sea level

AREA

348,000 ha
(excluding adjusted water bodies)

OVERVIEW


Photo by E. Bragin

The site is located in Irgiz District of Aktyubinsk Region, 70 km northeast of the settlement of Irgiz and 400 km southeast of the town of Aktyubinsk.

Geographically the site is located in the south part of Turgai Depression, in the lowlands of Turgai, Irgiz and Uliyak rivers which join together before entering the Chelkar-Tengiz Shor. Numerous shallow lakes of varying salinity (some without outflow) set in an arid plateau, dissected by numerous drainage channels. The lakes have a natural hydrological cycle of several years and water levels fluctuate widely. The largest lakes (Kyzykol, Zharkol, Baitakkol, Kogakol, Aierkol, Maikol and Sholakkol) and a few other lakes are floodplain lakes. They are filled during spring floods from the Turgai and Uliyak rivers. Most of the lakes stretch along the Turgai river course. The lakes are fringed by reedbeds, and sedges predominate in floodplain meadows.

The climate is arid, acutely continental, with cold winters with little snow, hot summers and strong winds.

IMPORTANCE FOR THE SIBERIAN CRANE

Turgai-Irgiz Lake System is located on the Siberian Crane's Central Asian Flyway. Probably the site served as one of the most important migration stopovers for this flyway in the past. In the 18th and 19th centuries Siberian Cranes were also recorded during summer time, and it has been proposed that they even bred here (Nazarow 1886, Sushkin 1908). In the 20th century, nearly 10 sightings were registered (Table 1), despite irregular observations.

Table 1. Sightings of the Siberian Crane in Turgai-Irgiz Lake System in the 20th century

#	Data	Place	Number of Siberian Cranes	Data Sources
1	20 October 1941	Djar-Kamysh Lake	30	Burchak-Abramovich 1966
2	October 1956	Turgai Lowland	?	Varshavsky 1977
3	18-19 April 1961	Turgai Lowland	56 (a few sightings of Siberian Crane groups during a week	Elkin 1976
4	16 October 1974	Zalauly Lake	3	Berezovsky
5	6 August 1983	Zharbasy Lake, 20 km from the mouth of Uliyak River, Irgiz District	1	Auezov 1991
6	9 May 1992 or 1993	Ainakol Lake, on the border with Aktyubinsk Region (according to personal communication from Yu. Golovachev, Head of Regional Hunting Society	1	Bragin 2008

IMPORTANCE FOR OTHER CRANE SPECIES

Eurasian (*Grus grus*) and Demoiselle (*Anthropoides virgo*) Cranes stop at the site during migration. In September 2005, 1050 cranes of both species were counted near the one of lakes (Kolbintsev & Bekbayev 2005). Demoiselle Cranes breed around lakes surrounded by semi desert.

IMPORTANCE FOR OTHER WATERBIRDS

The site is one of the very important wetlands of Kazakhstan as well as Central Asia as whole. Waterfowl fauna includes more than hundred species. Internationally important numbers (from two to three million) of various species of waterbirds use the site for breeding, molting, feeding and staging. Estimated numbers for one count can reach 250,000 birds. In September 2005, nearly 156,000 birds were counted, and in July 2006 – nearly 450,000 birds (Yerokhov & Gavrilov 2007). The site is a mass moulting place for some species. In years with high water level, huge numbers of Greylag Geese (*Anser anser*) and ducks (including White-headed Ducks (*Oxyura leucocephala*) and Ferruginous Ducks (*Aythya nyroca*) gather here for moulting. The site provides habitat for a population of the globally threatened Dalmatian Pelican during molting. In good years, big breeding colonies of White (*Pelicanus onocrotalus*) and Dalmatian (*P. crispus*) Pelicans, Great Cormorants (*Phalacrocorax carbo*), and herons (Ardea spp.) are active in the lakes. Breeding of Spoonbills (*Platalea leucorodia*) and Glossy Ibises (*Plegadis falcinellus*) have also been registered in such years.


Photo by E. Bragin


Photo by E. Bragin

NEGATIVE FACTORS

In the past, local people were occupied with cattle-breeding and fishing. It was a cause of bird disturbance. Nowadays, the human population density is very low, however disturbance still exists. Human activities include commercial fishing, agriculture, and harvesting of rush. The site was placed on the Ramsar Convention's Montreux Record* in 1993 because upstream dams curtail the water supply reaching the site, thus altering its ecological character. Other threats to the ecological character of the site are overgrazing by the large numbers of cattle and sheep that are raised in the area. One more negative factor is fire covering huge areas of reed beds. A few cases of poaching have been registered.


Photo by E. Bragin

CONSERVATION MEASURES TAKEN/PROPOSED

Turgai Republic Wildlife Refuge was established in 1968 and is still in effect. In 2007, some lakes were included in Turgai Nature Reserve, and the reserve became responsible for supervision of the wildlife refuge. A management plan for the site is under development.


Photo by E. Bragin

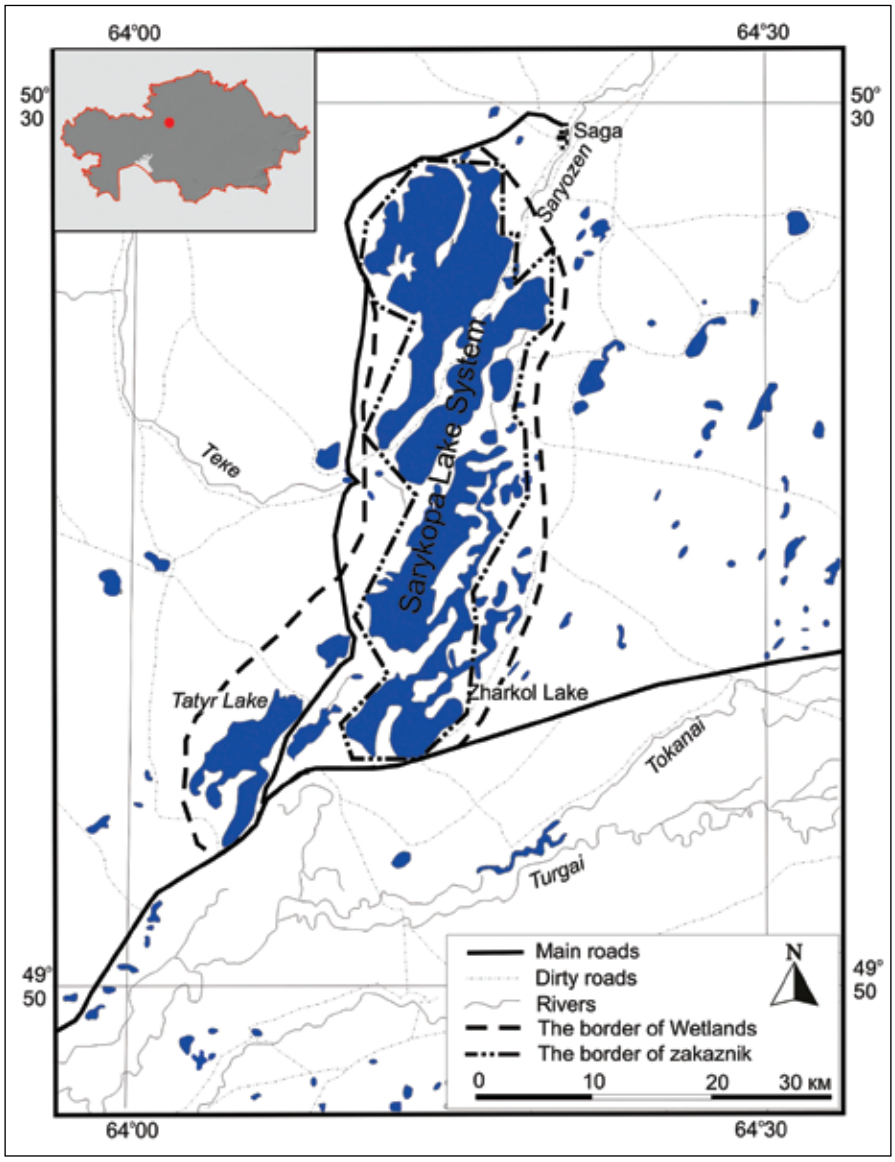
INTERNATIONAL IMPORTANCE

Turgai-Irgiz Lake System was included in *the List of Wetlands of International Importance (Ramsar)* in 1970s during the USSR time. In 2008 the site was listed as an *Important Bird Area* Birdlife International.

**The Montreux Record is a register of wetland sites on the List of Wetlands of International Importance where changes in ecological character have occurred, are occurring, or are likely to occur as a result of technological developments, pollution or other human interference. It is maintained as a part of the Ramsar List. For further information, please see: http://www.ramsar.org/cda/en/ramsar-documents-montreux-montreux-record-23759/main/ramsar/1-31-118%5E23759_4000_0__*

9. Sarykopa Lake System

Compiler:
Eugeni Bragin, Naurzum National Nature Reserve



GEOGRAPHICAL COORDINATES

50°25'N, 64°08'E

ALTITUDE

101-107 m
above sea level

AREA

33,600 ha
(excluding adjusted water bodies)

OVERVIEW

The site is located in Jangeldinsky District of Kostanai Region, 300 km south of Kostanai City and 60 km northeast of the settlement of Turgai.

Sarykopa Lake System is located in the south part of the Turgai Depression near the southern flanks of the West Turgai Mountain Plateau. This lake system is the one of biggest fresh lake systems in Kazakhstan.

Sarykopa Lake stretches 50.2 km from north to south and has a width of 12.5 km (Muravlev 1960). Lake bodies are joined by deep channels. The mean water


Photo by E. Bragin

depth is 1 to 1.5 m. The lake is bordered by wide (from 200 m to 1-3 km) and high (up to 3-4 m) reeds. Some stretches are overgrown with mosaics of reeds. Low banks transition to flooded meadows, sometimes alkaline. Vegetation consists of desert complexes with spirea bushes. Uplands are occupied with steppe vegetation.

The lake hydrology has a cyclic regime. In years with low water levels, Sarykopa Lake is divided into a few isolated lakes. The north part of the lake dries regularly. During the last decade, the maximum floods were observed in 2002 and 2007. Spring water yield from the area of 11,000 km2 goes along two quite big rivers – Sary-Uzen and Teke and then to the Turgai River.

The climate is arid, acutely continental, with a cold winter, hot summer and strong winds. Average temperature of July is +24°C, and January –17°C, with absolute minimum of –40°C. Annual precipitation is 175-200 mm.


Photo by E. Bragin


Photo by E. Bragin


Photo by E. Bragin


Photo by E. Bragin

IMPORTANCE FOR THE SIBERIAN CRANE

In the middle of the 19th century, Sarykopa Lake System was probably a very important migration stopover for the Siberian Crane in Kazakhstan. Local people knew these birds; they were recorded here in summer time also (Sushkin 1908). In the 20th century, observations during migration were almost not conducted because of the remoteness and difficulty to access the site. Therefore information on Siberian Cranes is almost absent. There are only a few reliable data: in autumn 1998, the Siberian Crane marked with a satellite transmitter stopped in the north part of the lake; in the same year, 1998, an observer of the hydrological station sighted a pair of the Siberian Cranes near the mouth of the Sary-Uzen River which enters Sarykopa Lake (Bragin 2002a).

IMPORTANCE FOR OTHER CRANE SPECIES

From 1986-2008, Eurasian Cranes (*Grus grus*) bred in reeds bordering Sarykopa Lake (Bragin 2002b). Probably it is the biggest breeding flock in Kazakhstan. Besides, Eurasian Cranes gather here for moulting in some years and regularly stop during migration. Demoiselle Crane (*Anthropoides virgo*) is a common breeding species in steppe adjacent to the lake.

IMPORTANCE FOR OTHER WATERBIRDS

The waterfowl fauna includes nearly 100 species. Sarykopa Lake System is an important site for breeding bird colonies. In 1985-1987, the number of White Pelicans (*Pelicanus onocrotalus*) was from 38 to 400 breeding pairs, and the number of Dalmatian Pelicans (*P. crispus*) was from 50 to 80 breeding pairs. In August 1987, during an aerial census, the number of White and Dalmatian Pelicans was counted as 1705 and 350 birds respectively, and in 1988 – 1097 and 179 respectively as well as 400 Spoonbills (*Platalea leucorodia*) (Vinogradov & Auezov 1991). In 2003, in the south part of the lake stretch (Zharkol Lake), representing less than 5% of total area of Sarykopa Lake System, 120-160 White and 260-300 Dalmatian Pelicans bred there, and in 2004 – 250 and 200 pairs correspondingly (Bragin 2006). In the west part of this stretch, a colony of

Spoonbills with 80 to 100 birds bred in 2003. White-headed Ducks (*Oxyura leucocephala*), Ferruginous Ducks (*Aythya nyroca*), and Sociable Lapwings (*Vanellus gregarius*) were recorded in the breeding season.

In good years, the lake serves as a breeding and moulting place for a huge number of Greylag Geese (*Anser anser*) and ducks, coots, grebes, gulls and herons. In 1971, more than 20,000 moulting Greylag Geese and more than 70,000 ducks: Wigeons (*Anas penelope*), Pintails (*A. acuta*), Common Teals (*A. crecca*), Garganeys (*A. querquedula*), Shovelers (*A. clypeata*), Gadwall (*A. strepera*), and Mallards (*A. platyrhynchos*) and Mute Swans (*Cygnus olor*) (Auezov 1974). A large number of northern-breeding wader species spent the summer at the site: Little Stints (*Calidris minuta*), Dunlins (*C. alpina*), Curlew Sandpipers (*C. ferrugine*a), Phalaropes (Phalaropus spp), Ruffs (*Philomachus pugnax*) and others. During migration, Lesser White-fronted Geese (*Anser erythropus*) are recorded in small numbers. In October 1997, 32,000 White-fronted Geese (*Anser albifrons*), 26 Lesser White-fronted Geese, and nearly 700 Red-breasted Geese were counted (*Branta ruficollis*) (Yerokhov et al. 2000).

NEGATIVE FACTORS

The main threat is fire covering a huge area of reeds. Overgrazing takes place in the north part of the lake; reeds along the lake banks are cut. As a result, breeding sites of ducks are destroyed and their clutches perish. Poaching pressure is not strong during recent years because of the low density of the human population and the site's remoteness. The cyclical hydrological regime strongly impacts the dynamics of the waterfowl population.

CONSERVATION MEASURES TAKEN/PROPOSED

In 1966-1967, Sarykopa Lake was included as a branch of Naurzum Nature Reserve. In 1986, the site was given the status of Republic Wildlife Refuge. In 1998 the wildlife refuge was moved under supervision of Naurzum Nature Reserve. It is planned to increase the conservation status of this refuge: in 2008, the State Committee of Forestry and Hunting of the Ministry of Agriculture signed a scientific justification for the establishment of Altyn-Dala Nature Reserve which will include Sarykopa Lake System. According to the Programme of the nature protected area development of the Republic of Kazakhstan, the Altyn-Dala Nature Reserve establishment is planned for 2012.

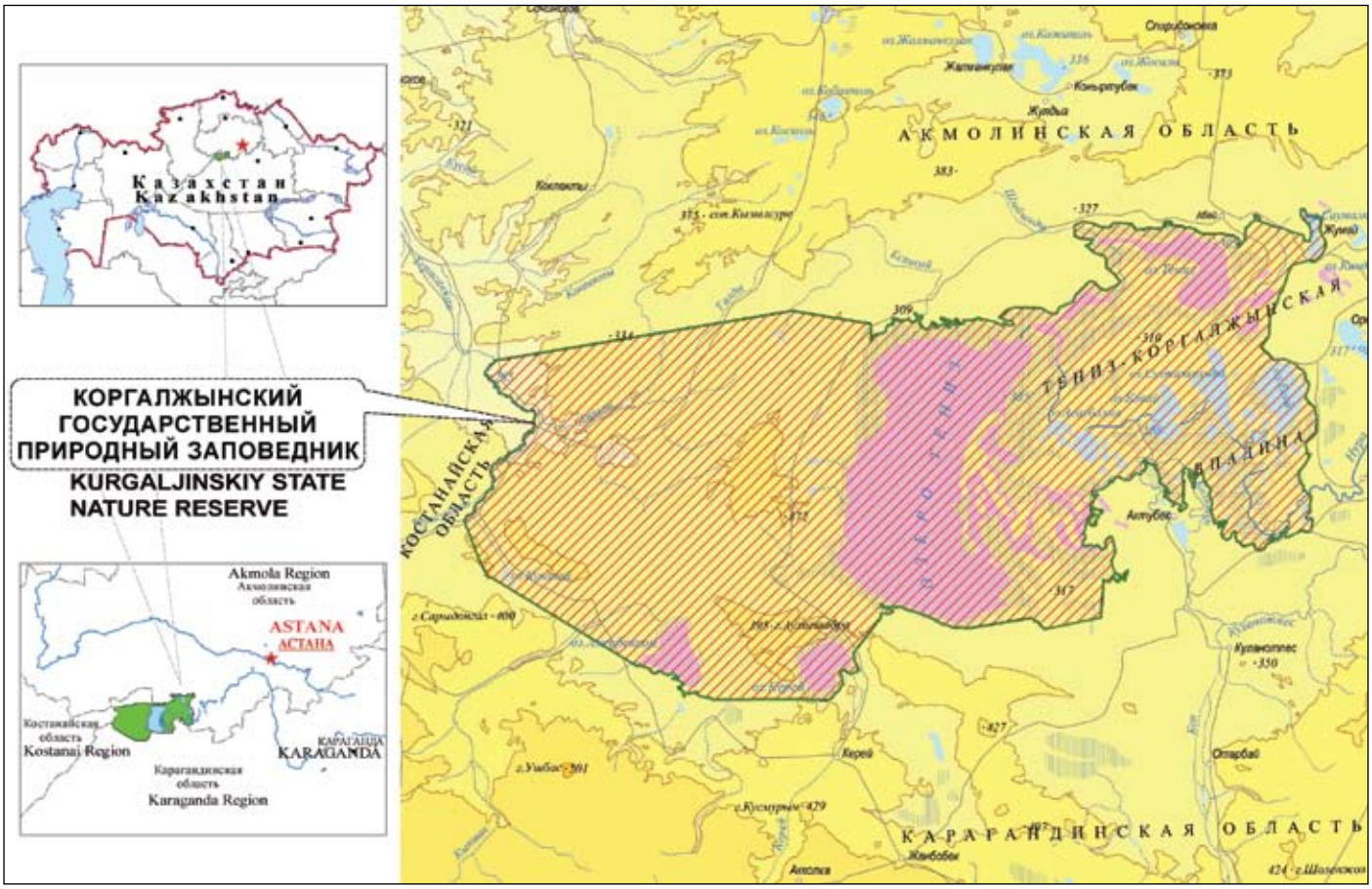

Photo by E. Bragin

INTERNATIONAL IMPORTANCE

Sarykopa Lake System is an *Important Bird Area* Birdlife International. In 2006 during the meeting on implementation of Ramsar and Bonn Conventions in the State Committee of Forestry and Hunting it was decided to include Sarykopa Lake System in *the List of the Wetlands of International Importance (Ramsar)* as a part of the Ramsar Site "Naurzum Lake System".

10. Tengiz-Kurgaljino Lake System

Compiler:
Eugeni Bragin, Naurzum National Nature Reserve



GEOGRAPHICAL COORDINATES

50°25'N, 64°08'E

ALTITUDE

101-107 m
above sea level

AREA

33,600 ha
(excluding adjusted water bodies)

OVERVIEW

The site is located in Kurgaljinsky District of Akmolinsk Region and in Nurinsky District of Karaganda Region, 130 km southwest of Astana City.

Tengiz-Kurgaljino Lake System is located in Central Kazakhstan in Tengiz-Kurgaljino Depression. The system includes Tengiz Lake, the biggest salt lake in Kazakhstan, with area of 113,600-159,000 ha as well as numerous fresh and brackish lakes in the lowlands of the Nura and Kylanutpes rivers, which are connected with Tengiz Lake by chanals. Fresh and brackish lakes are bordered with spacious reeds.

The lakes have a cyclical hydrological regime. However, the water level in Tengiz-Kurgaljino Lake System is rather stable compared to other water bodies in the


Photo by M. Koshkin

steppe zone because the Nura and Kulanuteps rivers start in the mountains and bring in a lot of water. In addition, the water level is supported by a system of dams and evacuation of water from the Irtysh-Karaganda channel to the Nura River.

The climate is arid, acutely continental, with cold winter, hot summer and strong winds.

IMPORTANCE FOR THE SIBERIAN CRANE

For the first time, Siberian Cranes were recorded in Tengiz-Kurgaljino Lake System in the mid-1930s. In the 1960s and 1970s, single birds, pairs or small groups were regularly sighted during migration. A total of 9 reliable sightings are known (Table 1).

Table 1. Sightings of the Siberian Crane in Tengiz-Kurgaljino Lake System

#	Data	Place	Number of Siberian Cranes	Data Sources
1	13 May 1935	Tengiz Lake	2	Andrusenko 2007
2	3 July 1936	Near the settlements of Karazhar	1	Dolgushin 1960
3	13 May 1969	Tengiz Lake	4	Andrusenko 1987, 2007; Andrusenko & Khrokov 1981; Kovshar 1982
4	16 April 1975	Near the village of Naguman	5	
5	8 September 1976	Tengiz Lake	1 (in a flock of Eurasian Cranes)	Andrusenko 2007
6	13-19 October 1978	Wheat field near Tengiz Lake	5? (feeding with Greylag and White-fronted Geese)	Andrusenko & Khrokov 1981
7	15 April 1979	Tengiz Lake	1	Andrusenko 1987
8	19 May 1979	Tengiz Lake	1	
9	30 May 1979	Tengiz Lake	2	
10	October 2000	Area "Zhuldyz", 50 km north from Tengiz Lake	One young Siberian Crane in a flock of Eurasian Cranes	Koshkin 2007

IMPORTANCE FOR OTHER CRANE SPECIES

Several pairs of the Eurasian Crane (*Grus grus*) breed at the site. More than a thousand Eurasian Cranes gather for moulting on islands in the Nura Delta. This species is numerous during migration: in 1999-2006 up to 3,500 birds stopped at Tengiz Lake; nearly 5,000 cranes fed in adjacent agricultural fields. The Demoiselle Crane (*Anthropoides virgo*) is a common breeding species with a density of one pair/20 km. In summer and autumn, Demoiselle Cranes congregate on fields with numbers of 5,000 to 10,000 birds (Koshkin 2007).

Photo by M. Koshkin

IMPORTANCE FOR OTHER WATERBIRDS

The site is an important breeding and moulting place as well as a migration stopover for a huge number of waterfowl (up to two million birds). 13 endangered species occur at the site. From 5 to 10% of the world population of Dalmatian Pelicans (*Pelicanus crispus*) breed at the site: up to 650 pairs in 2003. In autumn, from 15 to 20% of world population of White-headed Ducks (*Oxyura leucocephala*) (up to 2,000 birds) gather here. Tengiz Lake is the most northern breeding site of the Greater Flamingo (*Phoenicopterus roseus*).

NEGATIVE FACTORS

The main threats are connected with increasing use of water from the Nura River and its pollution because of the high density of human population and economic development in Astana and Karaganda cities. A potential threat is the negative impact of changes in the hydrological regime. Another threat is fire.


Photo by M. Koshkin

CONSERVATION MEASURES TAKEN/PROPOSED

Kurgaljino Nature Reserve was established for the protection of Tengiz-Kurgaljino Lake System. On 8 December 2008 Government of the Republic of Kazakhstan issued a decree of expanding area of Kurgaljinsky Nature Reserve in two times. Steppe sites as well as lake with great importance for waterbirds were included in protected area.

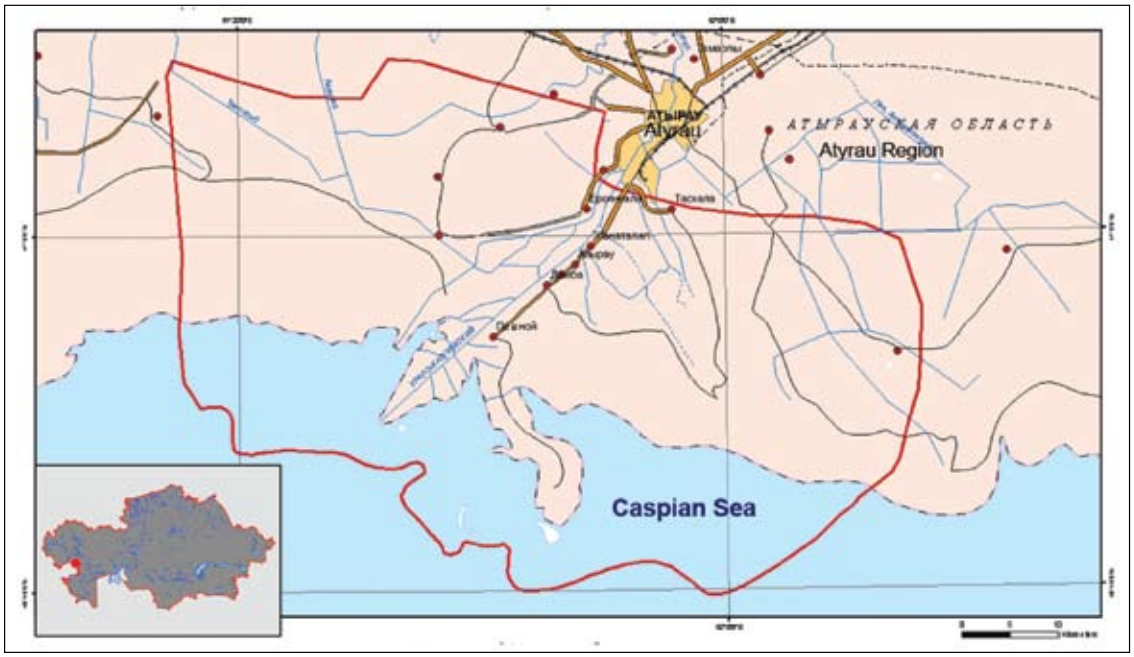

Photo by A. Koshkin

INTERNATIONAL IMPORTANCE

Tengiz-Kurgaljino Lake System is included in *the List of the Wetlands of International Importance (Ramsar)* in 1970s during the USSR's time and is now listed under the Republic of Kazakhstan. In 2007, the site was nominated as an *Important Bird Area* Birdlife International. The site is a part of the vast area designated in 2008 as a UNESCO World Heritage Site "Saryarka – Steppe and Lakes of North Kazakhstan" along with Naurzum Nature Reserve. A management plan for the site was approved by the State Committee of Forestry and Hunting of the Ministry of Agriculture of the Republic of Kazakhstan.

11. Ural River Delta and Nearest Caspian Sea Coastal Zone

Compiler:
Sergei Yerokhov, Agency of Applied Ecology of Kazakhstan



GEOGRAPHICAL COORDINATES

46º45'N; 51º50'E

ALTITUDE

min. 29 m and max. 26.5 m below sea level

AREA

Contemporary Ural River delta's is near 60,000 ha

OVERVIEW

The site lies in the Atyrau Region of northern Kazakhstan.

The wetland is located on the boundary between Europe and Asia, in the Caspian Lowlands, in the eastern part of the Caspian Sea's north coast.

This site is a freshwater system of river channels and lakes of various sizes with a usual depth of 1.5 to 3.0 m. Within the site there is an avantdelta, resulting in a slightly saline area of water with a depth of up to 2.5 or 3.5 m. There is a group of coastal peninsulas and the Peshnoy, Zyuydestova and Nordostova Shalygi sea islands. The water level is subject to seasonal changes and is influenced by spring floods, trade winds and westerlies, and longstanding changes in accordance with the general fluctuation of the Caspian Sea (its transgression and regression). In the delta area, the interchannel sections of land and shoals overgrow abundantly with reed and cattail, and on the higher places, shrubby and woody vegetation can be found.

The northern coastal zone is the most productive part of the Caspian Sea and at the same time it experiences the highest anthropogenic lead contamination as a result of its small volume and the decrease in the processes of natural purification, especially during winter.

The low salinity of the Caspian Sea is also significant, particularly in its northern part. The coastal territory of the sea, where about 90% of the river flow enters, is extremely shallow (the maximum depths on the boundary with the Middle Caspian Sea coast are about 25 to 30 m). The Northern Caspian Sea coast, with its slightly saline waters, well warmed during the summer period when the forage base is rich, is the main water area for young and adult Sturgeons (Acipenseridae). The most favorable conditions in terms of salinity have been developing in the eastern part during recent years.

The climate of the Ural River Delta and adjacent territories is formed under the influence of Arctic, Iranian and Turanian air masses. During the cold period of the year the dominant air masses are the ones coming from the western anti-cyclone spur; during the warm period of the year they are replaced by the superheated tropical masses from the deserts of Central Asia and Iran. Consequently, there is a continental and utterly draught-affected type of climate on the site territory. The region is characterized by abundant heat and the dominance of clear, dry weather. The duration of the period with an average day temperature of the air above 0°C is 180 to 210 days. Winter is reasonably cold. In January,


Photo by F. Sarayev


Photo by F. Sarayev


Photo by F. Sarayev


Photo by F. Sarayev

the coldest month, the average temperature is –8°C. Nevertheless, during some very cold winters the frosts can reach –38°C.

Wetlands of the Ural River Delta and the adjacent coast of Caspian Sea are a specific Eastern European variant of the ecological systems on the Eurasian continent. This area is also unique in that it is the habitat of millions of migrating birds and breeding Sturgeons (Aipenseridae).

IMPORTANCE FOR THE SIBERIAN CRANE

In the past (the end of 19th to the beginning of the 20th century) the site was a stopover location for single birds and small groups of Siberian Cranes during the spring and autumn migrations (Dolgushin 1960). At present, according to information received from the locals (requiring verification and confirmation), Siberian Cranes stop on the site very rarely during the autumn migration (not more than one registered per 10 years). According to information from a local ranger, one adult Siberian Crane was recorded in September 2002 in the east end of Peshnoi Peninsula. In 1999, the spring migration of the Siberian Crane marked with a satellite transmitter passed 100 to 150 km west of the town of Atyrau.

IMPORTANCE FOR OTHER CRANE SPECIES

On desert lands adjacent to the northeastern terrestrial part of the delta, 2 to 5 pairs of Demoiselle Cranes (*Anthropoides virgo*) nest annually.


Photo by F. Sarayev

IMPORTANCE FOR OTHER WATERBIRDS

On the Ural River Delta and nearby territories, there are 103 species of waterbirds registered, and they are the representatives of the following orders: Gaviiformes, Podicipediformes, Pelecaniformes, Ciconiiformes, Phoenicopteriformes, Anseriformes, Gruiformes, and Charadriiformes. During migrations, most numerous are Eurasian Coots (*Fulica atra*) (up to 80,000 birds), Common Teals (*Anas crecca*) and Garganeys (*A. querquedula*) (40,000 to 6,000 birds), Mute Swans (*Cygnus olor*) (45,000 birds, which is no less than 20% of the western Caspian population), Red-crested Pochards (*Netta rufina*) (20,000 birds), and the Greater Flamingos (*Phoenicopterus roseus*) (up to 15,000 birds). General numbers of these species during the molting period, according to the observations, can reach about 90,000 to 120,000 birds.


Photo by F. Sarayev

During the autumn migration in 2006 (the first week of October), there were 98,000 water birds of 24 species registered; during the spring migration in 2007, 63,000 waterbirds of 18 species were on the site.

The site is also nesting habitat for a group of especially protected species: Dalmation Pelicans (*Pelicanus crispus*), at 250 pairs (over 1% of the world population of the species); Glossy Ibises (*Plegadis falcinellus*), at up to 350 pairs (no less than 10% of the Caspian population); Little Egrets (*Egretta garzetta*), at 150 pairs; Squacco Herons (*Ardeola ralloides*), at 10 pairs; White-headed Ducks (*Oxyura leucocephala*), at up to 20 pairs; Great Black-headed Gulls (*Larus ichthyaetus*), at up to 250 pairs (over 1% of the world population of the species).

During the molting period, there are up to 15,000 Mute Swans (*Cygnus olor*), over 20,000 Common Teals (*Anas crecca*) and Garganeys (*A. querquedula*) and over 10,000 Eurasian Coots (*Fulica atra*) gathered on the site.

NEGATIVE FACTORS


Photo by F. Sarayev

Amongst the anthropogenic factors that upset the natural sustainability and natural condition of the ecological systems of the project territory there are the following kinds of human activities: industry (oil exploration and oil production) and future development, agriculture (irrigated and dry agriculture, livestock, mowing), linear transport, recreation and resource consumption (poaching and legal hunting and fishing).

On the whole, nature-anthropogenic ecological systems of the project territory have been formed during the last half a century and this is connected primarily with the traditional fishing and the development of the agro-industrial complex within the limits of the modern Ural River Delta, which provided the huge urban agglomeration and the oilfields of the region with agricultural products.

More than half the land of the terrestrial part of the delta has been used before in vegetation industry, and the irrigated areas made up about 60% of the area. About 25% was pastures of various types. Since 1990 the amount of cultivated land of the Atyrauskaya region decreased practically nine times, and the same tendency came into Ural River delta. At present, about 1% of the project territory is being used for crops. Most lands are preserved; but ongoing development is causing erosion and increased soil salinity.

Due to the development of the oil- and gas-extracting industry, the development of extraction for new deposits is being carried out increasingly quickly. The geophysical works, exploring and evaluating by boring, and the consequent extraction of the hydrocarbonate raw material is accompanied by various construction and transport loads. As a result, there is an abrupt increase of the man-made pressures on the water environment on the whole, especially on the territories with the deposits.

CONSERVATION MEASURES TAKEN/PROPOSED


Photo by F. Sarayev

According to the Law of the Republic of Kazakhstan on Especially Protected Nature Areas of 6 July 2006, Article 73, the Ural River Delta and the adjacent territory of the coast are included in the State Northern Caspian Reserve Zone. In this zone there are the possibilities for the development of the fishing industry, water transport, state geological research, exploring and extracting of hydrocarbonate raw material, taking into consideration special ecological requirements approved by the Government of the Republic of Kazakhstan in the provision of an empowered state environmental protection authority.

Nevertheless, the effectiveness of the functioning of this reserve zone, leastwise, concerning the conservation of the valuable biodiversity, is extremely low. Therefore during recent years, energies of state (Forest and Hunting State Committee of the Ministry of Agriculture), scientific and non-governmental agencies were joined for the creation of a well-managed territory. As a result, the State Wildlife Refuge of Akzhaiyk, with an area of 11,150 ha, was established in the Ural Delta and adjacent terrestrial part of the delta. At this time, the staff of the wildlife refuge consists of 86 people, including 7 scientists

INTERNATIONAL IMPORTANCE

The Ural River Delta and adjacent Caspian Sea coast was included in *the List of Wetlands of International Significance (Ramsar)* in March 2009. It is *an Important Bird Area* Birdlife International called "Delta of Ural River". In May 2007 the site is designated as a part of *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

WESTERN ASIAN FLYWAY

Migratory Stopovers


Photo by Yu. Markin

RUSSIA

After a long-term stopover in Kazakhstan, Siberian Cranes migrating along the Western Asian Flyway traditionally stop in Astrakhan State Nature Biosphere Reserve in Volga Delta, foraging and resting for a short period, and then fly along the Caspian coast through Dagestan.

In the 18th century, P.S. Pallas noted that "in spring this bird was sighted in Volga Lowlands and on the coast of Caspian Sea". The first information about Siberian Cranes in the Volga Delta appeared in data files of the Astrakhan Nature Reserve in 1927 recorded by ornithologist Konstantin Vorobiov (Rusanov, Chernyavskaya 1976). Nowadays monitoring of Siberian Crane migration is regularly conducted by the nature reserve staff. The information about the Astrakhan State Nature Biosphere Reserve in Volga Delta, the important Siberian Crane habitat, is presented below.

After P.S. Pallas, G.I. Radde (1884) wrote about repeated sightings of Siberian Cranes in the Caspian coast in Dagestan near Makhachkala and Derbent Towns. Latest data was contributed by Yu. Pishvanov (1976, 1998), who reported about the Siberian Crane autumn migration over the Caspian Sea near Makhachkala, and to the north – in the Terek Lowlands and Agrakhan Bay. The Siberian Crane migrates along the coast of the Caspian Sea Short-term stopovers during autumn migration are known only for the Terek Delta, from the south part of Kizlyar Bay to the Agrakhan Peninsula. During spring migration Siberian Cranes stop more often—in the Samur Lowlands, in the coastal lowlands from Derbent to Izberbash as well as in Agrakhan and Kizlyar Bays.

A reliable number for Siberian Cranes during migration never exceeded 10 to 12 birds a year. During recent years (1998 to 2001), only single birds were recorded (Figure 1). This was also confirmed by inquiry data from local people.

Results from satellite tracking of the Siberian Crane reared in captivity and released in wintering grounds in Iran are very interesting. The first stopover on its route from Iran to south Dagestan was at an area of coastal shallow lagoons in the mouth of the Samur River, not far from the train station of Beliji. The crane then stopped at coastal lowlands north of the town of Derbent, and in the same day it landed in a wetland west of the village of Izberbash, where the transmitter stopped working. The subsequent locations of this bird are unknown (Ilyashenko 2003, Dzhamirzoyev & Bukreev 2003).

Most Siberian Crane sightings in Dagestan have been in the Terek Delta and Agrakhan Bay. Therefore, the site, "Terek Delta and Agrakhan Bay," is considered as an important Siberian Crane habitat during season migrations and is included in this publication.

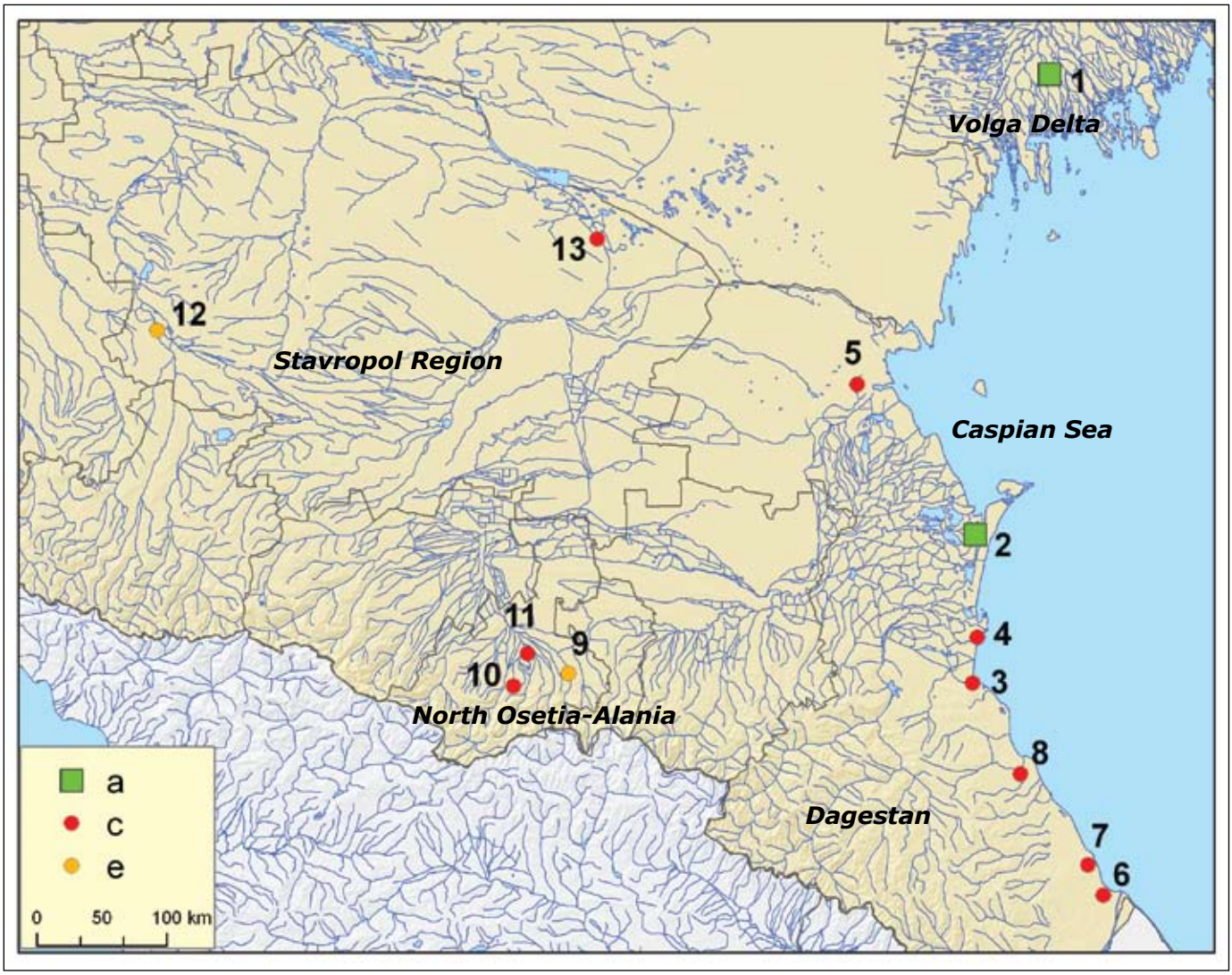


Figure 1. Sightings of the Siberian Crane in Russia along the Western Asian Flyway

sites with great importance for the Siberian Crane

single sightings in the past

single sightings during the last 20 years

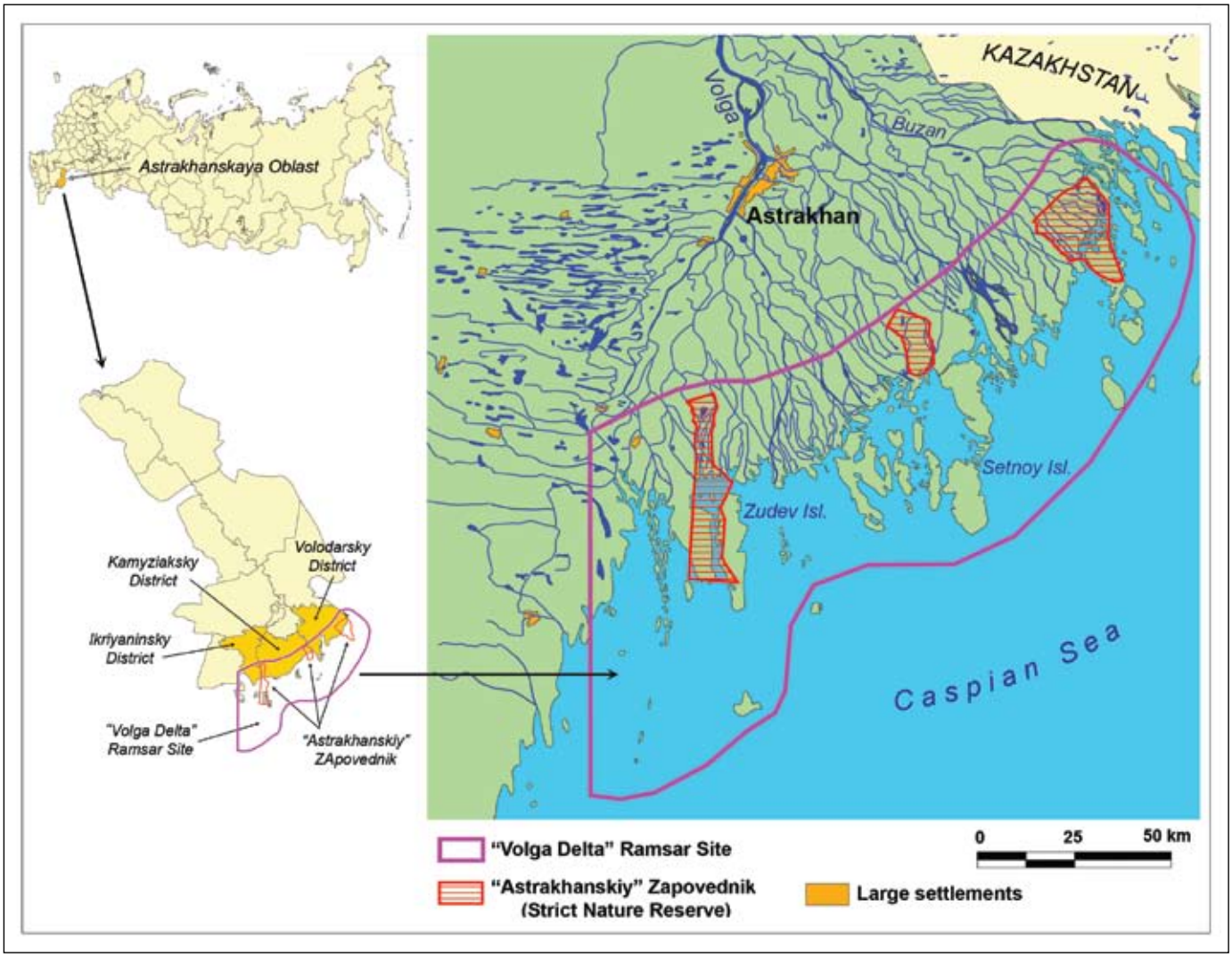
LEGEND TO FIG. 1

1 – Astrakhan State Nature Biosphere Reserve, the traditional Siberian Crane migration stopover along the Western Flyway (see sighting descriptions below in section about the site);
2 – Agrakhan Bay and Terek Delta, Dagestan: (see sightings description below in the section about the site);
3 – Near the town of Makhachkala, Dagestan, two sightings: 10 Siberian Cranes flew to southeast 250 m from Caspian coast during spring migration 1968 (Pishvanov 1976); and one Siberian Crane was observed in a flock of Eurasian Cranes on 27 October 1997, according to information from Yu. Pishvanov (Shilina 2008);
4 – Sulakskaya Lagoon, 14 km from Makhachkala, Dagestan: 12 Siberian Cranes flew along Caspian coast on 4 October 1995 (Vilkov 2002);
5 – Kizlyar Bay, Dagestan: one Siberian Crane fed in shallow water on 6 November 2000, according to information from Yu. Pishvanov (Vilkov 2002);
6* – North border of the Samur River mouth, not far from Beliji Station, nearly 20 km south of Derbent Town, Dagestan, on 3 March 2003;
7 – Outskirts of the town of Derbent, closest to the village of Sabnova, Dagestan, on 4 March 2003;
8 – Coastal lowlands north Derbent, between the town of Izberbash and the villages of Leninkent and Karanai-Aul, Dagestan;
9 – Near the town of Vladikavkaz, North Osetia-Alania: three Siberian Cranes in November 1913 (Beme 1926);
10 – The village of Khod, North Osetia-Alania: 12 birds were feeding on 17 November 1988 (Komarov 2000);
11 – The village of Michurino, North Osetia-Alania: flock of 35 Siberian Cranes was feeding in Terek River floodplain (Komarov 2006);
12 – Kochubei District, Stavropol Region: three Siberian Crane flew southwestward to the direction of the settlement of Barsukovskaya in October 1974 (Khokhlov et al. 2005);
13 – Levokumskiy District, Stavropol Region: single bird rested few hours near ponds of fish factory near the village of Turksad in early May 1991 (Khokhlov et al. 2005).

***Notes:** Points **6-8** were discovered through satellite tracking of the Siberian Crane reared in Oka Crane Breeding Center and released in wintering grounds in Iran (Dzhamirzoyev & Bukreev 2003, Ilyashenko 2003)

12. Astrakhan State Nature Biosphere Reserve

Compiler:
German Rusanov, Astrakhan State Nature Biosphere Reserve
(Few sections are taken from the description of Ramsar Site "Volga Delta" (Krivenko et al. 1998)



GEOGRAPHICAL COORDINATES	ALTITUDE	AREA
45°23'-46°27'N, 47°33'-49°27'E	25-27 m below sea level	66,800 ha

OVERVIEW

The site is located in the Limanskiy, Kamyzyakskiy, Ikryanskiy and Volodarskiy Districts, 80 to 100 km from Astrakhan. It is located in the Volga Delta between the Caspian Sea's well-defined drop-off to the south, and herb meadows and agricultural land to the north. To the east and west, the Volga Delta is bordered by ilmens lakes interconnected by canals and separated by dunes).

The Volga Delta can be subdivided into two portions – the upper (emerged) part of the delta and the lower or foredelta area – based on differences in relief,


Photo by G. Rusanov

hydrography and hydrological regime. In the lower portion, the kultuk area (brackish to freshwater bays overgrown with emergent and submerged plants) is usually distinguished from the foredelta itself.

The upper part of the delta is an extensive network of channels (the largest are Bakhtemir and Buzan, which discharge 70% of the Volga waters) and smaller streams, which divide the lowland into a great number of islands with areas ranging from 200 to 2,000 ha.

The present lower section of the delta was formed during a hot, dry stage of the climatic cycle (between 1930 and 1940), when the level of the Caspian Sea dropped by 2.3 m and extensive shallows were created. The kultuk area is a line of bays with slow-flowing water and a large number of small islands extending along the edge of the emerged section of the delta. It varies from one to several kilometers in width. The bays are between 0.4 and 1.3 m deep at low tide and between 1.0 and 2.3 m deep at high tide (i.e., during the spring flood period). The foredelta comprises an extensive shallow area with a large number of low islands. Water depths vary between 1.0 and 1.7 m at low tide (occasionally reaching 2.5 m) and increase by 0.7 to 1.5 m at high tide.


Photo by Yu. Markin


Photo by Yu. Markin

The landscape is predominantly a monotonous, flat plain, tilted slightly towards the Caspian Sea. The majority of the land lies 25 to 27 m below sea level.

The wetlands of the delta support a rich and globally significant diversity of habitats and species (of fish and migratory birds, in particular). Both the amenity values of the wetlands and the value of their biophysical functions are very high. Major problems affecting the delta include upstream water pollution from urban and industrial developments, agricultural pollution from the application of pesticides and fertilizers in the delta itself, and regulation of the Volga River by dam constructions.

The delta has an arid, continental climate. The average temperature in January is –7°C, and the average temperature in July is +25°C.

IMPORTANCE FOR THE SIBERIAN CRANE

The site is an important traditional migration stopover along the Siberian Crane Western Flyway. Cranes have usually been observed in groups of 2 to 8 birds or single birds. The biggest groups consisted of 22 Siberian Cranes in the spring of 1963.

Since 1935 G. Rusanov and S. Chernyavskaya (1976) did review of 28 Siberian Crane sightings during season migrations from 1935 to 1971, mostly at the Obzhorovo and Damchik sites of the nature reserve. For the period 1928 to 1996, a description of the sightings is presented in the article by G. Rusanov and his co-authors (1998). Data on Siberian Crane records can be found in the Nature Chronicle of the Astrakhan State Nature Biosphere Reserve, Red Data Book of Astrakhan Region (2004) and Astrakhan Encyclopedia (2007). In 1997, using satellite data, the autumn migration route was tracked. This research stressed that the Volga Delta of Russia is a vital wetlands to the welfare of this population. Regular monitoring continues today.


Photo by A. Sorokin

During last 10 years there were 5 sightings of the Siberian Crane in Astrakhan Nature Reserve (Table 1). From 2002 through 2004, cranes were not found in the nature reserve due to fire in the spring of 2002. Other reasons are not known, as in 2003 and 2004 conditions were quite favorable (Rusanov 2002a, b, 2003, 2004). The most interesting record was in the spring of 2001. Cranes remained in two separate groups of two and four birds. In the group of four birds, three had plastic bands, and two of these were banded in

the Uvat District of the Tyumen Region (breeding grounds of the Western Asian flock) (Shilina 2008). Another important sighting was on 29 November 2006, when another 4 birds were observed almost a month after the arrival of a single Siberian Crane on the wintering grounds of Iran (Rusanov 2007a). Recently information about 14 Siberian Cranes circling above the reserve was received in September 2009; however, it is not reliable data (Markin, personal communication).

Table 1. Sightings of the Siberian Crane at the migration stopover in Astrakhan Nature Reserve during the last 10 years

#	Data	Place	Number of Siberian Cranes	Data Sources
1	28 March – 4 April 2001	Mouth of Kutum River, Obzhorovo site	6 (two groups of 2 and 4 birds; three of four birds were banded)	Shilina 2008
2	4-9 October 2001	Obzhorovo site	3 adults	Gorbunov et al. 2001
3	31 March 2005		2 adults	Rusanov & Kashin 2005
4	29 November 2006		4 birds circling over the nature reserve	Rusanov 2007b
5	25 October 2007		1, according to information from A. Kashin	Rusanov 2007c

IMPORTANCE FOR OTHER CRANE SPECIES

The territory is not important for the Eurasian (*Grus grus*) and Demoiselle Cranes (*Anthropoides virgo*), as their migration routes move more inland.

IMPORTANCE FOR OTHER WATERBIRDS

The site lies on a major migration route, with many thousands of waterbirds from breeding areas in Western Siberia, Northern Kazakhstan and other regions passing through the area in spring and autumn. The total number of migrating birds that use this site is estimated at 5 to 10 million in various years.

For several centuries, the Volga Delta has been renowned for its importance to molting dabbling ducks that migrate to the delta from the extensive breeding areas in Western Siberia, northern and central Kazakhstan and centre of the European part of Russia. In the early 1980s, the total number of molting ducks was estimated at 400,000 individuals.


Photo by Yu. Markin


Photo by Yu. Markin

The site is a very important breeding area for waterbirds. The most numerous breeding species are Greylag Geese (*Anser anser*), Mallards (*Anas platyrhynchos*), Red-crested Pochards (*Netta rufina*), Mute Swans (*Cygnus olor*), and Eurasian Coots (*Fulica atra*). The Volga Delta is also important for the breeding of numerous herons, ibises, and the Great Cormorants (*Phalacrocorax carbo*). In 1991 33,200 pairs in 25 colonies were counted (Krivenko 1991, Gavrilov 1993).

Three globally threatened species of birds currently listed in the IUCN Red Data Book occur in the Volga Delta: Dalmatian Pelicans (*Pelecanus crispus*), a breeding species with a population of 30 to 240 pairs; Siberian Cranes (*Grus leucogeranus*), a rare passage migrant; and Red-breasted Geese (*Branta ruficollis*), a rare passage migrant. Another 12 species are listed in the Red Data Book of the Russian Federation, including Pygmy Cormorants (*Phalacrocorax pygmaeus*), Cattle Egrets (*Bubulcus ibis*), Spoonbills (*Platalea leucorodia*), and Glossy Ibises (*Plegadis falcinellus*).

NEGATIVE FACTORS

At the site: Threats at the site include illegal hunting and overgrazing.

Around the site: The greatest impact on the delta has been caused by hydro-electrical installations (regulation of the Volga River), agriculture (application of pesticides and fertilizers), industrial wastewater releases and water transport (oil pollution). Regulation of the Volga River for the production of hydro-electricity has resulted in alterations in the timing, duration and level of flooding. Small streams in the delta area dry up in years when the flood level is low. Dams prevent both the upstream and downstream movements of fish through the delta to their spawning grounds, some of which are located 1500 km upstream.

The Volga River annually receives about 12 km^3 of polluted industrial, domestic and other drainage water. This drainage water contains 387,000 tones of organic materials, 13,000 t of petroleum products, 396,000 t of suspended matter, and considerable quantities of phenols, pesticides, heavy metals and other pollutants.

Agriculture such as rice and tomato cultivation in the vicinity of Astrakhan contributes large quantities of pollutants to the Volga. The main threat is the use of pesticides over a large area, especially non-biodegradable herbicides in the rice fields.

CONSERVATION MEASURES TAKEN/PROPOSED

The biota of the Volga Delta is protected in several areas. The Astrakhan Biosphere Nature Reserve was established in 1919. This now consists of three separate sites that together provide strict protection to a total of 66,816 ha. Protected areas of other types include four wildlife refuges – Krestovy, Tumanka, Teplushka and Zhirotopka, totaling 38,200 ha—and four nature monuments. One of the nature monuments is an important fish spawning area of 300 ha, and the other three are breeding colonies of Ciconiiformes, totaling 17 ha.

Legislation and administrative structures to govern hunting are in place but are not sufficient to safeguard the resource from illegal practices and poaching. Further funding for monitoring and regulatory activities is needed if they are to be effective in determining population sizes and in controlling poaching and other illegal activities.

For further conservation, it is proposed to expand the north borders of the Ramsar site "Volga Delta" and include part of water area of the Caspian Sea along with Zhemzhuzhny Island.


Photo by Yu. Markin


Photo by Yu. Markin

INTERNATIONAL IMPORTANCE

The entire area was included in *the List of Wetlands of International Significance (Ramsar)* called "Volga Delta" by the Government of the USSR on 25 December 1975, and this designation was reconfirmed by the Government of the Russian Federation on 13 September 1994.


Photo by Yu. Markin

13. Agrakhan Bay & Terek Delta

Compilers:

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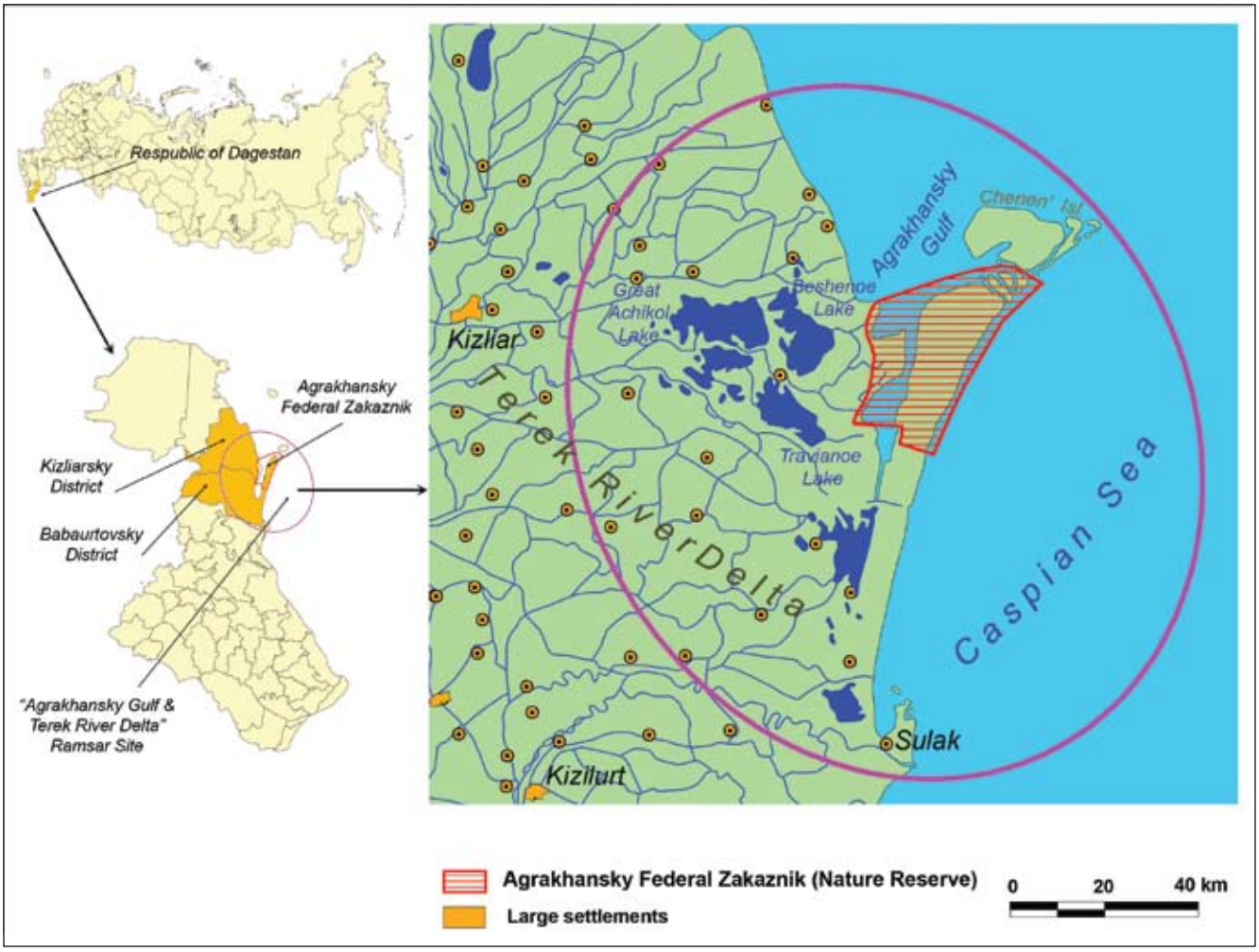


GEOGRAPHICAL COORDINATES	ALTITUDE	AREA
43º44'N, 47º29'E	14-27 m below sea level	180,000 ha

OVERVIEW

The site is located in the Administration Regions of Kizlyar, Babayurt and Kirov District of the town of Makhachkala in the Republic of Dagestan, Russia.

The site includes shallow and overflow lands of Agrakhan Bay, Sulak Bay, Mekhteb Reservoir, the South Agrakhan Lakes and adjoining lakes of Terek Delta, Agrakhan Peninsula jutting into the Caspian Sea, and Chechen Island with shallows adjoining to Agrakhan Peninsula in the north as well as numerous small islands overgrown with grass.


Photo by G. Dzhamirzoyev

Shallows, overflow meadows and semi-desert adjacent to the north part of Agrakhan Bay (North Agrakhan), as well as the Agrakhan Peninsula coast, are the most significant areas for migrating Siberian Cranes and other waterbirds. Mean water depth is under 1.5 m here. Hydrological regime and water salinity depend on inflow from the Terek River and are influenced by trade winds and westerlies in the Caspian Sea. Dominant plants are reeds in overflow lands and meadows leading to annual and perennial glasswort populations and semi-desert Gramineae and Artemisia groups as well as tamarisk bushes. Along the Low Terek River stream and its tributaries, some small patches of floodplain forest remain.


Photo by G. Dzhamirzoyev


Photo by G. Dzhamirzoyev

IMPORTANCE FOR THE SIBERIAN CRANE

Since the 1960s there have been 15 sightings of the Siberian Crane in Dagestan (including PTT data), 8 of which came from Terek Delta, Agrakhan Peninsula and Agrakhan Bays during the last twenty years (Table 1). Siberian Cranes use this site during both spring and autumn migrations. Before the mid-1990s (when the Caspian Sea level was low) Siberian Cranes regularly stopped for a short time period (1-2 days) mainly in the littoral zone with a width of up to one kilometer in the north part of Agrakhan Bay.

Table 1. Siberian Crane sightings in Agrakhan Bay and Terek Delta during the last 20 years

#	Data	Place	Numver of Siberian Cranes	Data Sources
1	1 March 1989	Near the former village of Chakanny, northwest of Agrakhan Bay	5 (in flight), according information from Yuri Pishvanov	Vilkov 2002
2	8 November 1990	Lowlands of the former Terek riverbed	3 cranes feeding in shallow water, according information from Yuri Pishvanov	
3	3 March 1992	Mouth of the former Terek riverbed, Kara-Murza Tract, northwest of Agrakhan Bay	2 (pair), according information from Yuri Pishvanov	
4	10 April 1994	Agrakhan Peninsula, near the former village of Lopatino	5, according information from Yuri Pishvanov	
5	30 June 1995		2, according information from Yuri Pishvanov	
6	26 March 1996	Terek Delta, 45 km from Kizlyar Town	According to satellite tracking (of the adult Siberian Crane marked with a PTT in Iran wintering grounds)	Kanai et al. 2002
7	26 October 1997	The village of Old Terek, mouth of Terek River	12 (flew in eastern direction), according information from Yuri Pishvanov	Shilina 2008
8	26 January 2006	Agrakhan Bay	According to satellite tracking of the Siberian Crane reared in Crane Breeding Center and released in Astrakhan Nature Reserve in autumn 2006	Markin et al. 2005

IMPORTANCE FOR OTHER CRANE SPECIES

The territory is not important for the Eurasian Crane (*Grus grus*). Its migration route goes more inland and reaches the western coast of the Caspian Sea from Makhachkala and to the south.

The territory is the breeding ground for the Demoiselle Crane (*Anthropoides virgo*). Its number is estimated at 35 pairs for all of the territory (150,000 ha, which includes 50,000 ha of land suitable for Demoiselle Crane breeding) (Dzhamirzoyev & Bukreev, personal communication).

In the pre-migratory period, Demoiselle Cranes join into a few mobile congregations of 30 to 40 birds each, with the total population reaching between 120 and150 birds.

IMPORTANCE FOR OTHER WATERBIRDS


Photo by G. Dzhamirzoyev


Photo by G. Dzhamirzoyev

The wetland provides breeding and wintering grounds and staging sites for numerous waterbirds and shorebirds. Up to 300,000 birds have been recorded annually (Skokova & Vinogradov 1986).

During the last 20 years there have not been such huge congregations of waterfowl in Agrakhan Bay, but the total number of migrating and wintering waterbirds at the main water bodies (South and North Agrakhan, Achikol Lakes, Mekhteb Reservoir, Sulak Bay) reach up to 200,000. The number of wintering ducks is decreasing, but the number of Dalmatian Pelicans (*Pelecanus crispus*) (1,500-2,000), Greater Cormorants (*Phalocrocorax carbo*) (more than 20,000) and Great Egrets (*Egretta alba*) (more than 50,000 in separate years) is increasing. During wintering time the majority of waterbirds consists of Mallards (*Anas platyrhynchos*), Green-winged Teals (*Anas crecca*), Common (*Aythya ferina*) and Red-crested (*Netta rufina*) Pochards.

During migration coots and ducks are dominant. Greylag (*Anser anser*) and White-fronted (*A. albifrons*) Geese are recorded in high numbers only during autumn migration. Mass migrations of Mute (*Cygnus olor*) and Whooper (*C. cygnus*) Swans also occur mainly in autumn. During warm winters many swans stay at the site for wintering.

The number of waders staging on the site during migration is high. Dominant species listed in descending order are: Sanderlings (*Calidris alba*), Dunlins (*C. alpina*), Curlew Sandpipers (*C. ferruginea*), Redshanks (*Tringa totanus*), Grey Plovers (*Pluvialis squatarola*), Ruffs (*Philomachus pugnax*) (Shubin 1997, Dzhamirzoyev & Bukreev, unpublished data).

The site has international importance as a breeding ground of the Dalmatian Pelicans (*Pelecanus crispus*) (up to 100 pairs), the wintering grounds of this species are also located in the site), Pygmy Cormorants (*Phalacrocorax pygmaeus*) (170 to 650 pairs), Glossy Ibises (*Plegadis falcinellus*) (150 to 200 pairs), Spoonbills (*Platalea leucorodia*) (60 to 80 pairs), Squacco Herons (*Ardeola ralloides*) (100-150 pairs), Ferruginous Ducks (*Aythya nyroca*) (250 to 450 pairs), Red-crested Pochards, Purple Swamphens (*Porphyrio porphyrio*), Black-winged Pratincoles (*Glareola nordmanni*), Sandwich (*Sterna sandvicensis*) and Little (*Sterna albifrons*) Terns. Other rare species that breed within the site include Cattle Egrets (*Bubulcus ibis*), Black-winged Stilts (*Himantopus himantopus*), Stone Curlews (*Burhinus oedicnemus*), White-tailed Lapwings (*Vanellochettusia leucura*), and Eurasian Oystercatchers (*Haematopus ostralegus*).

NEGATIVE FACTORS

Main negative factors for the Siberian Crane during migration are habitat transformation and development (grazing, reed fires), bird disturbance, poarching (or casual shooting).

CONSERVATION MEASURES TAKEN/PROPOSED

The Agrakhansky Federal Wildlife Refuge is located on a part of the site. It was established in 1983 in Agrakhan Bay and Agrakhan Peninsula. It's area is 39,000 ha.

Detail recommendations on protection of the site and adjacent areas are described in Guidelines on Protection of Important Bird Areas of Birdlife International in Caucasus Region (Dzamirzoyev et al. 2008) and in Action Plan on the Siberian Crane Conservation in Caucasus Region (Dzhamirzoyev & Bukreev 2008).

They include:

• Establish a strict protected area within the existent Agrakhansky Wildlife Refuge;

• Give status of "Nature Monument of Dagestan" to South Agrakhan Lake;

• Nominate the site to official List of Wetlands of International Importance (Ramsar List);

• Ban of reed fires;

• Restrict or ban motorbike use inside the site;

• Strengthen control on water inflow from Terek tributaries to wetlands.


Photo by G. Dzhamirzoyev

To avoid casual shooting of the Siberian Crane, public awareness and ecological education activities are necessary among hunters, shepherds, and land users as well as to involve local hunting societies to the Siberian Crane monitoring and protection.

INTERNATIONAL IMPORTANCE

In the border of the site there are five wetlands included in t*he List of the Wetlands of International Importance (Ramsar)* and in *the List of Most Valuable Wetlands of North Caucasus* (Dzhamirzoyev & Bukreev 2006, Dzhamirzoyev & Ismailov 2006, Dzhamirzoyev et al. 2006) as well as six *Important Bird Areas* Birdlife International: Agrakhan Bay (North Agrakhan), Achikol Lakes, South Agrakhan Lake, Chechen Island and the eastern coast of Agrakhan Peninsula, Mekhteb Resevoir, and Sulakskaya Bay (Dzhamirzoyev & Bukreev 2009). The site is proposed for inclusion in *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

AZERBAIJAN

Siberian Crane migration in Azerbaijan stretches along the Caspian Sea coast along Western Asian Flyway. In the beginning of the last century Konstantin Satunin, who investigated Caucasus for many years, never saw Siberian Cranes in the wild. But he wrote about staffed Siberian Cranes in private collections that were killed south of Apsheron Peninsula (Bukreev et al. in printing).

However, we do have records from this time period that the Siberian Crane overwintered in eastern Caucasus in the Low Kura River. The earliest appearance here was recorded on 4 October 1904. On 25 through 28 February and 2 March 1907, large flocks of Siberian Cranes were observed flying to the north. In winter, Siberian Cranes were seen most often in Kazeny Ambar and Akh-Chala in the Dzhevat District (now this is an area in Kura River valley between Shirvan and Salyan) (Figure 1) (Karamzin 1912). Siberian Crane wintering was also confirmed by Stachinskiy (1914); he wrote that Siberian Cranes were quite common near Kazeny Ambar near Karachala. They stayed during the daytime with small groups in the valley and sometimes flew to the steppe.

During the last ten years most sightings of Siberian Cranes have been recorded in Kurinskaya Kosa in Gyzyl-Aghach Nature Reserve, according to information from Abbas Abbasov, ranger of the nature reserve, and according to local people, as well as employees of Shirvan National Park (Figure 1).

In recent years Azerbaijan ornithologists have determined three flyways that cross Azerbaijan (Sultanov & Kerimov 2008). Besides the flyway along the Caspian Sea coast, two other flyways cross Azerbaijan through the center and west of the country. We can propose that Siberian Cranes fly along with Eurasian Cranes and other waterbirds through the western part of the country. They may use a migration route through western Azerbaijan and Turkey to Iraq and Jordan. This was confirmed by the sighting of one Siberian Crane in Jordan in the winter of 2001 (Hamidan 2003). It can be confirmed by a sighting of two Siberian Cranes near Kesemen Village. Such a proposal would explain why four Siberian Cranes observed on 29 November 2006 in Astrakhan State Nature Biosphere Reserve (Rusanov 2007) did not arrive at wintering grounds in Iran.

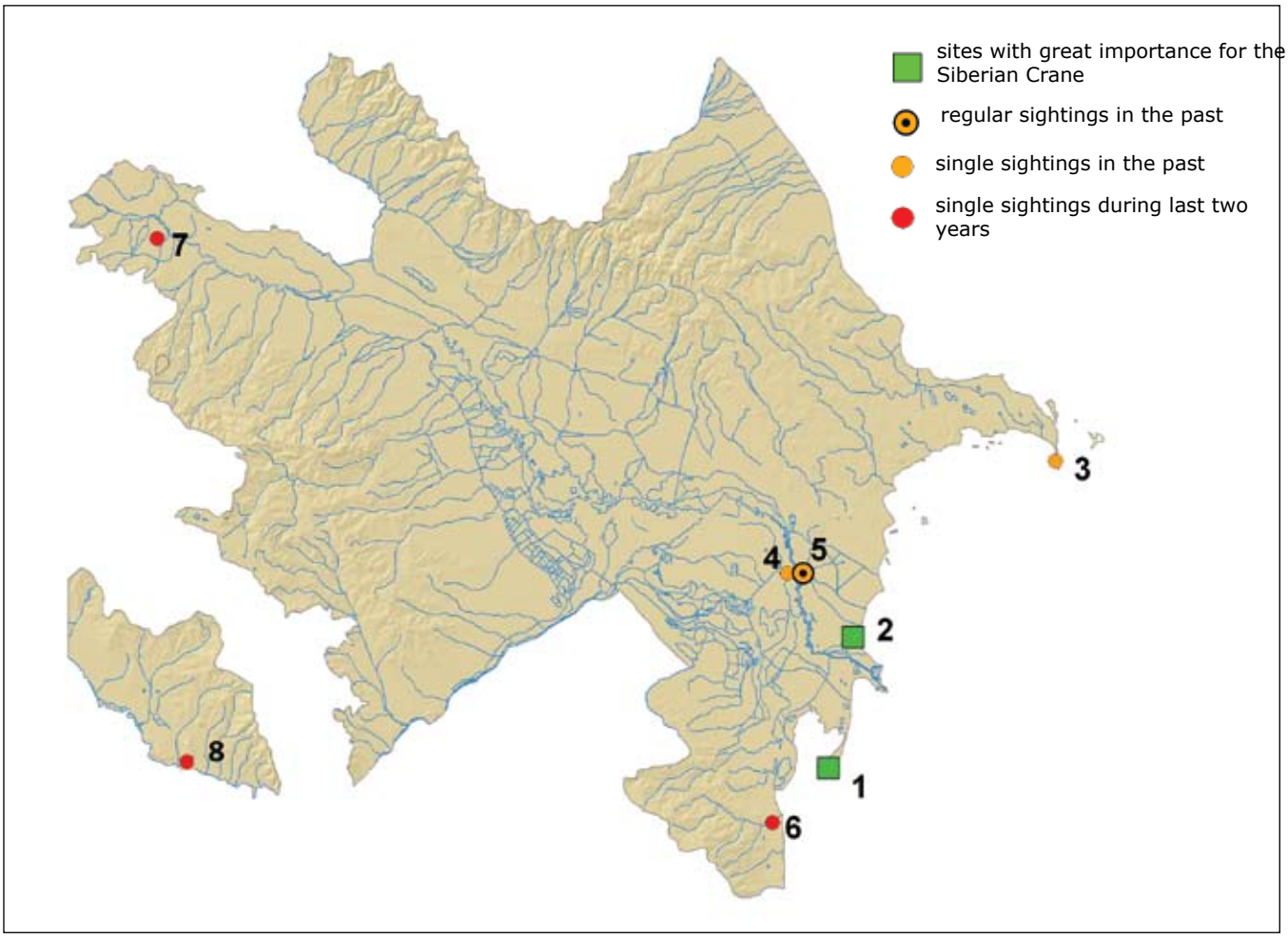


Figure 1. Sightings of the Siberian Crane in Azerbaijan along the Western Asian Flyway

LEGEND TO FIG. 1

1 – Gyzyl-Aghach Nature Reserve, including Kurinskaya Kosa and Kurdili Island (see sightings description below in a section about the site);
2 – Shirvan National Park (see sightings description below in a section about the site);
3 – South of Apsheron Peninsula: staffed Siberian Cranes killed in the beginning of last century were seen by K. Satunin (1907) in private collections;
4 – Low Kura River: migrating Siberian Cranes were recorded in the beginning of last century (Karamzin 1912);
5 – Kura River Valley near settlements of Kazeny Ambars and Akh-Chala in Jevat District: Siberian Cranes spent winter in the beginning of last century (Karamzin 1912, Stachinskiy 1914);
6 – Lenkoran Town: two birds flew over the town on 27 February 2006 (Sultanov & Kerimov 2008);
7 – Near Kesemen Village, Samukhskiy Region, west Azerbaijan: two birds were recorded in a wheat field on 20 October 2005 (Sultanov & Kerimov 2008);
8 - Near Djulfa Town, on the border between Azerbaijan and Iran: two Siberian Crane in November 2008 according to personal communication of Abbas Abbasov. One of them was banded with blue or green band.

14. Shirvan National Park

Compiler:
Elchin Sultanov, Azerbaijan Ornithological Society

GEOGRAPHICAL COORDINATES	ALTITUDE	AREA
39°29'–38°41'N; 49°24'–49°25'E	28 m below sea level	65,580 ha

OVERVIEW


Photo by E. Ilyashenko

The site lies in the Salian Region of the Republic of Azerbaijan on the Caspian Sea coast. The main part of the Sirvan National Park is a semi-desert landscape with a water basin covering nearly 4,000 ha.

An alluvial plain extends inland from the Caspian Sea. It is a predominantly dry semi-desert steppe with Artemisia and a high diversity of grasses. Canals run across the steppe, and there are several salt and saline natural and semi-natural lakes. The Shorgel Lakes, with their rich aquatic vegetation, are fed by irrigation water. The biggest lake, Flamingo Lake, was formed in the process of expanding the water from the Shirvan Water Discharge Canal. The water level is changeable, though it remains low enough to maintain a vast area of thick reeds. Flamingo Lake is an exclusively important place for waterbirds' rest during migration, wintering and nesting. However the lake became completely dry in the 1900s, and since that time there are problems with its water supply.

The climate is dry, subtropical, semi-desert. The average yearly temperature is 14.5°C, with the average temperature in January +2.5°C, and the average temperature in July +26.2°C.

IMPORTANCE FOR THE SIBERIAN CRANE

The site is located on the Caspian Sea coast along the Siberian Crane Western Asian Flyway. There were two sightings of cranes: four Siberian Cranes were recorded by local people on 12 October 2001 (Sultanov & Kerimov 2008); and three birds flying over the National Park on 12 November 2003 (Majin 2003).

IMPORTANCE FOR OTHER CRANE SPECIES

The migration route of waterbirds, including Eurasian (*Grus grus*) and Demoiselle (*Anthropoides virgo*) Cranes, goes along Caspian Sea coast. However, the number of migrating crane flocks and the number of birds in flocks are less that on the flyway that goes through western part of the country (Sultanov & Kerimov 2008). Cranes are able to use Shirvan National Park for short-term stopovers, though not regularly.

IMPORTANCE FOR OTHER WATERBIRDS

There are reports of 20,000 to 35,000 regularly wintering wildfowl, while 150,000 to 200,000 typically stage at the site in an autumn. Wintering birds include Greater Flamingos (*Phoenicopterus roseus*) (200 to 300), wildfowl (*Cygnus cygnus* and others), and Eurasian Coots (*Fulica atra*). Among breeding birds at the site are Purple Herons (*Ardea purpurea*), Ruddy Shelducks (*Tadorna ferruginea*), Common Shelducks (*T. tadorna*), Red-crested Pochards (*Netta rufina*), Marsh Harriers (*Circus aeruginosus*), Francolins (*Francolinus francolinus*), Stone Curlews (*Burhinus oedicnemus*), Kentish Plovers (*Charadrius alexandrinus*) and Gull-billed Terns (*Gelochelidon nilotica*). Species of global conservation concern include Lesser White-fronted Geese (*Anser erythropus*) (27 in 1996), Marbled Teals (*Marmaronetta angustirostris*) (max. 240), Dalmatian Pelicans (*Pelicanus crispus*) (max. 50), Pygmy Cormorants (*Phalacrocorax pygmeus*) (max. 1,000), Little Bustards (*Tetrax tetrax*) (max. 900 in 1990), and Purple Swamphens (*Porphyrio porphyrio*) (max. 4,000 in 1996).

NEGATIVE FACTORS

Oil extraction is continuing in the territory of Shirvan National Park. There were few cases of poaching, mainly for the Goitred Gazelle. Due to decreasing water supply through the channel, some shallow areas of Flamingo Lake dried. During the recent years the possibility of completely drying of Flamingo Lake has arison.

Because of the often changing of administration staff of Shirvan National Park, its management is insufficient. Due to this problem, cases of violation of protection rejime (poaching, fishing at Flamingo lake, grazing) have increased.

CONSERVATION MEASURES TAKEN/PROPOSED

The Shirvan Protected Area was established in 1969, partly within the Byandovan Wildlife Refuge (Zakaznik), the aim being to give better protection to the Goitred Gazelle (*Gazella subgutturos*). In 2004 the Shirvan National Park covered 54,374 ha and was established in the southeastern part of the protected area. To save the Park's unique landscape, it is in need of grazing regulation. In addition, the oil-drilling operation should be isolated from the National Park.


Photo by G. Archibald

INTERNATIONAL IMPORTANCE

The site is a part of *an Important Bird Area* Birdlife International called "Shorgel Lakes/ Shirvan Nature Reserve". It is also proposed for inclusion in *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

15. Gyzyl-Aghach State Nature Reserve

Compiler:

Elchin Sultanov, Azerbaijan Ornithological Society

GEOGRAPHICAL COORDINATES

38°57'–39°18'N; 48°46'–49°12'E

ALTITUDE

26.5 m below sea level

AREA

near 130,000 ha

OVERVIEW


Photo by S. Bukreev


Photo by S. Bukreev

The site is located in the junction of Kura-Araks Lowland and Lenkoran Plain in Lenkoran Region, 30 km north of the town of Lenkoran and 20 km south-southwest from the town of Neftechala.

Gyzyl-Agach State Nature Reserve is a strictly protected area. It consists of four main parts: Large Gyzyl-Aghach Bay (area 40 000 ha, length 9 km, width 24 km, maximum depth 3.5 m), Small Gyzyl-Aghach Bay (16,000 ha, length 16.7 km, width 6.5 km, maximum depth 2.5 m), coastal zone of thick reeds of Large Gyzyl-Aghach Bay (width 2 to 2.5 km, stretches along the western and northern shore of Large Gyzyl-Aghach Bay at a distance about 200 m from the shore), shallow waters, thick reeds and semi-desert areas on the remaining territory of the reserve.

During last century, Sara Island turned into a peninsula and then, after dam construction, into land strip which separates Large and Small Gyzyl-Aghach Bays. To present days, Kurinskaya Kosa Peninsula turned into two islands. As a result Large Gyzyl-Aghach Bay can join with Caspian Sea via channel. The channel width depends on Caspian Sea level.

Three artificial canals go to Large Gyzyl-Aghach Bay and join it with Small Gyzyl-Aghach Bay. Small rivers Vilyash, Gumbashi and Bolgarchai fall into Small Gyzyl-Aghach Bay. Its north part turns into swamp because reeds expanding.

Large Gyzyl-Aghach Bay plays an important role in the whole Southern Caspian as a concentrated breeding ground for young valuable fish species.

The nature reserve has a dry, subtropical climate. The average temperature in January – –2°C, and the average temperature in July +25.6°C.

IMPORTANCE FOR THE SIBERIAN CRANE

The site is an important short-term migration stopover on the western flyway. The Siberian Crane was regularly observed in the nature reserve, especially in Kurinskaya Kosa (Spit). Since 2000, four sightings of Siberian Cranes in groups of 2 to 5 birds were recorded (Table 1).

Table 1. Siberian Crane sightings at Gyzyl-Aghach State Nature Reserve during the last 10 years

#	Data	Place	Number of Siberian Cranes	Data Sources
1	November 2000	Kurinskaya Kosa	5, according to information from Abbas Abbasov, the nature reserve ranger	Shilina 2008
2	15 Ocotber 2002		3, according to information from local people	Sultanov & Kerimov 2008
3	28 November 2002		3 in a flock of 11 Eurasian Cranes, according to information from Abbas Abbasov, the nature reserve ranger	Sultanov & Kerimov 2008
4	May 2006		5 (1-2 birds in different time), according to information from Abbas Abbasov, the nature reserve ranger	Anonymous 2007

IMPORTANCE FOR OTHER CRANE SPECIES

The migration route of waterbirds, including Eurasian (*Grus grus*) and Demoiselle (*Anthropoides virgo*) Cranes, passes along the Caspian Sea coast. However, there are fewer migrating crane flocks, and fewer birds within those flocks, than there are on the flyway that goes through the western part of the country (Sultanov & Kerimov 2008). Cranes make stopovers on the territory of Gyzyl-Aghach Nature Reserve, mostly along the coast of Gyzyl-Aghach Bay and on Kutinskaya Kosa.

IMPORTANCE FOR OTHER WATERBIRDS

The site is the most significant waterfowl breeding and wintering ground in Europe as well as in the West Palearctic. Nowadays nearly half a million waterbirds overwinter in the nature reserve annually, including swans (6,000, sometimes up to 9,200 (1984) and geese (up to 25,000 during winter and 60,000-70,000 in the beginning of December during migration). Among geese, Lesser White-fronted Geese (*Anser erythropus*) as well as Greylag and White-fronted Geese (*A. anser, A. albifrons*) are the most numerous species (Paynter et al. 1996, Sultanov et al. 1998). Other numerous migrants are Black-necked Grebes (*Podiceps nigricollis*) (3,500), Little Grebes (*P. ruficollis*) (6,000), Mallards (*Anas platyrhynchos*) (80,000), European Wigeons *(A. penelope*) (120,000), Green-winged Teals (*A. crecca*) (70,000), Pintails (*A. acuta*) (7,000), Shovelers (*A. clypeata*) (40,000), Red-crested Pochards (*Netta rufina*) (40,000), Tufted Ducks (*Aythya fuligula*) (60,000), Common Pochards (*A. ferina*) (75,000), Water Rails (*Rallus aquaticus*) (2,000), Moorhens (*Gallinula chloropus*) (5,000) (Paynter et al. 1996; Sultanov & Haddow 1997). The number of wintering Marbled Teal (*Marmaronetta angustirostris*) is near 200, but this figure doesn't represent the actual number of wintering birds. Red-breasted Geese (*Branta ruficollis*) are recorded in small numbers (up to 200), mostly in flocks of Lesser White-fronted Geese, while in the 1960s up to 24,000 spent the winters here.


Photo by S. Bukreev


Photo by S. Bukreev


Photo by S. Bukreev

In previous years, dabbling ducks predominated in wintering grounds (Tuayev, 1957, 1970), while nowadays diving ducks are more numerous (Paynter et al. 1996). The number of Eurasian Coots (*Fulica atra*) can reach up to 265,000 in winter and 11,200 in breeding season. Up to 19 shorebird species breed in the nature reserve, with the most numerous species as follows: Golden Plover (*Pluvialis apricaria*) (max. 1,526), Avocets (*Recurvirostra avosetta*) (max. 4,250), Black-tailed Godwits (*Limosa limosa*) (max. 1,234), Lapwings (*Vanellus vanellus*) (max. 4,775), Dunlins (*Calidris alpina*) (max. 4,060), Redshanks (*Tringa totanus*) (max. 1,510) (Paynter et al. 1996; Sultanov, Haddow 1997). The maximum number of Greater Flamingo (*Phoenicopterus roseus*) that has wintered in the nature reserve is 13,500 (1985). During recent years 3,500 to 4,000 Greater Flamingos overwintered mostly in Kurinskaya Kosa (Sultanov et al. 1998). Sporadically, near 200 pairs breed in the nature reserve itself.

There are also huge mixed breeding colonies of Pelicaniformes and Ciconiifomes in the nature reserve. In 1960s their number was estimated at 160,000 to 200,000 (Vinogradov et al. 1990), and it decreased to 60,000 in 1976 (Tuayev & Israfilov 1979) and to 31,000 in 1995. Since 1983 Purple Herons (*Ardea purpurea*) was noted in breeding colonies (Vinogradov et al. 1990). There are Black-winged Stilts (*Himantopus himantopus*), Whiskered and White-winged Terns (*Chlidonias hybridus, Ch. leucopterus*) colonies of hundreds of birds. The total number of Purple Moorhens (*Porphyrio porphyrio*) is estimated at 10,000 to 11,000 (Vinogradov et al. 1990). The number of this species, as well as the number of Francolins (*Francolinus francolinus*), has decreased by more than 10 times due to cold winters, which occur once every 6 to 10 years. However, after such winters the numbers of these species usually recovers quickly.

NEGATIVE FACTORS

The nature reserve ecosystem is very dynamic. Caspian Sea level is very changeable therefore area of bays and shallows are also variated. Outflow of water via many channels to the Caspian has led to the drying-out of habitats and reed expanding. As a result biodiversity is decreasing as most birds don't use continuous reed beds.

Another problem is lack of fence around the nature reserve therefore it can be used by cattle for grazing.

The main negative factor is poaching. Supervision of the nature reserve has challenges because it's huge area and location of numerous human settlements around the protected area. South part of Small Gyzyl-Aghach Bay (2/3 of its territory) is not included in the nature reserve. It is an ornithological sanctuary. Commercial fishing with motorboat using is very active. It causes disturbance of birds during breeding and migration seasons.

CONSERVATION MEASURES TAKEN/PROPOSED

Gyzyl-Aghach State Nature Reserve is a strictly protected area where any economical activity is prohibited. The southern part with the smaller bay is partly protected as an Ornithological Sanctuary (10,700 ha). It provides bird protection (via a hunting ban), but allows economical activities (agriculture, fisheries and aquaculture).

Proposed measures include fencing of the strict protected area to avoid illegal hunting and grazing in its territory.

INTERNATIONAL IMPORTANCE

The site is a part of the Ramsar Site called "Gyzyl-Aghach Bays" (132,500 ha) included in *the List of Wetlands of International Importance (Ramsar).* It is also *an Important Bird Area* Birdlife International. The site is proposed for inclusion in *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*


Photo by S. Bukreev


Photo by S. Bukreev


Photo by S. Bukreev


Photo by S. Bukreev

Wintering grounds

ISLAMIC REPUBLIC OF IRAN

The Western Asian flock of the Siberian Crane spends the winter in the South Caspian lowlands in the Mazandaran Province of Iran. The only known wintering grounds of this flock are located in Fereydoon Kenar. Bujagh National Park is considered a potential wintering site for the Siberian Crane.

Aerial surveys over other wetlands in Mazandaran Province in 2000 failed to find Siberian Cranes. Comprehensive ground surveys in both Gilan and Mazandaran Provinces in 2000 and 2003 (Markin & Sadeghi Zadegan 2004) also failed to locate cranes at other sites, and the annual midwinter waterbird counts across the south Caspian lowlands have not found any (Sadeghi Zadegan et al. 2009).

Satellite transmitters show that Siberian Cranes fly to the north along the Caspian Sea, probably with a short stopover near Ardebil (Figure 1).

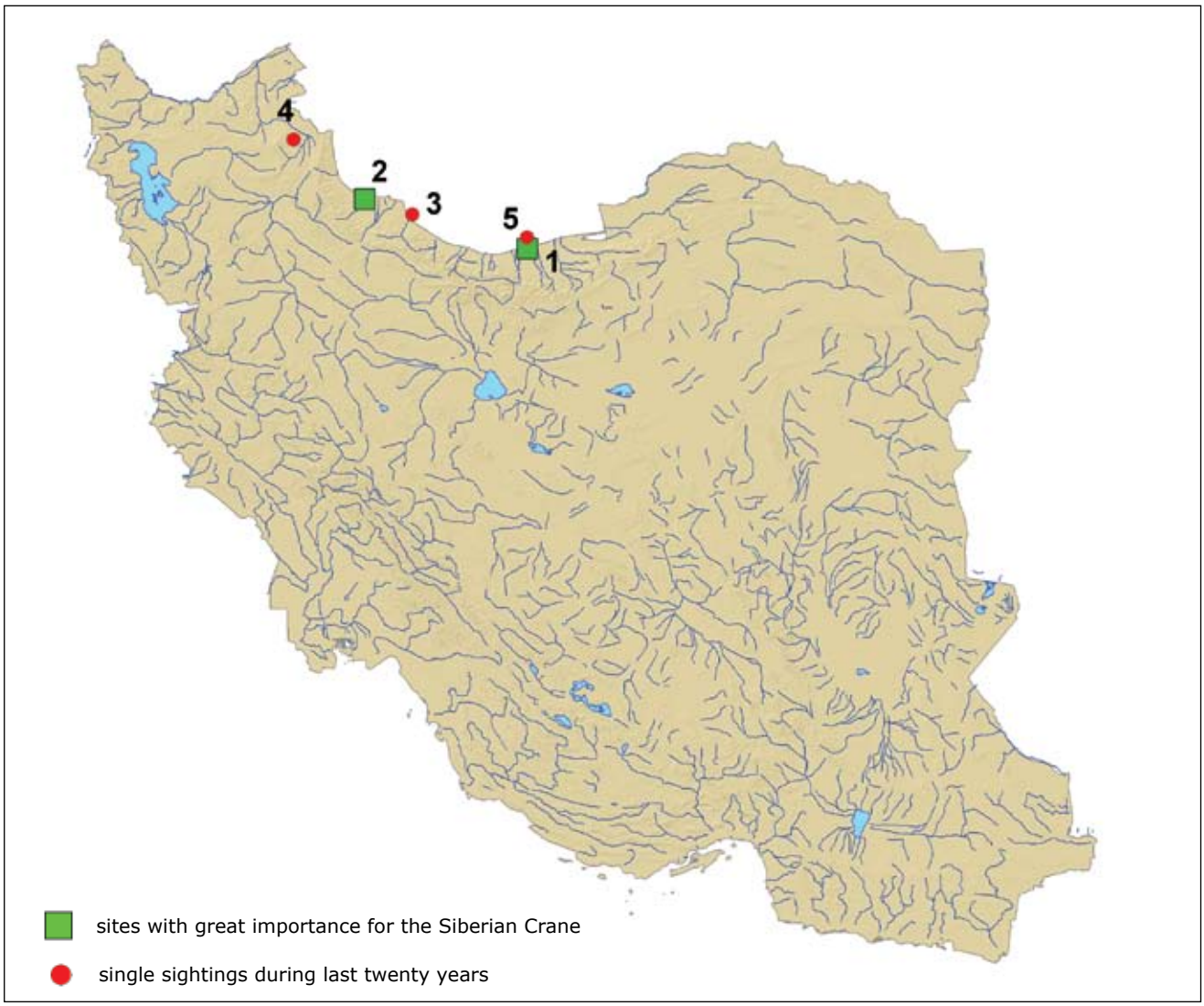


Figure 1. Wintering grounds of the Siberian Crane Western Asian Flock and sightings in Iran along the Western Asian Flyway

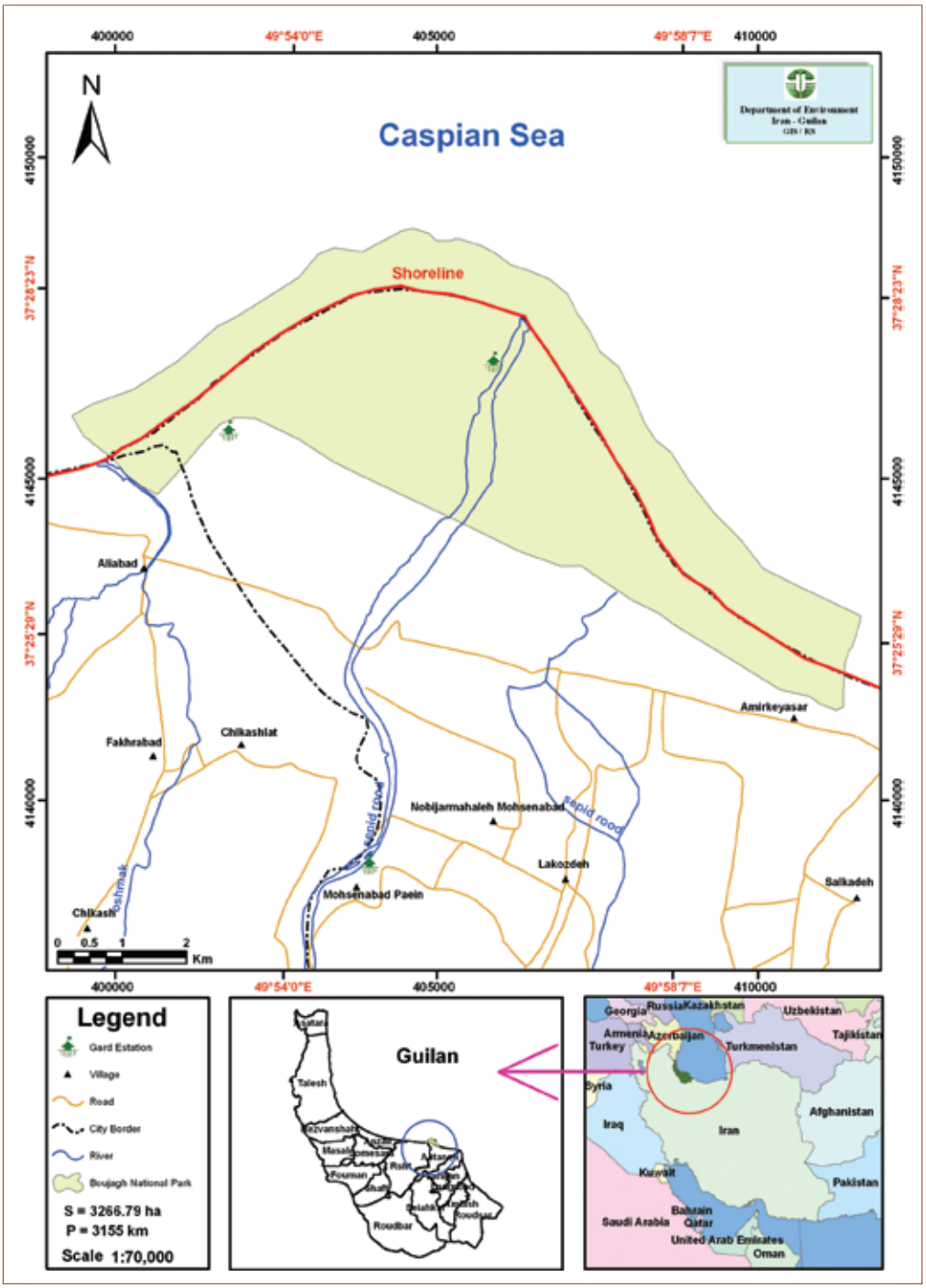
LEGEND TO FIG. 1

1 – Fereydoon Kenar, Ezbaran & Sorkh Ruds Ab-Bandans is the only known wintering grounds of the Siberian Crane Western Asian Flock, in Fereydoon Kenar,Iran, with crane numbers from 11 to 14 in late 1970s to 1 to 0 in late 2000s (see description in the section on the site);

2 – Bujagh National Park, potential wintering ground with suitable habitats for the Siberian Crane;
3 – Caspian coast: satellite transmitter data from a wild adult Siberian Crane (marked in 1996 on wintering grounds in Iran) came on 6 March 1996 from the Caspian coast, with Rudsar as the closest village (Kanai et al. 2002);
4 – Near the Ardebil Airport: satellite transmitter data from the same bird came on 6 March 1996 (Kanai et al. 2002);
5 – Caspian coast: satellite transmitter data from Siberian Crane chick reared in captivity and released in wintering grounds in Fereydoon Kenar in 2003; data came on 28 February 2003 (Ilyashenko 2003).

16. Bujagh National Park

Compilers:
Sadegh Sadeghi Zadegan, Azin Fazeli, Deprtment of Environment of the I.R. of Iran; Iranian National Coordination Unite of UNEP/GEF Siberian Crane Wetland Project



GEOGRAPHICAL COORDINATES

37°25'N; 49°29'E

ALTITUDE

23 m below sea level

AREA

3,260 ha

OVERVIEW

Bujagh National Parkis located in the province of Gilan, about 40 km east of Bandar Anzali and 15 km northwest of the town of Rasht. Bandar Kiashahr Lagoon (formerly Bandar Farahnaz) lies immediately to the east of the mouth of the Sefid Rud River.

The National Park complex comprises a shallow sea bay (formerly an enclosed lagoon), the nearby mouth of the main channel of the Sefid Rud River (the second largest river in Iran), and the associated fresh and brackish marshes and nearby riverine marshes at the mouth of the Sefid Rud on the southwest Caspian coast. Bandar Kiashahr Lagoon (formerly Bandar Farahnaz Lagoon) is situated in an area of coastal sand dunes and grassland about 1.5 km east of the mouth of the Sefid Rud. In the 1960s and 1970s, this wetland was a shallow, brackish coastal lagoon, 3.75 km long by 1.5 km wide, with fringing Juncus marshes and about 140 ha of Phragmites and Typha reed-beds at its west end. The lagoon was fed by two streams from the Sefid Rud and local run off, and drained northeast through a narrow channel into the Caspian Sea. The lagoon had been formed as recently as 1960 as a result of the falling level of the Caspian Sea and development of coastal sand spits. The 1.8 m rise in the level of the Caspian Sea since 1978 has obliterated the sand barrier between the lagoon and the sea, with the result that the wetland now constitutes a sea bay with a broad entrance to the sea (similar to the situation in the 1950s). The marshy grassland and sand dune areas at the mouth of the Sefid Rud have, however, remained more or less unchanged, while new wetland habitats have been created to the west of the river mouth.

Photo by S. Sadeghi Zadegan

Photo by S. Sadeghi Zadegan

Photo by S. Sadeghi Zadegan

IMPORTANCE FOR THE SIBERIAN CRANE

Bandar Kiashahr Lagoon and the mouth of Sefid Rud within the National Park are good representative examples of natural wetlands characteristic of the South Caspian Lowlands. This territory can be considered as a potential wintering site of the Siberian Crane. It is suitable for release of captive reared Siberian Cranes and establishment of a new wintering area in Iran.

IMPORTANCE FOR OTHER WATERBIRDS

Bujagh National Park hosts more than 100,000 migratory waterbirds annually. The site provides important wintering and staging habitats for Pygmy Cormorants (*Phalacrocorax pygmaeus*) (up to 300), ducks, shorebirds, gulls and terns, and for the raptors including Marsh Harriers (*Circus aeruginosus*) and Merlins (*Falco columbarius*).It supports large breeding colonies of several species of waterfowl, including over 1% of the Middle East breeding population of Great Cormorants (*Phalacrocorax carbo*) (1,000 pairs). It also hosts over 1% of the regional wintering populations of Black-necked Grebes (*Podiceps nigricollis*), Mallards (*Anas platyrhynchos*) and Black-headed Gulls (*Larus ridibundus*).

A flock of Dalmatian Pelicans (*Pelecanus crispus*) (usually 30-40 birds) wintered at the mouth of the Sefid Rud in the 1970s but apparently disappeared by about 1980, probably because of increased disturbance. Lesser White-fronted Geese (*Anser erythropus*) was also an occasional winter visitor to the area in the 1970s. The open grassy areas and dunes near the river mouth provide breeding habitat for 20 to 30 pairs of Collared Pratincoles (*Glareola pratincola*) and a few pairs of Common Terns (*Sterna hirundo*), while a small patch of woodland to the south of the lagoon supports Night-herons (*Nycticorax nycticorax*) (200 pairs) and other Ardeidae. Scarce winter visitors and vagrants have included Great Bitterns (*Botaurus stellaris*), Red-breasted Geese (*Branta ruficollis*) (1 in January 1973), White-headed Ducks (*Oxyura leucocephala*) (3 in February 1972), Red Phalaropes (*Phalaropus fulicarius*) and Black-legged Kittiwakes (*Rissa tridactyla*).


Photo by S. Sadeghi Zadegan


Photo by S. Sadeghi Zadegan

NEGATIVE FACTORS

Main disturbances at the site are heavy hunting pressure on waterfowl (mainly in winter), and heavy transport pressure by boats from the extensive commercial fisheries and its cooperating industries. There is also considerable disturbance from recreational activities during weekends and holidays. The great decrease in the numbers of wintering birds in the last several decades have been attributed to the increasing disturbance from fishing activities and heavy hunting pressure. Main activities currently affecting the site include:

Illegal fishing: Local population is practicing lucrative fishery, mostly on sturgeon and white fish (mullet), for food and/or profit.

Rice fields within the National Park: Farmers work in the rice fields from April to September and do other jobs for the rest of the year. Chemical use is low. The government is promoting biological pest control (Trichodrama). There are approximately 120 rice farmers at Bujagh, up to 1ha each, totaling 200 ha. The rice fields were established about 18 years ago (after the revolution), when the emphasis was on social support. No further expansion of agriculture will be allowed. One area of rice fields is not well legally defined—used for 4 months per year by four farmers.

Grazing: There is very little control over grazing at present (the site is heavily grazed in summer, about 10,000 animals). But only a few horses graze in the area during winter.

Illegal hunting: Some of the local population is engaged in waterfowl poaching for food and/or profit.

Army Camp: Army camp located next to the site. This has caused disturbance of waterfowl.

CONSERVATION MEASURES TAKEN/PROPOSED

The area was designated as a Bujagh National Park and it is being physical patrolled. There are two guard stations, one rather temporary in nature. The number of staff is 19 guards working in different shifts. The site has an excellent communications system with a radio at one guard station through which all staff can communicate with each other by walkie-talkie. Staff transport is by landrover and motorbike.

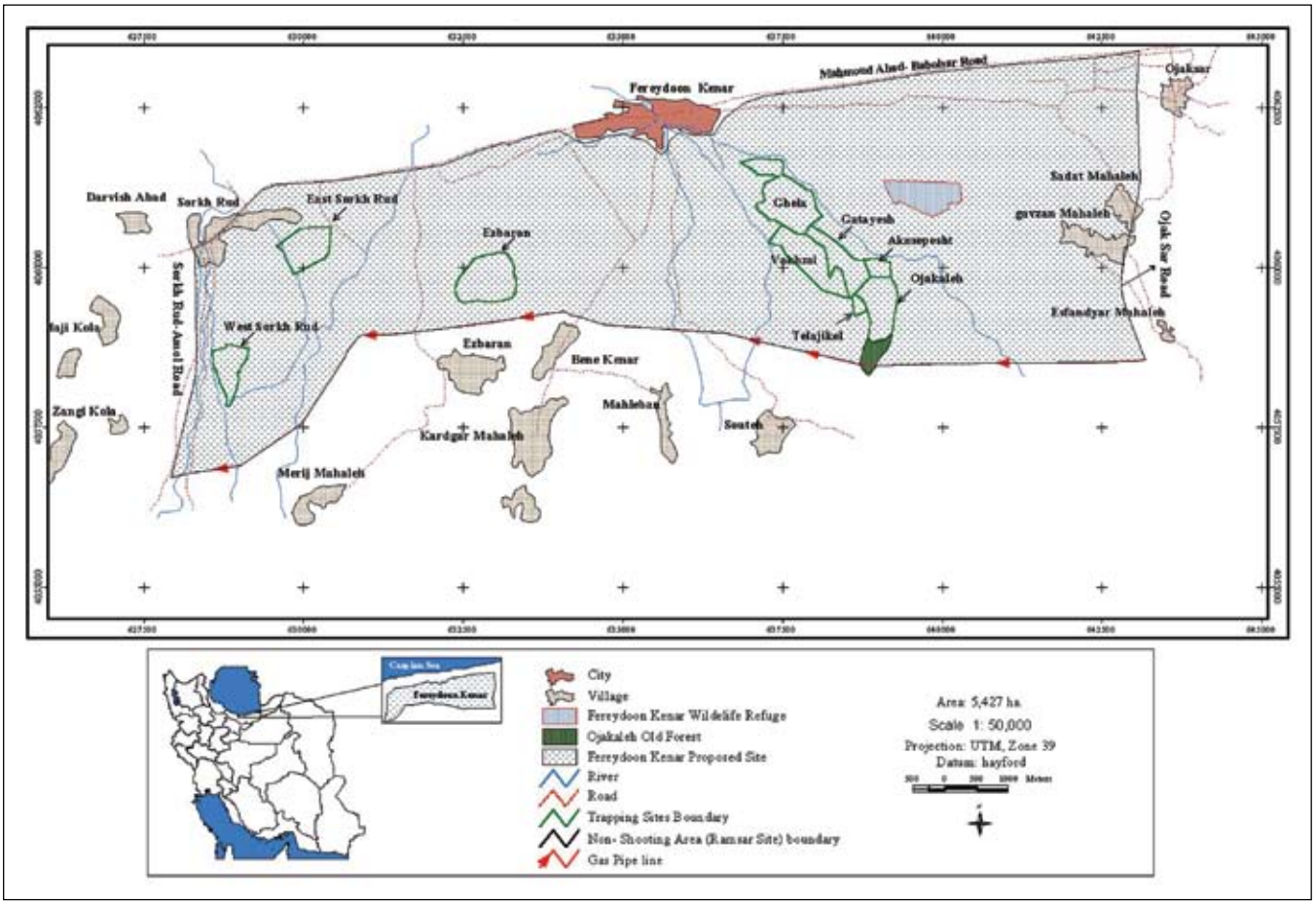
Further investigations are required to assess the ecological changes that have occurred at the wetland and to identify ways of reducing disturbance to waterfowl from fishing activities.

INTERNATIONAL IMPORTANCE

Bandar Kiashahr Lagoon and the mouth of Sefid Rud were included in *the List of Wetlands of International Importance (Ramsar)* on 23 June 1975. The Ramsar Site (500 ha) consists of the whole of the lagoon area, its associated marshes and the marshes and sand flats at the mouth of the Sefid Rud to the west. The site has been identified as an *Important Bird Area* BirdLife International and designated as a site of t*he Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds* site in May 2007.

17. Fereydoon Kenar, Ezbaran and Sorkh Rud Ab-Bandans

Compilers:
Sadegh Sadeghi Zadegan, Azin Fazeli, Deprtment of Environment of the I.R. of Iran; Iranian National Coordination Unite of UNEP/GEF Siberian Crane Wetland Project



GEOGRAPHiCAL COORDINATES

36⁰40'N, 52⁰33'E

ALTITUDE

23 m below sea level

AREA

5,427 ha

OVERVIEW

On the coastal plain of the South Caspian, just south of the town of Fereydoon Kenar and 13 km southwest of Babolsar, Mazandaran.


Photo by S. Sadeghi Zadegan

The Fereydoon Kenar wetland complex is located in the Haraz Basin. The Haraz River flows in the central parts of the north Alborz Mountains and is limited in the west by the Aleshrood Basin, in the east by the Garmrood and Babolrood Basins and in the north by the Caspian Sea. Before flowing to the plains, and along its final 20 kilometers in the rocky, forested terrain of Mohammad Abad Town, the Haraaz River falls into two main streams. One of these streams is called Kariand flows to the agricultural lands of east Amol region and fills the waterways of the area. The water flows into creeks on both sides, feeding the surrounding farms, mostly rice fields. Along the south highlands of Alborz, Karirood (Henrood) flows to the east, and after merging with Garmrood finally joins Babolrood.

The Souteh River (Katkash or SouteKal) in the east and the Hakate-Kal River in the west are boundaries of the studied damgah (duck-tapping area) of Fereydoon Kenar. These two rivers join Valikrood River (passing through this damgah), and pour into the Caspian Sea near the city of Fereydoon Kenar.


Photo by S. Sadeghi Zadegan

This site is a Non-Shooting Area designated within local rice fields. The area comprises four damgahs—Fereydoon Kenar, Ezbaran, and Eastern and Western Sorkh Ruds — and Fereydoon Kenar Wildlife Refuge (48 ha), located in the northeastern part of the damgah. Each damgahis a system of small circular or strip forests, including ponds and channels surrounded by flooded rice paddies designed by villagers to catch ducks. The damgahs contain several duck-trapping units called dooma (more than 100 units in the case of Fereydoon Kenar). Rice fields are under cultivation during spring and summer (April to early September), and become flooded in autumn and winter (October through March) in order to establish an artificial wetland to decoy waterfowl.

The average yearly temperature at the site is +17.1°C; absolute minimum temperature is –2.8°C and absolute maximum temperature is +39°C. January and February are the coldest months of the year, with an average temperature of +8°C, and August is the hottest month of the year, with average temperature of +28°C.

IMPORTANCE FOR THE SIBERIAN CRANE

During a long period only fragmentary data suggest that Siberian Cranes were observed in low wetlands along the Caspian Sea coast (Vuasalo-Tavakoli 1991, 1995). They have not been seen there during the comprehensive mid-winter waterfowl counts done by the Iranian Department of the Environment (DoE), conducted since the 1960s.


Photo by S. Sadeghi Zadegan

In 1978, a small group of 10 to 12 Siberian Cranes was re-discovered near the coastal town of Fereydoon Kenar in Mazandaran Province by Ali M. Ashtiani (1978). They were wintering at three duck and goose trapping complexes, damgahs, where they were using flooded rice fields along with other numerous waterfowl.

Since that time a regular monitoring was conducted by DoE and Mazandaran Crane Conservation Association (Table 1). A maximum of 11 to 14 birds spent the winter here during the 1970s and 1980s. Due to various factors such as the cranes' spatial demands, natural mortality, illegal hunting, and habitat destruction, the population started to fall. Only one wild crane arrived in Fereydoon Kenar in winter 2008/09.

Table 1. The number of Siberian Cranes wintering at Fereydoon Kenar, Iran from 1978 to 2009

Year (winters)	Number of birds	Data Sources	Year (winters)	Number of birds	Data Sources
1977/78	11-14	Departmnet of Environment of the I.R. of Iran*	1990/91	9	Departmnet of Environment of the I.R. of Iran*
1981/82	8	-"-	1991/92	10	-"-
1982/83	5	-"-	1992/93	11	-"-
1983/84	7	-"-	1993/94	10	-"-
1984/85	10	-"-	1994/95	8 to 10	-"-
1985/86	11	-"-	1995/96	9	-"-
1986/87	11	-"-	1996/97	7-8 (+2 released birds)	-"-
1987/88	10 to 11	-"-	1997/98	7 to 9	-"-
1988/89	11 to 14	-"-	1998/99	6 to 10	-"-
1989/90	8 to 19	-"-	1999/2000	7	-"-

2000/01	5-6	Markin 2001	2005/06	2 (+1 released bird)	Sadeghi Zadegan 2005
2001/02	3	Sadeghi Zadegan et al. 2001	2006/07	1 (+1 released bird)	Sadeghi Zadegan 2007
2002/03	3 (+3 released birds)	Markin & Sadeghi Zadegan 2003	2007/08	1 (+1 released bird)	Sadeghi Zadegan & Fazeli 2008
2003/04	4 (+2 released birds	Sadegi Zadegan 2004	2008/09	1 (+1 released bird)	Sadeghi Zadegan & Fazeli 2008
2004/05	3	Sadegi Zadegan 2005	2009/10	0	Authors' data

***Note:** according to various DoE reports*

IMPORTANCE FOR OTHER WATERBIRDS

The artificially-maintained shallow impoundments and extensive rice fields at Fereydoon Kenar provide excellent feeding and roosting habitat for large numbers of wintering waterbirds, and regularly holds well over tens of thousands of waterfowl in winter, with up to 100,000 birds at any one time.

The wintering waterfowl includes over 1% of the regional populations of Great Cormorants (*Phalacrocorax carbo*) (max. 10,200); White-fronted Geese (*Anser albifrons*) (max. 1,700 in January 1988); Greylag Geese (*Anser anser*) (max. 80,000 in January 2001); Lapwings (*Vanellus vanellus*) (max. 16,000 in January 1991); and Black-tailed Godwits (*Limosa limosa*) (max. 9,000 in January 2003). Peak counts of dabbling ducks have included 14,500 Wigeons (*Anas penelope*), 20,000 Gadwalls (*A. strepera*), 80,000 Common Teals (*A. crecca*), 80,000 Mallards (*A. platyrhynchos*), 60,000 Pintails (*A. acuta*) and 12,000 Shovelers (*A. clypeata*). A small flock of 11 Lesser White-fronted Geese (*Anser erythropus*) was present in January 1992. Other wintering waterfowl have included up to 500 Common Pochards (*Aythya ferina*), 330 Tufted Ducks (*A. fuligula*), 900 Eurasian Coots (*Fulica atra*), 15 Golden Plovers (*Pluvialis apricaria*) and 40 Common Snipes (*Gallinago gallinago*). Large concentrations of Ruffs (*Philomachus pugnax*) (max. 2,800) have been recorded on spring migration.


Photo by C. Prentice


Photo by Yu. Markin

The site is a particularly important area for migratory waterfowl, regularly supporting large numbers of birds and over 30 species. It is therefore important for conservation of the region's biodiversity.

NEGATIVE FACTORS

Since the area is agricultural, it is affected by farming activities like ploughing, watering, using chemical fertilizers and pesticides. The noise pollution made by farming machines should also be considered. Some of these elements could cause long-range side effects. There is also a brickkiln and a factory that produces disposable plastic dishes in WestSorkhrood, and the resulting industrial pollution causes many birds to leave the area. Widely growing residential areas around the factories add to the noise pollution. An under-construction freeway passing by Fereydoon Kenar and Ezbaran Damgahs, has brought more noise and light pollution to the area. Illegal hunting by natives of Roodbast, Boneh-kenar, Hosein-abad and Vozara-mahalleh villages are other factors. In addition, different hunting methods such as using aerial nets are also used by trappers.

Aerial nets: The damgah has been maintained by the local community for the purposes of trapping ducks. Local duck-trappers are concerned about the level of human disturbance, and they prevent shooting in the area, which is probably the only reason Siberian Cranes have survived. The traditional use of captive ducks and baited ponds with clap-nets is legal. The aerial nets used around the damgah present more of a problem

because they are illegal and are used without proper permission. The options are to register them (under licence from the DoE, with negotiated conditions), or to phase them out over a period of time with the full agreement of the trappers. Some compensation or other benefits would be necessary for the second option. However, there has been no report of accidents of Siberian Cranes with aerial nets.


Photo by C. Prentice

End-of-Season Shoot-out: Toward the end of each season, when duck-netting becomes unprofitable, the area is opened up to hunting with guns in a massive "shoot-out". There is a potential threat that Siberian Cranes could be shot accidentally. This is the single greatest threat to the surviving flock of Siberian Cranes. In March 2000, the end-of-season shoot-outhappened while Siberian Cranes were still present. This was an extremely dangerous situation and it is very fortunate that no cranes were shot. However, they were still seriously disturbed by the shoot-out and were forced to leave the site early (they were subsequently located at Ardabil). In 2001, the Department of Environment designated a Non-Shooting Area for all of Fereydoon Kenar, with a total area of 5,427 ha. At this time, the end-of-season shoot-out became strongly forbidden.

Widespread shooting and the use of aerial nets in the surrounding area represent a threat to the Siberian Cranes and other endangered species using the area. The incidence of lead poisoning in waterfowl is poorly knownbut may be significant. Overhead power cables pose a hazard to large waterbirds in flight, including Siberian Cranes.

CONSERVATION MEASURES TAKEN/PROPOSED


Photo by S. Sadeghi Zadegan

The site has beena "Non-Shooting Area" since June 2001, covering Fereydoon Kenar, Ezbaran, Eastern & Western Sorkh Rud Damgahs and Fereydoon Kenar Wildlife Refuge, including a buffer zone around each of these areas. To ensure that waterfowl are not disturbed, the duck trappers enforce a strict ban not only on shooting activities in the area, but also on all other unnecessary human activity. As a result, the damgah wetland and surrounding paddies constitute one of the best protected and least disturbed wetlands in the South Caspian lowlands. Few birds other than Mallards and Common Teals are trapped, and thus for the many thousands of other ducks, geese and shorebirds, and for the cranes, conditions are ideal.

A site management plan is being developed for the site by the local DoE experts in the frame of UNEP/GEF Siberian Crane Wetland Project. The plan was opened for review and commentary by the local stakeholders, after which the site management plan was officially approved and implemented.

Proposed conservation measures include: to conduct regular birds counts during autumn and winter and to maintain study of changes in their populations; to prevent various ways of deforestation; to ban unauthorized and unusual methods of hunting thatthreaten the biodiversity of the area (such as aerial nets, the Cage Trap (Keres) method, etc.); to amend the existing rules and to verify whether they agree with local customs; to amend and verify the existing punishments and preventive fines according to the local socio-economic and cultural state; to educate and raise awareness of juridical executives and judges to clarify the cultural and biological values of the area; to study helpful comments made by local organizations, natives and stakeholders and take necessary actions; to remove factories and other structures with negative effects on the environment; to not authorize construction of residential buildings and satellite towns in the area to secure the grounds surrounding the wetlands

INTERNATIONAL IMPORTANCE

The site is included in *the List of Wetlands of International Importance (Ramsar)* in 1971. The site has been identified as an *Important Bird Are*a BirdLife International (Evans 1994). In May 2007 it was designated as a part of *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

CENTRAL ASIAN FLYWAY

MIGRATION STOPOVERS

UZBEKISTAN

There are a few records of the Siberian Crane in Uzbekistan along Central Asian Flyway in 19th and beginning of 20th century in different parts of the country. These sightings were described by N.A. Zarudny, an ornithologist who worked in former Turkestan and southeastern Persia (Lanovenko 2004a).

Data has also continued to come in during last decade. Almost all Siberian Cranes were sighted in flocks of Eurasian Cranes. It is important to note that the places where sightings were recorded lie on one of the main spring and fall migration flyways of the Eurasian Crane and several other large bird species, which crosses the Kyzylkum Desert from the lower Syrdaria through the valley of the Amudaria, through Badkhys State Nature Reserve (South Turkmenistan) and further to the Middle East (Mitropolsky 2005).

Siberian Cranes, along with Eurasian and Demoiselle Cranes, cross Uzbekistan during season migrations. Siberian Crane sightings (Figure 1) show that there are no traditional migration stopovers in the territory of Uzbekistan but that they have occasionally stopped for short periods of rest in different parts of the country.

Near the town of Termez, Uzbekistan, a vast expanse of wintering grounds for Eurasian Cranes and other waterbirds was discovered in 2001. During the next few years, comprehensive surveys and bird censuses were conducted there. This site is considered as a potential wintering ground for the Siberian Crane, and therefore is included in this publication.

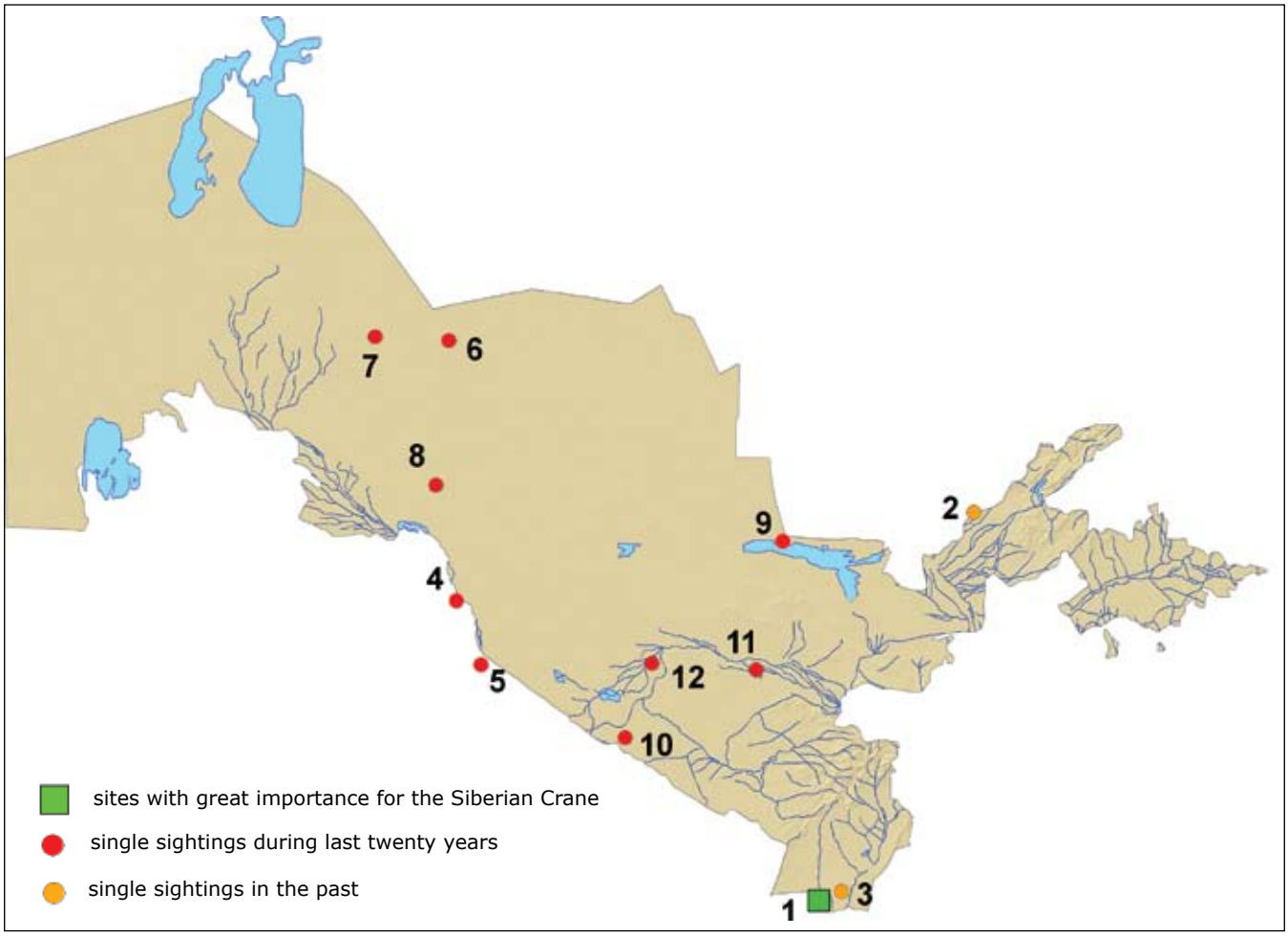


Figure 1. Sightings of the Siberian Crane in Uzbekistan along the Central Asian Flyway

LEGEND TO FIG. 1

1 – Termez, potential wintering ground for the Siberian Crane;
2 – Keles River, not far from Tashkent City: one Siberian Crane flew over a wheat field along the river in a small flock of Eurasian Cranes on 8 April 1972 (Kashkarov et al. 1977);
3 – Low Surkhandaria River: one Siberian Crane in March 1975 (Ostapenko 1987);
4 – Middle Amudaria, 17 km NNE of village of Darganata: on 30 September 1989, one Siberian Crane flew in a flock of 35 Eurasian Cranes (Mitropolskiy 2005);
5 – Middle Amudaria, 14 km NNE village of Kabakly: on 26 October 1989, one Siberian Crane flew in a flock of 25 Eurasian Cranes (Mitropolskiy 2005);
6 – Kyzylkum Desert, not far from border between Uzbekistan and Kazakhstan, near the village of Chabankazgan from 5 October to 9 November 1998, according to PTT data from Siberian Crane chick reared by Eurasian Cranes in Kunovat River Basin (unpublished data);
7 – 75 to 100 km from Aral Sea on 21 October 1998, according to PTT data from the chick of the wild Siberian Crane pair from Kunovat (Russia) (unpublished data);
8 – Kyzylkum Desert, 10 km south of the Beltau Heights, according to PTT data coming on 22 and 23 October 1998 from the same Siberian Crane chick (see **7**) (80 to 100 km from the Siberian Crane chick reared by Eurasian Cranes (see **6**);
9 – West-northern part of Aidarkul Lake: one Siberian Crane in a big flock of Eurasian Cranes on 3 April 2002 (Lanovenko 2002);
10 – Border of Bukhara and Kashkadaria Regions, about 10 km south of Deukhon Lake: one Siberian Crane flew in a flock of 15 Eurasian Cranes at the altitude of 150 m on 5 October 2003 (Lanovenko 2003a);
11 – Katta-Kyrgan Reservoir, Samarkand Region: one Siberian Crane was feeding in shallow water (white plumage with brownish feathers) on 7 April 2007 (Belyalova & Fundukchiev 2007);
12 – Bukhara Region: 10 Siberian Cranes in a flock of 150 Eurasian Cranes on 10-12 October 2007 to the east of Tudakul Lake (Karnabchul steppe, 20 km from Bukhara City) (CMS/ICF 2008), however these data are doubtful.

18. Termez

Compilers:
Gennady Goncharov, State Committee on Nature Protection of the Republic of Uzbekistan (Gosbiocontrol)
Eugenia Lanovenko, Ekaterina Filatova, Institute of Zoology of the Uzbek Academy of Science

GEOGRAPHICAL COORDINATES	ALTITUDE	AREA
37°19'N, 67°06'E	281-290 m above sea level	8,400 ha

OVERVIEW

The site is located 23 km northwest of Termez on the first flooded terrace of the Amudaria River between the Kaptarhona and Sholiker settlements. The site area ranges from 1.5 to 6 km in width and is about 30 km long. Natural borders are the Amudarya River in the south and southwest, the loess breakages differentiating the first and second inundated terraces in the east and northeast, as well as bogs and reed brushwood in other parts of the floodplain.

The main waterway is the Amudaria River, which is 400 to 700 m wide. High waters are not observed, and washout of the coast is insignificant. The first inundated terrace in the headwaters of the Amudarya support fields of winter wheat and rice (85%). The territory includes a deltic formation at the confluence of the Karasy River and Amudaria River, with extensive sandy shallows, shallow channels, and islands and reed brushwood (15%). The core factors for waterbirds and cranes are: the good forage reserve, the open spaces providing relative safety, the presence of sandy shallows, and the islands providing safe day- and night-time rest. The site is surrounded by loess breakages, forming the border with the second inundated terrace (bordering the second inundated terrace), a main stream of the Amudaria River, and cultivated fields. Outside the zone of agricultural development, continuous thickets of reed brushwood in bogs and small lakes persist, creating poorly attractive habitat for wintering and migrant birds such as cranes.

The climate is continental. Mid-annual air temperature is around +20°C. In January, the average temperature is about +4°C. Atmospheric precipitation ranges from 166 to 256 mm.


Photo by E. Lanovenko


Photo by E. Lanovenko


Photo by E. Lanovenko

IMPORTANCE FOR THE SIBERIAN CRANE

The Siberian Crane has never been recorded on this territory. However, it is considered a suitable habitat (extensive shoals with rich food resources and a low level of disturbance), with the purpose of introducing this disappearing species using birds reared in captivity.

With support from the International Crane Foundation in 2004 and 2005, research was conducted on the ecological conditions of the territory (habitat, climatic conditions for wintering, threats, forage reserve) and on the phenology and dynamics of the Eurasian Crane population during winter and spring migration. The territory can be considered a suitable wintering location for captive-reared Siberian Cranes (Lanovenko 2005).


Photo by E. Kreuzberg-Mukhina

IMPORTANCE FOR OTHER CRANE SPECIES


Photo by E. Kreuzberg-Mukhina

Before 2000, Eurasian Cranes (*Grus grus*) were considered migrant in Uzbekistan. Since 2001, due to climate change, Eurasian Cranes have overwintered in the Amudaria River Valley, where Uzbekistan, Turkmenistan, Tajikistan and Afghanistan join together, but mostly on the border area between Uzbekistan and Afghanistan 23 km from the town of Termez (Abdusalyamov 2004, Rustamov 2004, Lanovenko 2003b, 2004c). Cranes feed in the valley and fly to night roost in the shallow parts of the river or in the huge wetlands of Mazar-Sharif Province in Afghanistan. Since the discovery that Eurasian Cranes overwinter in Uzbekistan, counts have been conducted almost every year, with results of 6,000 (min.) to 22,000 (max.) (Lanovenko 2004b, c, d; Lanovenko 2008a, b).

IMPORTANCE FOR OTHER WATERBIRDS


Photo by E. Lanovenko

More than 20,000 waterbirds spend the winter in the territory. According to annual winter counts in 2003, 55,868 birds of 30 species were recorded, including the usual species: Greylag Geese (*Anser anser*) (18,996), Mallards (*Anas platyrhynchos*) (5,728), Eurasian Cranes (11,652); in 2004, 68,881 birds of 38 species including the basic species were recorded: Greylag Geese (17,512), Mallards (14,057), Eurasian Cranes (22,169), Lapwings (*Vanellus vanellus*) (2,193); in 2005, 39,811 birds of 40 species including the following common species were recorded: Greylag Geese (5,942), Mallards (9,360), and Eurasian Cranes (10,745) (Kreuzsberg-Mukhina 2001, Lanovenko et al. 2001, Kreuzberg-Mukhina & Lanovenko 2003a, Lanovenko 2005).

In 2005 the globally threatened Little Bustard (*Tetrax tetrax*) was counted during migration (up to 3,200) and in the wintering site (up to 5,000) (Kreuzberg-Mukhina & Lanovenko 2003b).

Table 1. Key focal bird species occurring on the Amudarya floodlands near Termez

Species	Status	Number
Globally Significant Migratory Waterbird Species		
Great Cormorant (*Phalacrocorax carbo*)	common resident	max. 3,000 wintering
Greylag Goose (*Anser anser*)	common wintering	max. 31,000
Mallard (*Anas platyrhynchos*)	common wintering	max. 16,000
Eurasian Crane (*Grus grus*)	common wintering	max. 22,000
Demoiselle Crane (*Anthropoides virgo*)	common migrating	max. 5,500
Rare and Threatened Species		
Dalmatian Pelican (*Pelicanus crispus*)	rare visitor	
Pygmy Cormorant (*Phalacrocorax pygmaeus*)	common resident	
Lesser White-fronted Goose (*Anser erythropus*)	rare visitor	max. 500 in 2003-2005
Ferruginous Duck (*Aythya nyroca*)	rare visitor	
Marbled Teal (*Marmaronetta angustirostris*)	rare breeeding	max. 100 migrating birds in 2001-2005
Pallid Harrier (*Circus macrourus*)	rare wintering	
Imperial Eagle (*Aquila heliaca*)	rare migrating and wintering	6 in 2005
Spotted Eagle (*Aquila clanga*)	rare wintering	
Saker Falcon (*Falco cherrug*)	common resident	
Little Bustard (*Tetrax tetrax*)	common wintering	max. 5,000

NEGATIVE FACTORS

Human factors are the main threats to this site. The principal cause from which there may be a loss of the given territory for birds is a change of habitats as a result of reduction of the area of wheat and rice crops, which are important feeding areas for cranes and geese. The second most important factor is the stability of the Karasy River current, which flows into the Amudarya River. If the Karasy River current slows due to development upstream, the sediments that are deposited where it meets the Amudaria River will be reduced and very soon extensive sandy shallows and islands used by birds will be washed off by the Amudaria River current or overgrown by flooded forest. The basic threat from natural factors is the gradual shifting of the Amudarya River accompanied by bank erosion moving northward.

CONSERVATION MEASURES TAKEN/PROPOSED

Special measures are not present, though the territory is protected by frontier guards and a limited number of visitors are allowed entry. It is a protected site in the Amudarya River floodplain, with cultivated grain fields that make a good forage reserve for migrating and wintering waterbirds.

Within the limits of the Project on Important Bird Areas in Uzbekistan, in 2006 the site was proposed to nominate in Ramsar List of Wetlands of International Importance territory and to organize an ornithological refuge (IV category IUCN) (Lanovenko 2008b).

INTERNATIONAL IMPORTANCE

The site is an *Important Bird Area* Birdlife International called "Amudarya Floodlands near Termez". It was designated as a part of *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbids* in May 2007.


Photo by E. Lanovenko


Photo by E. Lanovenko


Photo by E. Lanovenko

TURKMENISTAN

Turkmenistan lies on the Siberian Crane Central Asian Flyway. Historical data about sightings of this species—as well as data from satellite tracking of a wild-born chick marked in the Kunovat River Basin in western Siberia in the summer of 1998—show that Siberian Cranes used the same flyway as Eurasian Cranes. Turkmenistan remains a stopover site for Eurasian Cranes, and though little information exists regarding Siberian Cranes' use of the region in recent years, they may stop here briefly for rest during migration.The most suitable habitats for Siberian and Eurasian Cranes are located in the Tedzhen River Valley, where most intensive waterbird migration goes, and in the Kelif Lakes, where a Siberian Crane family with a marked chick stopped in 1998. Information about these sites is presented in the given publication.

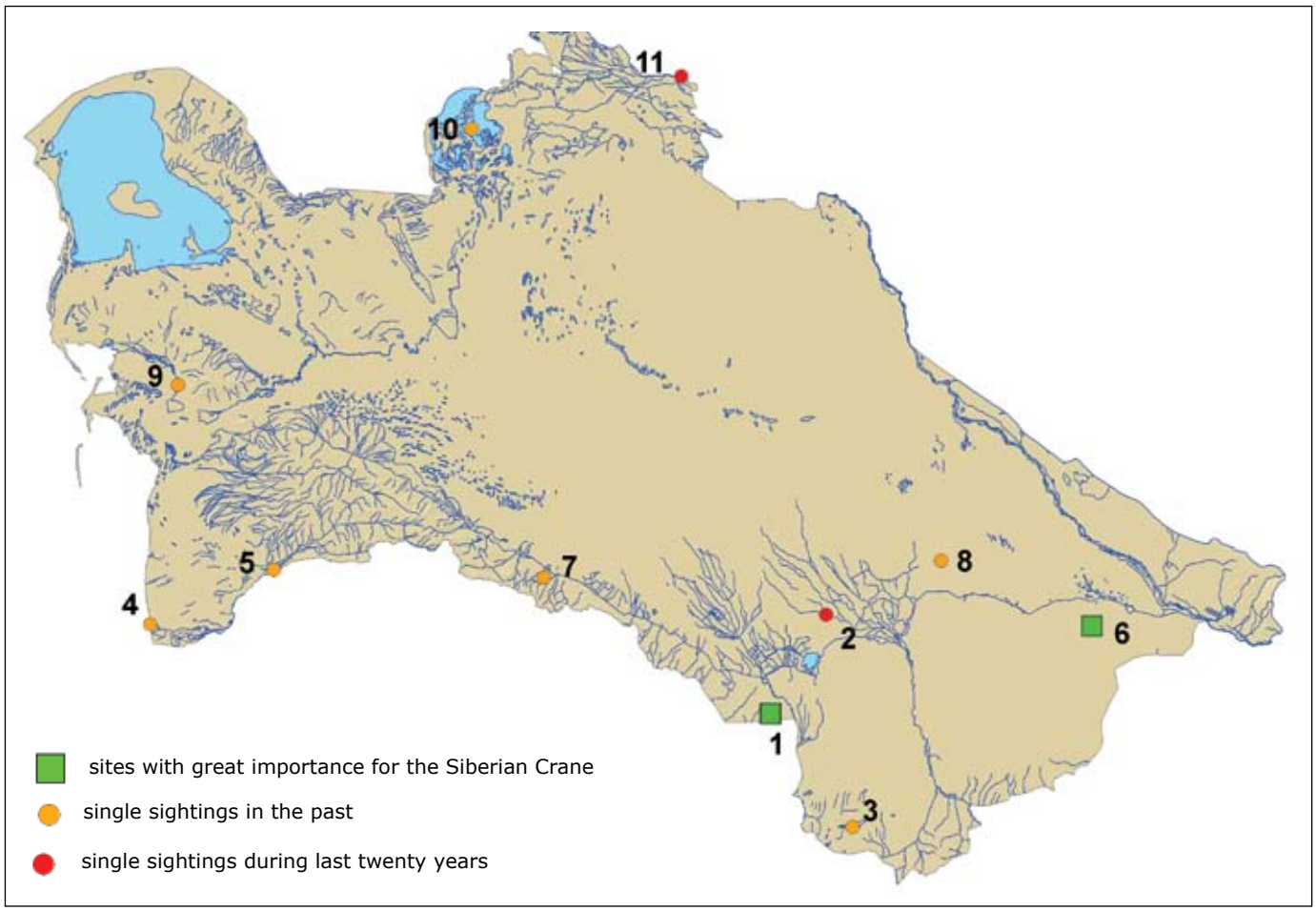


Figure 1. Sightings of the Siberian Crane in Turkmenistan along the Central Asian Flyway

LEGEND TO FIG. 1

1 – Durnaly, the Meana-Chaacha foothill plain of Eastern Kopetdag, is a historical migration stopover of the Siberian Crane, two sightings (see description of sightings in the section about the site bellow);

2 – Tedzhen and Murgab Interfluves, one sighting: one Siberian Crane was recorded 35-40 km south of Hauzhan Reservoir in autumn 1997, according to information from local people (Saparmuradov 2002);

3 – Badkhyz, one sighting: five Siberian Cranes in a flock of Eurasian Cranes on 10 March 1977 near the salt lake of Eroilanduzin (Atayev et al. 1978);

4 – East coast of Caspian Sea, one sighting: in the early 19th century, according to data from G. Karelin (Dementiev 1952);

5 – Lowlands of Artek River near Chatly, two sightings: two Siberian Cranes on 5 November 1898, and three on 25 November 1898 (Zhitnikov 1900);

6 – Tallymerjen & Kelif-Zeyit, two sightings (see description of sightings in the section about the site bellow);

7 – Kopetdag foothills near Ashgabat, one sighting: one(?) Siberian Crane in late autumn 1935 according to information from S. Tishkin (Dementiev 1952);

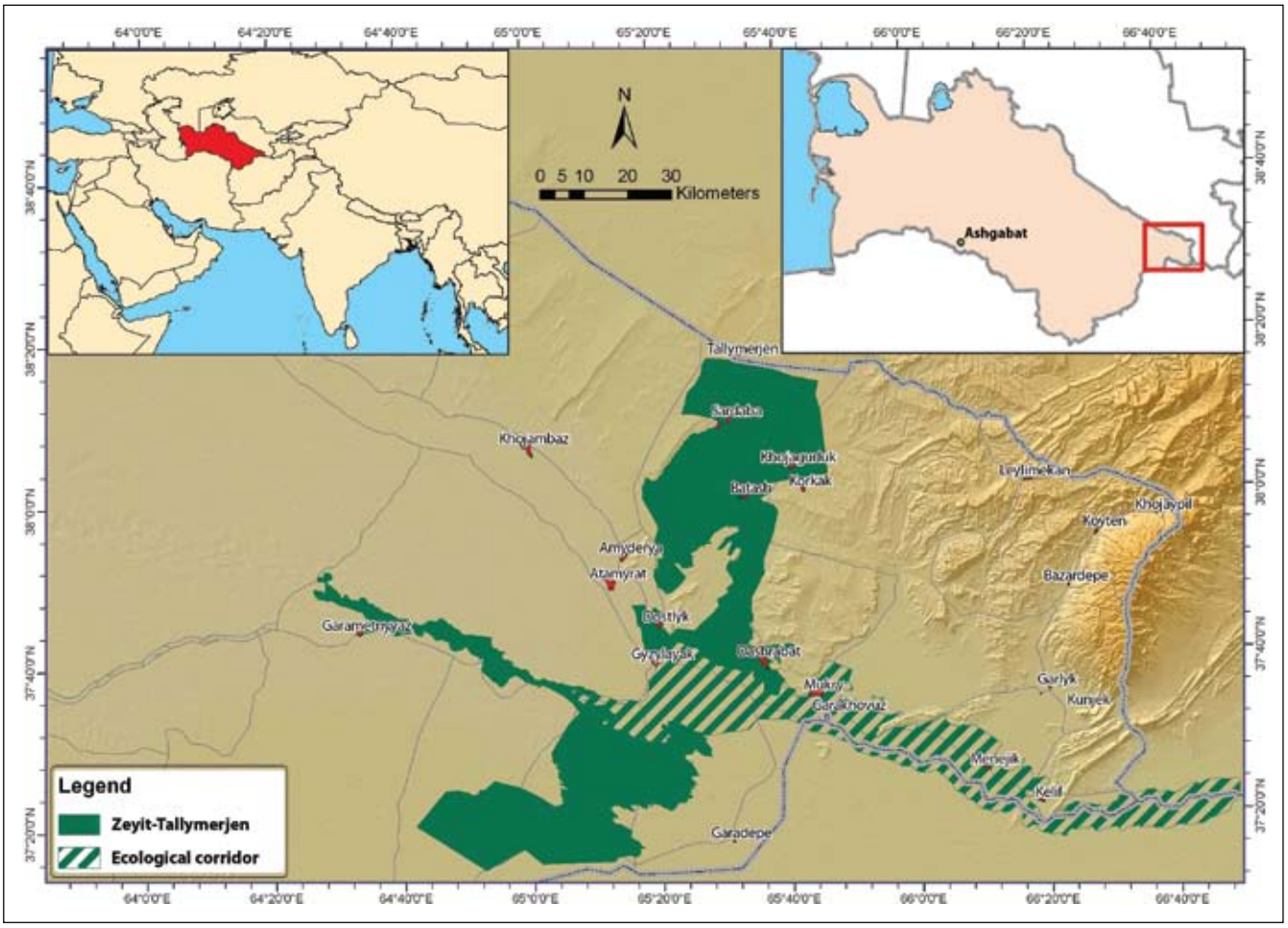
8 – Eastern Karakum, one sighting: six Siberian Cranes flew over Uchadzhi railway station in on 6 March 1901 (Loudon1902)*;

9 – Foothills of Great Balkhan Mountains, one sighting: near Mollakar in late April – early May 1896 (Flericke 1897)*;
10 – south shore of Sarakamysh Lake (now the center of the lake), one sighting: a flock of Siberian Cranes in early April 1891, according to information from Sipyagin (Zarudny 1896);
11 – Low Amudaria Valley, one sighting: two Siberian Cranes in a flock of Eurasian Cranes near Muskinate Village (near Nukus) on 26 September 1990, according to data from A. Solokha (Rustamov 1999);

***Notes:** G.P. Dementiev (1952) considered data from these authors as doubtful.

19. Tallymejen & Kelif-Zeyit

Compilers:
Eldar Rustamov, Dzhumamurad Saparmuradov, Ministry of Nature Protection of Turkmenistan



GEOGRAPHICAL COORDINATES
37°3'N, 64°5'E – 38°3'N, 65°6'E

ALTITUDE
min. 180, max. 400 m above sea level

AREA
315,150 ha

OVERVIEW

The site is located 600 km east of Ashgabat, between the settlements of Karametniyaz, Atamurat, Dostluk, Dovletli, and Tallymerjen, with 5 to 10 thousand people in each.

The site consists of two parts: the south section is located on the leftbank of the Amudaria River and includes wetlands (Kelif Lakes and Zeyit Reservoir) and virgin and agricultural lands Gulistan and Dovletli southwest of the reservoir; the north section, Tallymerjen, is located onthe rightbank of the Amudaria River andits valley.

The south section includes wetlands typical of Middle Asia deserts, which were created artificially in the middle of the last century as a result of Karakum Channel construction and the filling of the Kelif Uzboi hollows with water from the Amudaria River. In the 1980s the biggest hollow, Uzynshor, was filled, and Zeyit Reservoirwas constructed, with as area of 71,000 ha. As a result, a great system of big and small lakes andshallows was established, and good conditions for breeding, staging and wintering of waterbirds were created. Areas adjacent to Zeyit Reservoir have been used for growing wheat, barley, and cotton during the last few decades. Almost all of the northern part is covered with agricultural fields, as well as within the Amudaria floodplain.

The climate is acutely continental, with some subtropical characteristics. Summers are hot and continuous; winters are short, with little snow and moderately cold. The average temperature of January is –2°C and July is +35°C.

IMPORTANCE FOR THE SIBERIAN CRANE

Satellite tracking data of the wild-born Siberian Crane chick from the Kunovat River Basin in western Siberia shows that its flyway went through Kelif Lakes in the south part of the site. On 24 October 1998, the family stopped for a short rest on the dried-up lake 22 km east of the Karametniyaz settlement (Saparmuradov 2002). In addition, migrating Siberian Cranes were observed along the Amudaria Valley: on 5 April 1985, a flock of 25 birds was recorded on the river bank 200 km northwest from Kelif Lakes (Cherenkov & Cherenkov 1988). The site can be considered suitable habitat for Siberian Cranes, as it is already an established location for Eurasian Crane migration and overwintering, and as the two species require similar conditions.

IMPORTANCE FOR OTHER CRANE SPECIES


Photo by E. Rustamov

Eurasian Cranes (*Grus grus*) and sometimes Demoiselle Cranes (*Anthropoides virgo*) pass through the site during migration. Eurasian Cranes have overwintered here since 1997 (Rustamov 2005, Rustamov et al. 2007).Their number has fluctuated from year to year due to changes in weather conditions and the cranes' movements between Turkmen, Uzbek and Afghan wintering grounds within an ecological corridor has effectively joined together the Eurasian Crane migration and wintering zones. In the north part of the site in January 2002, nearly one thousand Eurasian cranes were counted; in January 2004, more than seven thousand, in January 2005, 504; in January 2007, 6,888, and in the cold winter of 2008, only two birds (Rustamov 2004, Rustamov et al. 2007, Rustamov, unpublished data). In the south part of the site, in Gulistan and Dovletli, in January 2004, 6,735 Eurasian Cranes were counted; in January 2005, 85, in January 2007, 281, in January 2009, up to four thousand, and in January 2010, 517. During the winter of 2008 no cranes were recorded here (Rustamov et al. 2007, Rustamov, unpublished data).

IMPORTANCE FOR OTHER WATERBIRDS

The site is an important migration stopover and wintering ground for waterbirds. Near 35,000 to 40,000 birds pass through this area and spend the winter here each year. Agricultural fields in the north part of the site support mainly Greylag Geese (*Anser anser*), Shelducks (*Tadorna ferruginea*) and Mallards (*Anas platyrhynchos*), while in the Amudaria floodplain and shallows the most numerous species are Mallards, Common Teals (*Anas crecca*), Red-crested Pochard (*Netta rufina*) and other waterfowl. Recently, the threatened Little Bustard (*Tetrax tetrax*) was discovered wintering here. In the south part of the site there are suitable breeding and wintering grounds and migration stopovers for waterbirds. In November and December over 20,000 waterfowls of 25 species settle inhabit the Zeyit Reservoir. This reservoir is the most important waterfowl wintering site in Middle Asia (Rustamov 2009). Here such rare and endangered species as Dalmatian Pelican (*Pelecanus crispus*), Ferruginous Duck (*Aythya nyroca*) and White-headed Duck (*Oxyura leucocephala*) have been recorded. The site supports species whose numbers exceed 1% level of their populations, based on the criteria of Wetlands International: Mallard, Red-crested Pochard, and Common Pochard (*Aythya ferina*). Dominant species are Eurasian Coot (*Fulica atra*), Mallard and Red-crested Pochard; according to many years' censuses their mean portions are 30.7%, 21.9% and 14.9% respectively. The portion of Wigeon (*Anas penelope*), Gadwall (*A. strepera*), Common Teal, Pintail (*A. acuta*), Shoveler (*A. clypeata*) and Tufted Duck (*Aythya*

fuligula) consists of 1-10%. In addition, Greater and Pygmy Cormorants (*Phalacrocorax carbo, Ph. pygmeus*) and Graylag Geese inhabit the south part of the site.

NEGATIVE FACTORS

Main negative factors include reed burning, poaching and overfishing. Due to natural process, in future, agricultural soils can be saline and not productive.

CONSERVATION MEASURES TAKEN/PROPOSED

Kelif Ornithological Sanctuary (103,000 ha) is located in the west of the south part of the site and is under the responsibility of the Amudaria State Nature Reserve. Two plots of the site are included in Important Bird Areas of international significance and in the Protected Area Monitoring Plan according to Program on IBA Central Asia (BirdlifeInternational - IBA/CA).

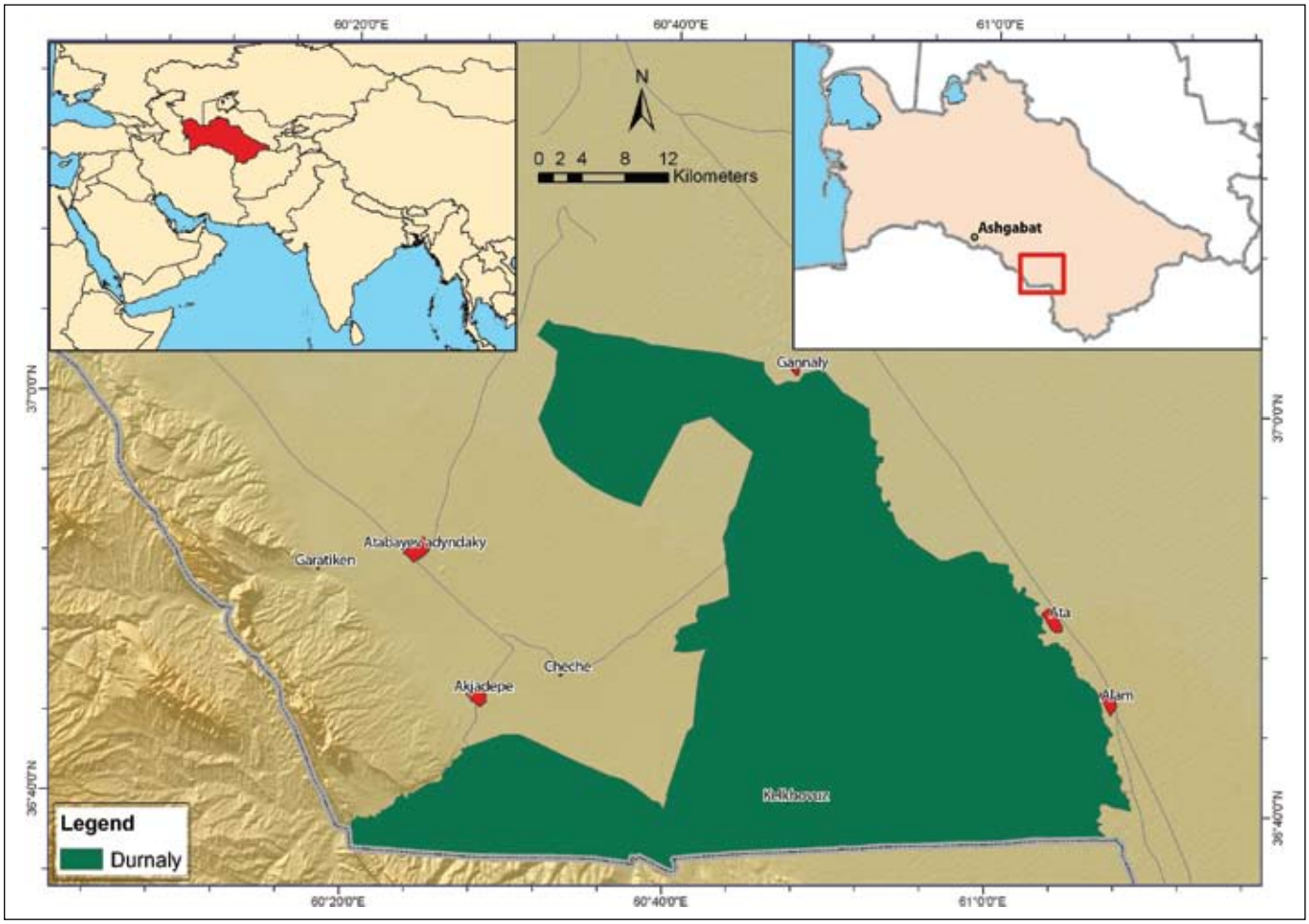
It was proposed to change the borders of the Kelif Ornithological Sanctuary to include Zeyit Reservoir and adjacent areas. The next step should be nomination of the site in the Ramsar List of Wetlands of International Importance.

INTERNATIONAL IMPORTANCE

The north part of the site, Tallymerjen, is an *Important Bird Area* Birdlife International, with an area of 167,701 ha. The south part of the site, with a total area of 147,449 ha, also has the IBA named Kelif-Zeyit, with an area of 85,488 ha (Rustamov et al. 2009). The established ecological corridor joins together not only these two IBAs in Turkmenistan, but also the Uzbek IBA ("Amudaria floodplain near Termez" with an area of 10,693 ha), as well as the Amudaria River Valley in Afghanistan. The area of the ecological corridor 156,368 ha, including 113,566 ha in Turkmenistan, 7,709 ha in Uzbekistan and 35,093 ha in Afghanistan. The Tallymerjen & Kelif-Zeyit site is proposed for inclusion in *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

20. Durnaly

Compilers:
Eldar Rustamov, Dzhumamurad Saparmuradov, Ministry of Nature Protection of Turkmenistan



GEOGRAPHICAL COORDINATES

36°6'N, 60°45'E – 37°1'N, 61°2'E

ALTITUDE

min. 218 m, max. 500 m above sea level

AREA

170,000 ha

OVERVIEW

This area is located 230 km southeast from Ashkhabad, between the small towns of Meana, Chaacha and Gannaly, with a population of 5,000 people in each.

Durnaly Clay lies in the pre-mountain plain of the Eastern Kopetdag Mountain Range, bordering on the Tedzhen floodplains (in the east) and the Karakumdaria River (in the north), with rarified vegetation, partially developed for irrigation and land cultivation. Surface waters are created by the natural flow of the small rivers Meana and Chaacha and also by irrigation along small canals from Tedzhen and Karakumdaria rivers.


Photo by K. Atayev

The Tedzhen River (called the Gerriud River in Iran) is characterized by flooding (except in years of drought/ with the exception of dry years), which usually starts in March (occasionally it begins in February or April), and ends in June or July.The river then becomes dry until November or December. The water regime of the Karakumdarya River, which flows along the northern boundary of the site, is stable.

There are various land cover types within the Durnaly region: 1) natural clay and sandy-clay areas with ephemeral and saline plants; 2) agricultural fields with wheat, barley, alfalfa, and cotton alternating with fallow fields; and 3) areas with wetlands and tugai vegetation in the lowlands, especially along the Tedzhen River Valley.


Photo by E. Rustamov

IMPORTANCE FOR THE SIBERIAN CRANE

The site is an historical habitat of the Siberian Crane. For a period of more than 100 years, only two sightings have been registered: one Siberian Crane was observed on 9 October 1912 at the Dushak railway station, 70 km northwest of the site (Dementiev 1952); and two Siberian Cranes were recorded on 15 October 1985 in the northeastern part of the site near Goshadepe, according to personal information from A. Kurbanov, researcher at Kopetdag Nature Reserve. The territory can be considered an appropriate habitat for the Siberian Crane, as it is located on the migration route of Eurasian Cranes. Siberian Crane sightings were in flocks of Eurasian Cranes.

IMPORTANCE FOR OTHER CRANE SPECIES

Durnaly has turned out to be a bottleneck of regular seasonal waterbird migration in meridian direction through Eastern Kopetdag. Both Eurasian Cranes (*Grus grus*) and Demoiselle Cranes (*Anthropoides virgo*) migrate through the site, though the latter is quite rare. The number of migrating Eurasian Cranes during spring migration ranges from 1,319 to 8,950 (Korshunov 1989) and as many as 11,975 in some years (Efimenko 1990). During autumn migration, up to 8,220 Eurasian Cranes pass through Durnaly (Efimenko 1990). Eurasian Cranes can also overwinter in Durnaly in numbers estimated from 600 to 1,300-1,700 (Rustamov et al. 2007, 2009). Eurasian Cranes feed in agricultural fields and roost in the wetlands of the Tedzhen Valley.


Photo by K. Atayev


Photo by K. Atayev

IMPORTANCE FOR OTHER WATERBIRDS

The site regularly supports five thousand or more waterbirds at one count during migrations. The following species cross the northern and eastern parts of the Durnaly region: Mallards (*Anas platyrhynchos*), Eurasian Coots (*Fulica atra*), Red-crested Pochards (*Netta rufina*), and Common Pochards (*Aythya ferina*), Tufted Ducks (*A. fuligula*), Great Cormorants (*Phalacrocorax carbo*) and Pygmy Cormorants (*Phalacrocorax pygmaeus*), Grey Herons (*Ardea cinerea*) and Great Egrets (*Egretta alba*), grebes, gulls and sandpipers, with a total of over 20 thousand birds; some of them - Greylag Geese (*Anser anser*), Ruddy Shelducks (*Tadorna ferruginea*), mallards, cormorants and others have wintering grounds here, comprising over 5,000 birds (personal data of E. Rustamov and J. Saparmuradov).

NEGATIVE FACTORS

The main threat is the factor of disturbance, including poaching and an inconsistent hydrological regime of the Tedzhen, Meana and Chaacha Rivers as a result of excessive water consumption in northern Afghanistan and Iran.

CONSERVATION MEASURES TAKEN/PROPOSED

Meana-Chaachinsky Wildlife Refuge (60,000 ha), as a part of the Kopetdag State Nature Reserve, was established in 1976, covering the southwest area of the site. According to the Action Plan on Conservation and Sustainable Using of Biodiversity of Turkmenistan (2002), establishment of Meana-Chaachainskiy Crane Refuge is planned as a component of the Western/ Central Asian Site Network for the Siberian Crane and Other Waterbirds.

INTERNATIONAL IMPORTANCE

The almost total area of the site is designated an Important Bird Area Birdlife International called "Tejen" with area 162,909 ha (Rustamov et al. 2009). In May 2007 the site was designated as a part of *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*


Photo by K. Atayev


Photo by E. Rustamov


Photo by R. Kozubov

AFGHANISTAN

Siberian Cranes have migrated through the Central Asian Flyway in Afghanistan with a few stopovers, of which Ab-i-Estada and Dashte-Nawar are known through historical records. However, there are no records of the occurrence of this species in the country during the last 30 to 40 years. The last sighting was of two Siberian Cranes in the spring of 1974 in Ab-i-Estada (Petocz & Habibi 1975).

The Siberian Crane migration route was confirmed in 1998 by satellite tracking of the chick born in the Kunovat River Basin. After the family stopped for a short rest at the small lake 22 km from Karameyniyaz Village in Turkmenistan (Saparmuradov 2002), PTT signals came on 26 October and then 9 through 15 November from Afghanistan. One signal came from Balkh Province, not far from the Amudaria Valley, where in 2001 the Eurasian Crane wintering grounds were discovered in the territories of Uzbekistan, Turkmenistan, Tajikistan and Afghanistan, but mostly along the border of Uzbekistan and Afghanistan (Rustamov 2004, Lanovenko 2003, 2004, Abdusalyamov 2004).

Discovery of new wintering grounds encouraged the investigation of the adjacent area in Afghanistan. In January 2006, staff of the non-governmental organization "Save the Environment of Afghanistan" (SEA) conducted a survey in the Shurtepa District of Mazar Sharrif Province in the Amudaria Valley not far from the towns of Shurtepa and Joi Wakil. They discovered huge wetlands where hundreds of Eurasian and Demoiselle Cranes stop for roost during migrations. Furthermore, local people are familiar with both Eurasian and Siberian Cranes. This information as well as sattelite transmitter data shows that Siberian Cranes could possibly have used the wetlands in Shurtepa as a migration stopover in previous years (Archibald 2005).

Observations in Turkmenistan and Uzbekistan show that very often Siberian Cranes were sighted in flocks of Eurasian and Demoiselle Cranes. This might have made Siberian Cranes vulnerable to and victims of crane hunting, which has been a popular sport in Afghanistan and Pakistan for centuries. Hunting was probably the major cause for rapidly decreasing numbers of the Siberian Crane along the central flyway.

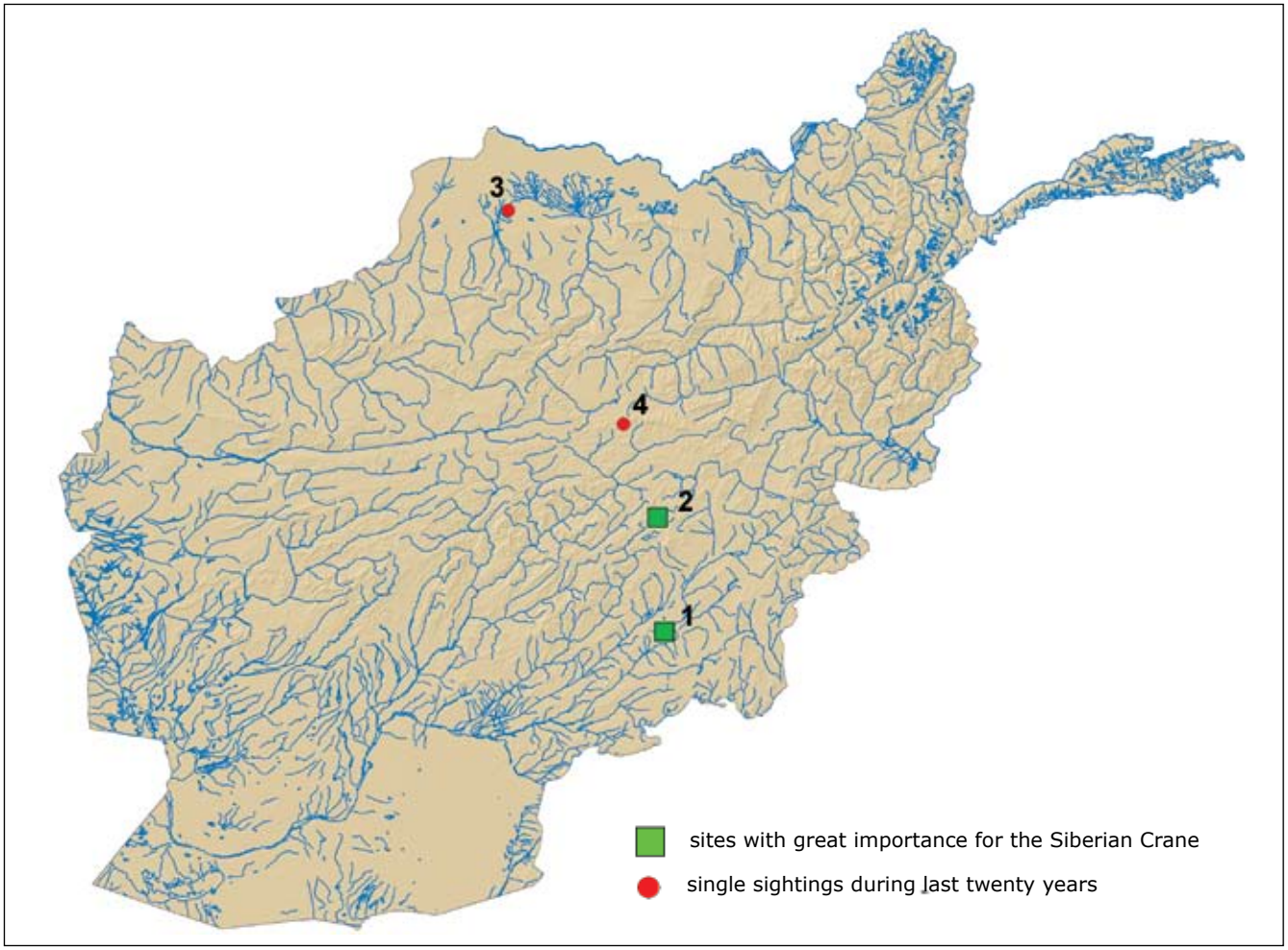


Figure 1. Sightings of the Siberian Crane in Afghanistan along the Central Asian Flyway

LEGEND TO FIG. 1

1 – Ab-i-Estada, Ghazni Province, a historical migration stopover (see sightings description below in a section about the site);
2 – Dashte-Nawar Lake, Ghazni Province, a potential migration stopover with suitable habitats;
3 – Shibirgen, Balh Province: satellite transmitter data of Siberian Crane chick from Kunovat River Basin, on 26 October 1998 from Shibirgen, Balh Province, near large wetlands where Eurasian Cranes' wintering site was discovered, nearly 50 km from Termez and the Amudaria River Valley (unpublished data);
4 – Bamyan (central Afghanistan): satellite transmitter data of the same chick came 9–15 November.

21. Ab-i-Estada Waterfowl Sanctuary

Compiler:
Ahmad Khan, Pakistan Wetlands Programme, WWF Pakistan;
Team of Non-governmental organization *"Save the Environment of Afghanistan"* (SEA)

GEOGRAPHICAL COORDINATES

32°50'N, 67°49'E

ALTITUDE

2,100 m above sea level

AREA

27,000 ha, including 13,000 ha of surface water and 14,000 ha of mudflats

OVERVIEW


Photo from ICF archive


Photo by A. Khan

This site is located in south-eastern Afghanistan in the administrative district of Nawa in Ghazni Province. It lies about 250 km southwest of Kabul and 125 air km south of the town of Ghazni, not far from the town of Moqur.

The site lies on a gently rolling plateau in the southern foothills of the Kohe Baba and Kohe Paghman Ranges. The Gardez, Ghazni and Mahara Rivers and a few unclassified streams drain into a large depression in the Koh-e-Baba and Koh-e-Pughman foothills of the Hindu Kush, and form the large saline lake of Ab-i-Estada. The Ab-i-Estada is a shallow, alkaline lake of about 13,000 ha, measuring 16 km at its broadest point. Its size and shape vary within and between years. The lake is surrounded by steppe and vast agricultural fields. The width of the mudflats surrounding the lake varies from 0.5 km on the western shore to 7 km in the east. The lake has two small islands near its south-eastern shore: Kuchney Ghundai (500 m2) is 0.3 km from the shore, and the island of Loya Ghundai (2,500 m^2) is 2.2 km from the shore (Shank & Rodenburg 1977, Khan 2000).

The Gardez and Ghazni Rivers are the main sources of water for the Ab-i-Estada Lake. In the central basin of the watershed (over 19,400 km^2), there are dams of the Gardez River (Band-i-Sardeh) and Ghazni River (Band-i-Sultan).

Ab-i-Estada is characterized by dry, hot summers and cold winters during which most of the year's precipitation falls as snow.

IMPORTANCE FOR THE SIBERIAN CRANE

The site was an important migration stopover of the Central Asian Flock of the Siberian Crane, but during last 30 to 40 years there have been no reliable records. Historical records include four sightings in Ab-i-Estada. According to an unpublished report by F.J. Koning (letter to Dr. G. Archibald, 3 December 1975), his only observation of Siberian Cranes on the Ab-i-Estada Lake was on 25 and 26 March 1970. 76 Siberian Cranes were feeding in the mudflats, while Eurasian (43) and Demoiselle (79) Cranes were in agricultural fields. He also mentioned several dead bodies in the Kabul market in spring 1970. Another observation of a Siberian Crane family with a chick on 23 December 1970 was described by Gunther Nogge (1974). The third record was a sighting of two cranes in the lake (Peticz & Habibi 1975). The last confirmed sighting of Siberian Cranes in Afghanistan was in March 1977, when Ron Sauey, ICF co-founder, observed 56 cranes at Lake Ab-i-Estada and confirmed through distinctive brown feather patterns of molting juveniles, that they were the same birds that wintered at Keoladeo (Ghana) National Park, India (Sauey 1985).

IMPORTANCE FOR OTHER CRANE SPECIES

This is a migration route for Eurasian (*Grus grus*) and Demoiselle (*Anthropoides virgo*) Cranes, though there are no traditional stopovers. Birds have usually been seen feeding for one or two hours a day, depending on the safety of the area.

IMPORTANCE FOR OTHER WATERBIRDS

The importance of the lake for migratory birds is due to its location on an important flyway between breeding grounds in Siberia and Kazakhstan and wintering grounds in Pakistan and India—a flyway characterized by the paucity of stopover sites providing water and wetland habitats (Khan 2006). Wader species such as Avocets (*Recurvirostra avosetta*), Black-winged Stilts (*Himantopus himantopus*), Kentish Plovers (*Charadrius alexandrinus*) and Greater Sandplovers (*C. leschenaultii*) have bred at the lake (Niethammer 1970). The two small islands of Ab-i-Estada have provided breeding habitats for Greater Flamingos (*Phoenicopterus roseus*) as well as for Slender-billed Gulls (*Larus genei*) and Gull-billed Terns (*Gelochelidon nilotica*) for decades. The existence of large breeding colonies of the Greater Flamingos is perhaps the most unique feature of Dashte-Nawar.


Photo by A. Khan


Photo by SEA team

NEGATIVE FACTORS

The Ab-i-Estada wetlandis are unprotected due to the past political situation, and local communities regularly hunt waterbirds there for fresh meat.

The uncontrolled livestock grazing of the Kochis people, along with grazing by livestock belonging to the local communities, is likely to have brought about changes in vegetation cover and species composition of plant communities. There is some effect on vegetation from collection of fuel wood.

The Band-e-Sardeh Dam on the Gardez River was constructed in 1967 and 1976 to irrigate 18,752 ha of land. This dam can potentially provide water to irrigate about 80,000 ha. At present, however, only 40% of this area is under cultivation because of the poor state of the irrigation canals. The reservoir of Band-e-Sardeh covers an area of about 9600 ha when full, but only half of the capacity is currently being used. A second dam, the Band-i-Sultan, restricts the flow of the Ghazni River and diverts water to the rivers that reach the lake. The full effect of the change in the lake's hydrology caused by these marked reductions in water flow has not yet been studied. Downstream of these two dams, the local communities have constructed small dams on the Gardez and Ghazni Rivers to divert water for crop irrigation. This additional diversion of water enhances the adverse impacts on the hydrology of the lake, particularly in dry years when no water may reach the lake, especially from the Ghazni River.

CONSERVATION MEASURES TAKEN/PROPOSED

The Government of Afghanistan declared the lake of Ab-i-Estada as a Waterfowl and Flamingo Sanctuary in 1974. The proposal to declare Ab-i-Estada as a National Park in 1993 did not materialize because of political unrest in the country. However, after the war (1979–2001) there has been no protection staff at the site.


Photo by A. Khan

There were good rains and heavy snowfalls in the watersheds of this wetland in 2002 and 2003. Ab-i-Estada has received some water and its wetland habitats have recovered to a considerable extent. The Government of Afghanistan must now consider re-designation of these wetlands as protected areas with appropriate legal status (Khan 2006).

There is need to develop comprehensive management plans based on the preliminary management plan for Ab-i-Estada prepared in 1977. It should emphasize the following objectives:

• Strengthen institutional structures system for the wetland with provision for the participation of local communities;

• Protect migratory birds visiting the wetlands for breeding, feeding, resting and staging;

• Maintain the essential hydrological inputs and hydrodynamics of the lakes;

• Encourage, facilitate and support research on various aspects of the wetlands and rural life in surrounding areas; create awareness amongst local communities through various approaches; integrate development issues with conservation of the wetlands and their resources;

• Develop cross-boundary co-operation and networks for the conservation of wetlands important for migratory waterbirds.

INTERNATIONAL IMPORTANCE

The site is proposed for inclusion in *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

22. Dashte-Nawar Waterfowl Sanctuary

Compiler:

Ahmad Khan, Pakistan Wetlands Programme, WWF Pakistan;
Team of Non-governmental organization *"Save the Environment of Afghanistan"* (SEA)

GEOGRAPHICAL COORDINATES

33°50'N, 67°45'E

ALTITUDE

3,200 m above sea level

AREA

7,500 ha, including a one km-wide peripheral strip of land

OVERVIEW

The site is located in southeastern Afghanistan some 55 air km west of the town of Ghazni in the Nawar Woleswali in Ghazni Province.

Dashte-Nawar is a high, vast depression at an elevation of 3,200 m in the Koh-e-Baba Range of the Hindu Kush Plain. The plain is about 50 km in its north-south dimension and 15 km in the east-west dimension. It was formerly a perennial lake with a huge area of mudflats and numerous islands. It is surrounded on all sides by mountains that reach elevations of more than 4,800 m. The plain itself is primarily grass-meadow. Contained within Dashte-Nawar is the shallow, brackish lake, Ab-i-Nawar, which varies in size but is approximately 14 km across (an area of 3,500 ha). Ab-i-Nawar's water volume may drop typically from nearly 20 million m^3 in spring to 2 million m^3 in autumn and completely dry up in winter. The water supply comes primarily from springs and snow melt from the surrounding mountains. About 40 islands, which vary in size from 35 to 500 m^2, are situated in the lake.

Dashte Nawar is characterized by dry, hot summers and cold winters during which most of the year's precipitation falls as snow.

Photo by A. Khan

Photo by A. Khan

IMPORTANCE FOR THE SIBERIAN CRANE

There have been no sightings of the Siberian Crane at Dashte-Nawar. However, the site islocated along the migration route of cranes and other waterbirds and has similar conditions as Ab-i-Estada Lake, where Siberian Cranes were recorded. Therefore, the site can be considered as a potential migratory stopover for the Siberian Crane.

IMPORTANCE FOR OTHER CRANE SPECIES

This is a migration route for Eurasian (*Grus grus*) and Demoiselle (*Anthropoides virgo*) Cranes, though there are no traditional stopovers. Birds usually make short-term migration stopovers here for feeding and resting.

IMPORTANCE FOR OTHER WATERBIRDS

Dashte-Nawar is an important breeding site for migratory waterfowl and waders. The existence of large breeding colonies of the Greater Flamingos (*Phoenicopterus roseus*) is perhaps the most unique feature of Dashte-Nawar. The birds of Dashte-Nawar have not been nearly so intensively studied as those of Ab-i-Estada, and consequently far fewer species have been reported breeding there. It was declared as a National Flamingo and Waterfowl Sanctuary in 1974. In 1999, the lake dried up completely due to a severe drought. A study of the lake in 2002 revealed that there were several small ponds. Several species of ducks, including Mallards (*Anas platyrhynchos*), Common Teal (*A. crecca*), and Common Pochards (*Aythya ferina*) were present in the ponds in early September (UNEP 2003). It is also breeding grounds for Avocets (*Recurvirostra avosetta*), Redshanks (*Tringa totanus*), Greater Sandplovers (*Charadrius leschenaultii*), and Common Terns (*Sterna hirundo*). In addition, the wetland serves as an important stopover for several species of migrating birds of prey (personal observation of Ahmad Khan 2002, 2005).

NEGATIVE FACTORS

The problems of Dashte-Nawar are of relatively low intensity, and the wetland has high resistance to extreme conditions due to the presence of springs as a permanent source of water.

The uncontrolled livestock grazing of the Kochi people, along with grazing by livestock belonging to the local communities, is likely to have brought about changes in vegetation cover and species composition of plant communities. There is some effect on vegetation from collection of fuel wood.

A lack of awareness and a lack of recognition of the value of the wetland are key issues.


Photo by A. Khan

CONSERVATION MEASURES TAKEN/PROPOSED

The Government of Afghanistan declared the lake of Dashte-Nawar as a Waterfowl and Flamingo Sanctuary in 1974, but in 1999 it nearly dried up. In addition, following the war (1979–2001) there has been no protection staff at the site.

There were good rains and heavy snowfalls in the watersheds of this wetland in 2002 and 2003, and as a result Dashte-Nawar has been restored. The Government of Afghanistan must now consider re-designation of these wetlands as protected areas with appropriate legal status (Khan 2006).

There is need to develop comprehensive management plans based on the preliminary management plan for Dashte-Nawar prepared in 1977. It should emphasize the following objectives:

• Strengthen institutional structures system for the wetland with provision for the participation of local communities;

• Protect migratory birds visiting the wetlands for breeding, feeding, resting and staging;

• Maintain the essential hydrological inputs and hydrodynamics of the lakes;

• Encourage, facilitate and support research on various aspects of the wetlands and rural life in surrounding areas; create awareness amongst local communities through various approaches; integrate development issues with conservation of the wetlands and their resources;

• Develop cross-boundary co-operation and networks for the conservation of wetlands important for migratory waterbirds.

INTERNATIONAL IMPORTANCE

The site was included in *the List of Wetlands of International Importance (Ramsar)* in 1971. It is also proposed for inclusion in *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

PAKISTAN

There are a few sightings of Siberian Cranes in Pakistan along Central Asian flyway to and from India. Most of these data are reports of sightings by villagers and crane hunters while they were camping along rivers, and the only sighting by a professional biologist was a report by Mr. Ashiq Ahmad. None of them have been observed with absolute certainty except the sighting by a hunter who killed a Siberian Crane on the Zhob River in March 1987 and produced its head and legs as evidence that it was a Siberian Crane (Jan & Khan 1995). Therefore, it is necessary to take into account the validity of these sightings.

However, Siberian Cranes have historically had the same flyways as Eurasian and Demoiselle Cranes and most other waterbirds. They flew over the Indus River Valley and then might have used the routes through Dalbandin, Zangi Nawar and Zaro in the Balochistan Province and through the D.I.Khan and Zhob in the North West Frontier Province (NWFP) and Balochistan Province during their migration. In the southern part of Pakistan the majority of cranes are seen on the Indus River between Taunsa Barrage and D.I.Khan and on small rivers west of the Indus (like Zhob, Luni, Kashu and Kurram) flowing through the districts of Zhob, D.I.Khan, Bannu and Parachinar, respectively (Ahmad 1991).

The most significant wetlands along these flyways are the Taunsa Barrage reservoir in Punjab Province and Thanedar Wala Game Reserve in North West Frontier Province. They are therefore included in this publication.

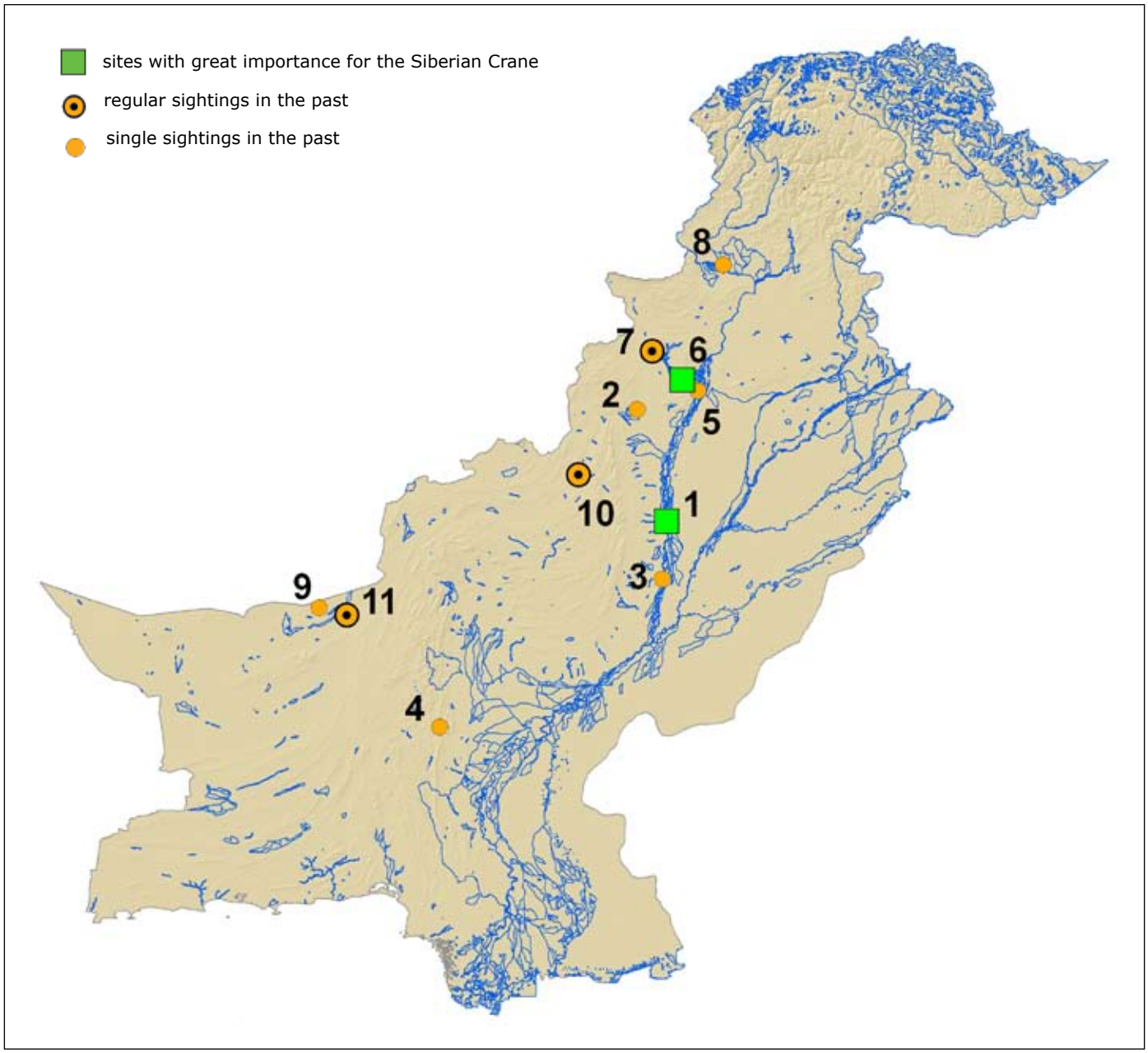


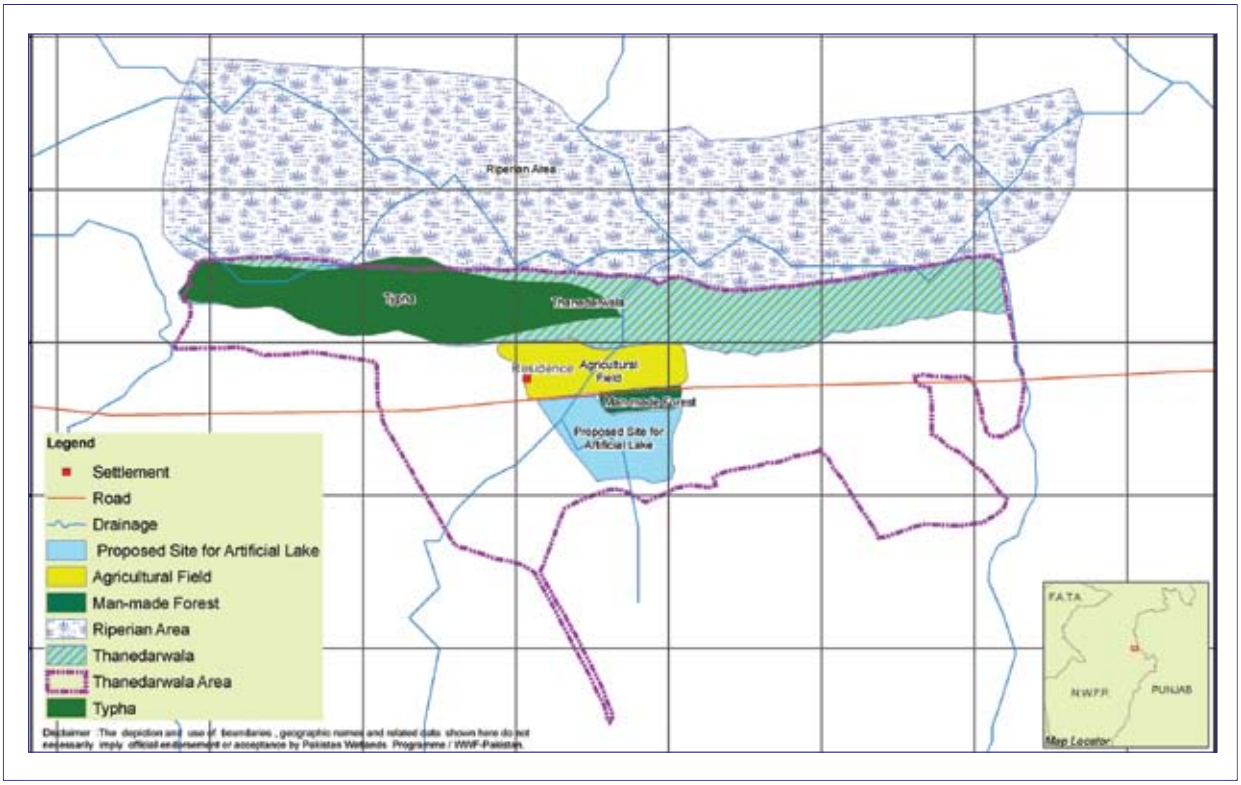
Figure 1. Sightings of the Siberian Crane in Pakistan along the Central Asian Flyway

LEGEND TO FIG. 1

1 – Taunsa Barrage, Punjab Province: potential migration stopover for the Siberian Crane located along Central Asian flyway (see description in the site section bellow);
2 – Near the village of Tank, Punjab Province, one sighting: five Siberian Cranes were recorded by local people on the ground in 1979 (Landfried 1982);
3 – Dera Ghazi Khan, Punjab Province, one sighting: few Siberian Cranes were sighted by French diplomat in late 1980s (Ahmad 1995);
4 – Bakkar District, Punjab Province, one sighting: 13 Siberian Cranes stayed overnight on alluvial mud flats of the Indus River on 19-22 March 1988 (Ahmad 1995);
5 – Indus River, south of Chashma Barrage, Punjab Province, one sighting: two Siberian Cranes few over the river in March 1989, according to data from Game Inspector (Choudhry 1989);
6 – Thanedar Wala Game Reserve, North West Frontier Province (NWFP): potential migration stopover for the Siberian Crane located along central flyway (see description in the site section bellow);
7 – Bannu District, North-West Frontier Province (NWFP), three sigthings: in 1961 hunters caught and ate three and in 1964 – one Siberian Crane; and in 1981 several cranes flew over town of Bannu, according to information from local people (Landfried 1982);
8 – The town of Charsadda, one sighting: group of 17 Siberian Cranes flew over the town in March 1988 (they were sighted by Ashiq Ahmad, but they were quite far and he hadn't binoculars) (Ahmad 1995);
9 – Near the village of Zaro, Baluchistan Province, one sighting: seven cranes were seen by hunter in a flock of near 100 Eurasian Cranes in spring 1980 (Ahmad & Khurshid 1991);
10 – Zhob, Baluchistan Province, four records: one Siberian Crane was shot by Raja Muhammad Amin, civil judge, at Band Khushdil Khan Lake to the south west of Wasta Lake in September or October of 1977, according to information from his brother Raja Muhammad Zareef, Professor in Forestry (Khan 2004); one Siberian Crane was killed by the hunter Shafqat Ali in 1987 (he produced its head and legs as an evidence); one Siberian Crane was shot by the same hunter in 1989 (this Siberian Crane was one of 4 in the flock of 100 Eurasian Cranes) (Jan & Khan 1995);
11 – Zangi Nawar, Baluchistan Province, two sightings: one Siberian Crane flying over in a flock of Eurasian Cranes in spring 1989, according to information from hunter from village Yagai; one-two Siberian Cranes were recorded annually before 1985 by Game Watcher from Zangi Nawar (Ahmad & Khurshid 1991); two Siberian Cranes were sighted by Muhammad Ashraf Khan Jogezai, bird lover, along Zhob River in 1998 near the village of Qila Saifullah (Khan 2004).

23. Thanedar Wala Game Reserve

Compiler:
Ahmad Khan, Pakistan Wetlands Programme, WWF Pakistan



GEOGRAPHICAL COORDINATES

32°37'N, 71°05'E;

ALTITUDE

200 m above sea level

AREA

4,047 ha

OVERVIEW

A stretch of the Kurram River and associated floodplain, consisting of braided river channels and seasonally flooded islands. Reeds and sedges occur, along with extensive thickets of Tamarix. An important route for migratory birds, the site supports small numbers of various species of breeding and wintering waterbirds. Hunting is the main human activity.

A shallow, fresh to brackish seepage lagoon and extensive marshy area formed at the junction of the Gambilla and Kurram rivers. The water depth fluctuates from 0.1 to 1.5 m, depending on the supply of flood water from the two rivers, the levels rising in March and again during July through September.

Photo by S. Khan

IMPORTANCE FOR THE SIBERIAN CRANE

The site is located on the flyway of many migratory species. It can be considered as a potential migration stopover where Siberian Cranes can find brief rest along with other cranes and other waterbirds.

IMPORTANCE FOR OTHER CRANE SPECIES

This is a migration route for Eurasian (*Grus grus)* and Demoiselle (*Anthropoides virgo*) cranes, but there are no traditional stopovers. Cranes have usually made short-term migration stopovers here for feeding and resting.

IMPORTANCE FOR OTHER WATERBIRDS

The site is an important migration stopover for such waterbirds as ducks, geese and shorebirds, including Mallards (*Anas platyrhynchos*), Pintails (*A. acuta*), Garganeys (*A. querquedula*), Common Pochards (*Aythya ferina*), Bar-headed Geese (*Anser indicus*), Common Snipes (*Gallinago gallinago*), and Redshanks (*Tringa totanus*). The waterbirds that breed here include Cattle Egrets (*Bubulcus ibis*), Squacco Herons (*Ardeola ralloides*), Rails (Rallus spp.), and Eurasian Coots (*Fulica atra*).

Photo by S. Khan

NEGATIVE FACTORS

Traditional hunting and trapping of live cranes is a real threat for the Siberian Crane, while livestock grazing is a potential threat to cranes and other waterbirds. Another significant activity that disturbs birds is the harvesting of Typha for commercial purposes.

CONSERVATION MEASURES TAKEN/PROPOSED

The Federal Government has issued a directive to ban the shooting and hunting of cranes. Two hunting groups were established to involve hunters in crane conservation.

The Ministry of Environment's UNDP/GEF Pakistan Wetlands Programme has initiated its activities in the Central Indus Wetland Complex (CIWC). The Pakistan Wetlands Programme has recently launched an initiative in the area to work closely with landowners and establish conservation models in the area. The NWFP Wildlife Department has declared the area as a game reserve and has established a crane refuge in the vicinity.


Photo by S. Khan

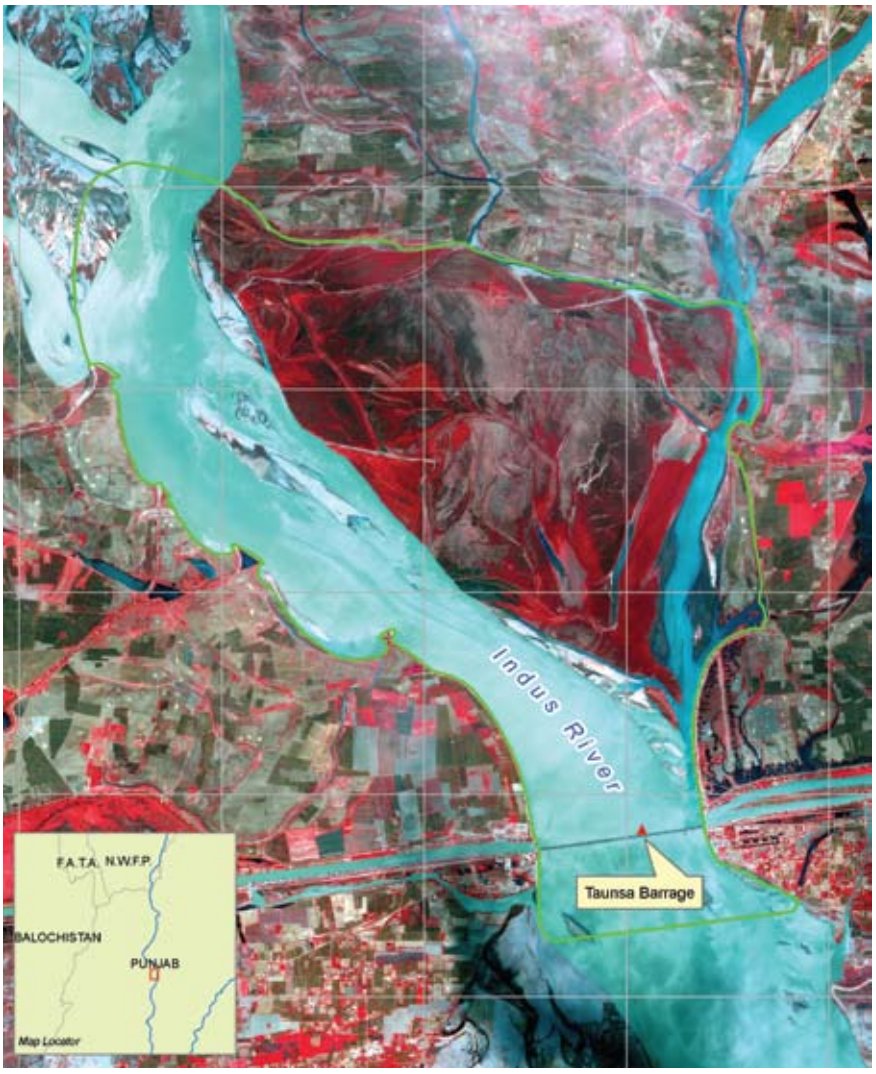
INTERNATIONAL IMPORTANCE

The site is included in *the List of Wetlands of International Importance (Ramsar).* It is also proposed for inclusion in *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

24. Taunsa Barrage

Compiler:

Ahmad Khan, Pakistan Wetlands Programme, WWF Pakistan



GEOGRAPHICAL COORDINATES

30°42'N; 70°50'E

ALTITUDE

139 m above sea level

AREA

6,567 ha

OVERVIEW

The site is located 20 km northwest of Kot Adu, Muzaffargarh District, Punjab Province.

The site is the large reservoir created by the Taunsa Barrage on the Indus River, constructed for irrigation purposes. Vegetation includes riverine forests and numerous species of aquatic plants. Human activities include commercial fishing, livestock rearing, irrigation, reed harvesting for making mats, recreation, and, in adjacent areas, agriculture, livestock grazing, and harvesting forest products for fuel wood and to make baskets and mats.


Photo by S. Khan

IMPORTANCE FOR THE SIBERIAN CRANE

It is a potential migration stopover where Siberian Cranes might have a short rest along with other cranes and other waterbirds.

IMPORTANCE FOR OTHER CRANE SPECIES

This is along a migration route for Eurasian (*Grus grus*) and Demoiselle (*Anthropoides virgo*) Cranes, though there are no traditional stopovers.

IMPORTANCE FOR OTHER WATERBIRDS

The site is an important migration stopover and staging and wintering area for waterfowl - notably, Anatidae (ducks, geese, swans, etc.) and shorebirds such as Bar-headed Geese (*Anser indicus*), Eurasian Spoonbills (*Platalea leucorodia*), Pallas's Fish-eagles (*Haliaeetus leucoryphus*), Spotted Redshanks (*Tringa erythropus*), Jerdon's Babblers (*Chrysomma altirostre*), and Sind Sparrows (*Passer pyrrhonotus*). Marbled Teals (*Marmaronetta angustirostris*), an indigenous duck species, are reported to breed in the wetlands of this area.

NEGATIVE FACTORS

Traditional hunting and trapping of live cranes on the Indus River and its tributaries is a real threat for the Siberian Crane.

CONSERVATION MEASURES TAKEN/PROPOSED

The Federal Government has issued a directive to ban the shooting and hunting of cranes. The Balochistan Forest and Wildlife Department has taken measures to control crane hunting and trapping in the province. Two hunting groups were established to involve hunters in crane conservation. The Ministry of Environment's UNDP/GEF Pakistan Wetland Programme has launched activities for crane conservation in the Central Indus Wetland Complex. The NWFP Wildlife Department has established a Crane Conservation Center in Lakki. The Cracid Breeding and Conservation Center, in Belgium, provided training in captive breeding and husbandry to two conservationists from Pakistan and has committed provision of crane pairs to the Lakki center.

INTERNATIONAL IMPORTANCE

The site is included in *the List of Wetlands of International Importance (Ramsar).* It is also proposed for inclusion in *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

Wintering Grounds

INDIA

Historically, Siberian Cranes of the Central Asian Flock overwintered in wetlands in Etawah and Mainpuri districts of India. In the nineteenth century, after the creation of artificial wetlands in Bharatpur, Rajasthan State, in northwestern India, Siberian Cranes were observed in the Bharatpur wetlands regularly. Thanks to international support, the Keoladeo (Ghana) National Park (KNP) was established in Bharatpur on the eastern fringe of the Punjab Plains in 1967, and since the 1960s the regular monitoring of Siberian Cranes was provided. KNP was the last consistently confirmed wintering area for the species. In the park and surrounding area, they used the open wetlands and habitats that are maintained by a system of artificial water impoundments surrounded by dikes.

In the winter of 2002/03, Siberian Cranes did not arrive in KNP. This was preceded by the worst drought in the history of the park. The entire area of this renowned wetland habitat was completely dry. Since that winter, Siberian Cranes have not been spotted anywhere in India.

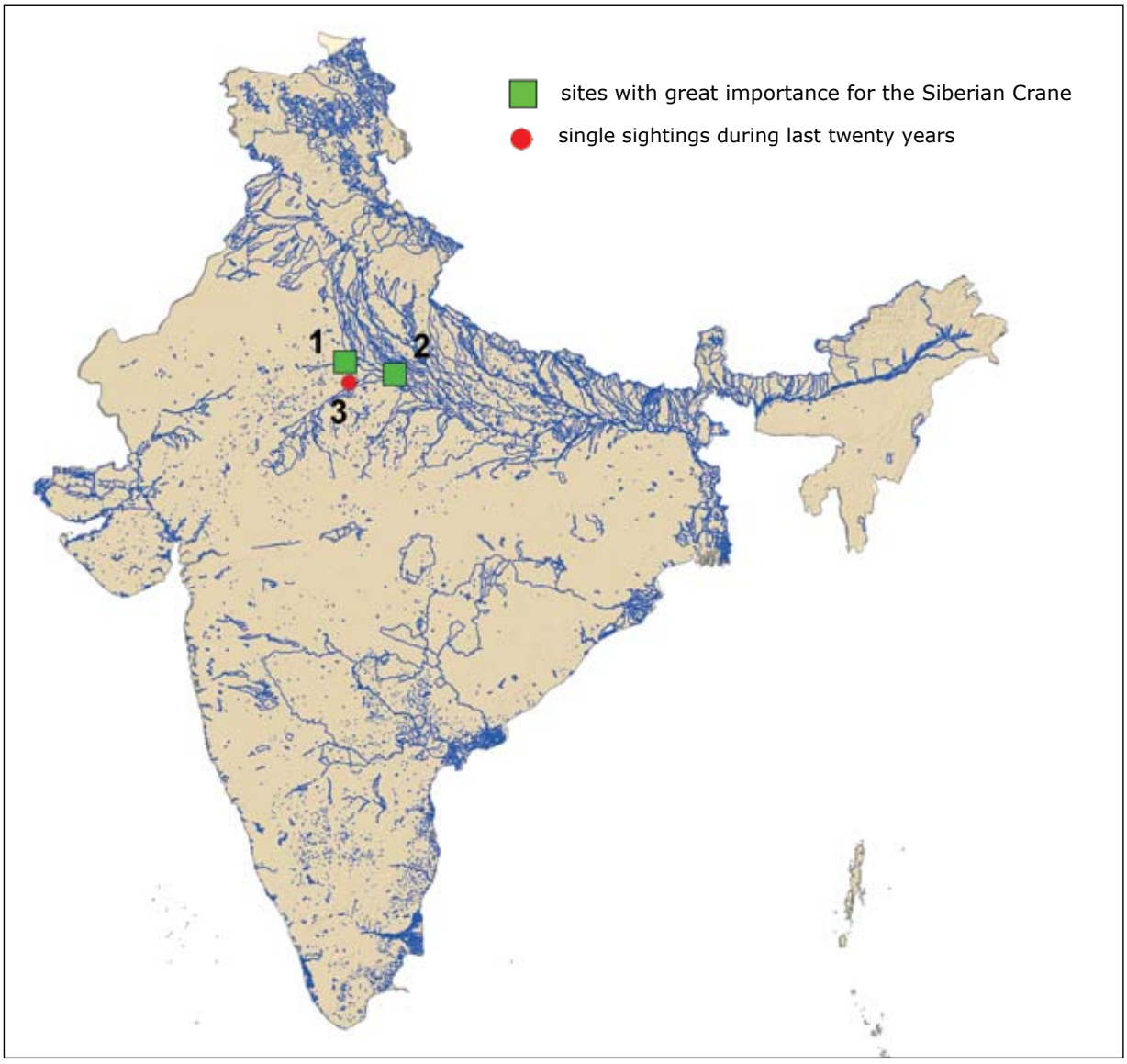


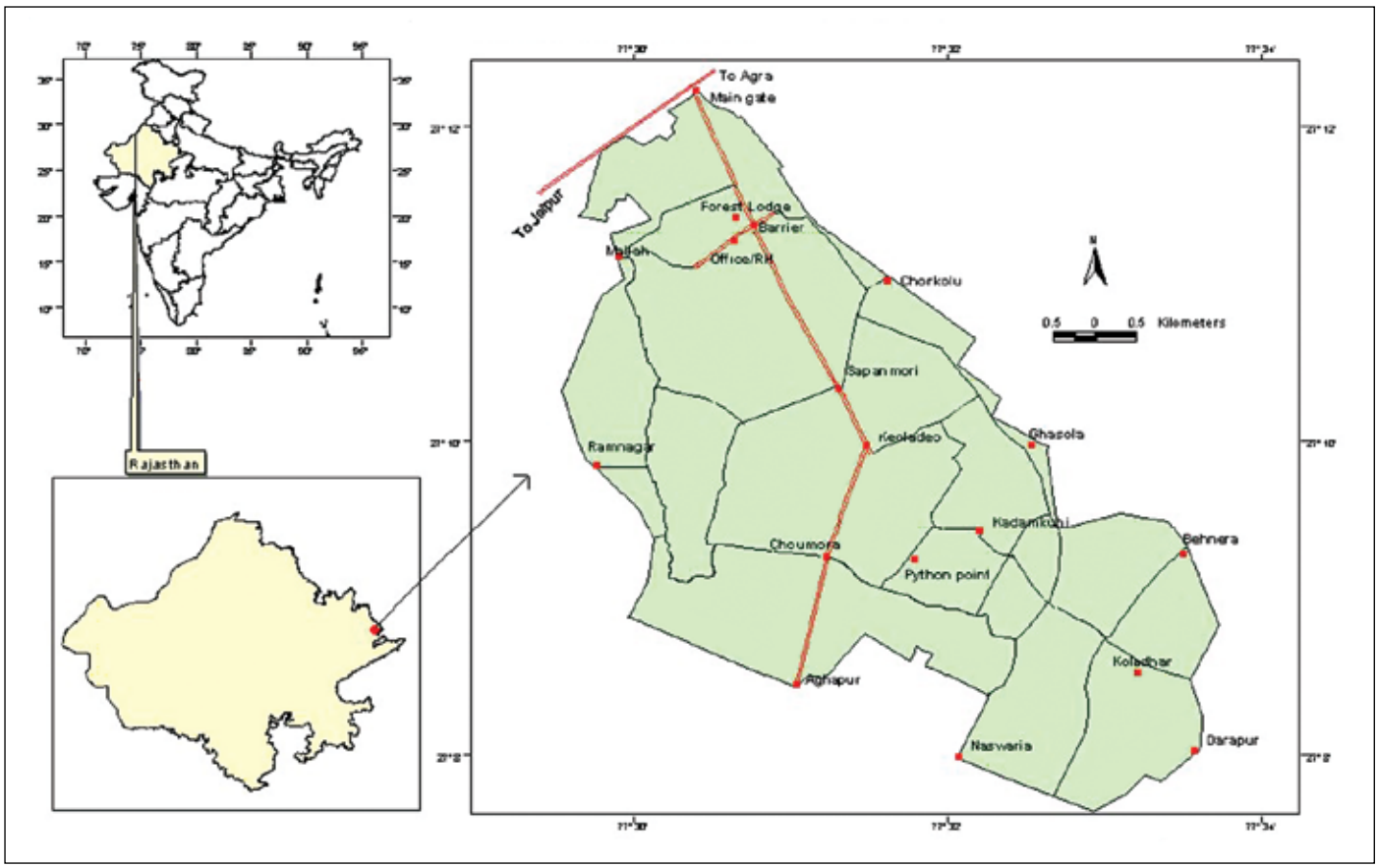
Figure 1. Wintering grounds of the Siberian Crane Central Asian Flock and sightings in India along the Central Asian Flyway

LEGEND TO FIG. 1

1 – Keoladeo (Ghana) National Park, Bharatpur District, Rajasthan State, the only known wintering ground of the Siberian Crane Central Asian Flock (see description of sightings in section about this site);
2 – Wetlands of Etawah-Mainpuri, Uttar-Pradesh State, the historical wintering grounds of the Siberian Crane;
3 – Talab-i-Shahi and Urmila Sagar, 65 km south from KNP, where Siberian Cranes spent the winters of 1993/94 and 1994/95 (Vardhan 2002a).

25. Keoladeo (Ghana) National Park

Compilers:
Dr. Anmol Kumar, Ministry of Environment and Forests of India
Mr. K.S. Gopi Sundar, International Crane Foundation, Indian Cranes and Wetlands Working Group
Mr. Anoop, K.R., Keoladeo (Ghana) National Park



GEOGRAPHICAL COORDINATES

27º07'-27º12'N и 77º29'-77º33'E

ALTITUDE

173-176 m
above sea level

AREA

28,730 km²

OVERVIEW

Keoladeo National Park (also called Keoladeo (Ghana) National Park) is located in the Bharatpur District of Rajasthan State in western India. The Park is a low-lying depression wetland, with definite boundary walls, and is situated in an agricultural matrix on the floodplains of the Banganga River. Dykes separate different parts of the wetland, and sluicegates are used to control and manage water levels in different portions of the

wetland. Although small in size, the Park has several habitat types, including wetland, grassland, scrub and woodlands. Wetlands in the park cover more than 800 ha and are classified as sub-tropical monsoonal wetlands.

As Bharatpur is in the semi-arid region of India, it experiences extreme seasons, with hot, dry summers (April to June), cold winters (November to January) and short, highly seasonal rainfall – monsoons – (July to September). Rainfall is brought by southwest monsoons and averages 655 mm annually. Temperatures range from a minimum of +0.5°C to +2°C in winter to a maximum of +48°C to +50°C in summer.


Photo by E. Ilyashenko


Photo from ICF archive

IMPORTANCE FOR THE SIBERIAN CRANE

Although strictly protected in India and provided ample wetlands at KNP, the Siberian Crane Central Asian population declined from nearly 100 birds in 1965 (Sauey 1987) to just one pair in the winter of 2001/02 (Vardhan 2002b) (Table 1), and the winter of 2002/03 was the first when Siberian Cranes did not arrive for wintering in India (Vardhan 2002a). Since that time, Siberian Cranes have not wintered in India. This reflects the status of the entire Central Asian flock, which is almost extinct.

Table 1. Number of Siberian Cranes on the wintering grounds in Keoladeo (Ghana) National Park, India

Years	Number of adults	Number of chicks	Data Sources
1936/37	11		Sauey 1987
1960/61	90		Freeman 1982
1964/65	200 (probably double count)		Sauey 1987
1967/68	100	15 (15%)	Sauey 1987
1968/69	120		Sauey 1987
1969/70	76		Sauey 1987; Singh et al. 1987
1972/72	72		Freeman 1982
1973/74	92	24 (26.8%)	Sauey 1987
1974/75	63	6 (9.52%)	Sauey 1975, 1987, Freeman 1982
1975/76	61	7 (11.47%)	Singh et al. 1987
1976/77	57	7 (12.28%)	Anonymous 1977, 1981, Freeman 1982
1977/78	55	8 (14.54%)	Sauey 1987
1978/79	43	1 (2.32%)	Sauey 1987
1979/80	33 (start of drought)	3 (9.09%)	Sauey 1987, Freeman 1982
1980/81	33	4 (12.12%)	Anonymous 1981, 1987, Freeman 1982
1981/82	38	6 (15.79%)	Anonymous 1987, Freeman 1982
1982/83	36	6 (16.66%)	Sauey 1987, Singh et al. 1987
1983/84	37	5 (13.51%)	Anonymous 1984
1984/85	41	7 (17.07%)	Report from the All-Russian Institute for Nature Protection (ARRINP) 1993
1985/86	November – 54 December - 37	December – 6 (16.21%)	
1986/87	38	6 (15.79%)	
1987/88	35	3 (8.57%)	Einsweiter 1988
1988/89	21	6 (28.51%)	Anonymous 1989, 1990

1989/90	17	2 (11.76%)	Anonymous 1990
1990/91	10	1 (10%)	Anonymous 1991
1991/92	6	1 (6.66%)	Report from the ARRINP 1993
1992/93	5	1 (20%)	
1993/94	0	0	Report from the ARRINP 1994
1994/95	0	0	Report from the ARRINP1995
1995/96	4	1 (25%)	Report from the ARRINP1997
1996/97	4	0	
1997/98	3	0	Anonymous 1997
1998/99	2	0	Report from the ARRINP 2000
1999/2000	2	0	
2000/01	2	0	Devarshi 2001
2001/02	2	0	
2002/03	0	0	Vardhan 2002b, Sundar 2004
2003/04-2008/09	0	0	According to information from KNP

IMPORTANCE FOR OTHER CRANE SPECIES

The KNP site supports two to eight breeding pairs of the Sarus Crane (*Grus antigone*) (Gole 1987) and attracts flocks of up to 450 Sarus Cranes in the summer. In winter, the site is used for foraging and roosting by flocks of Eurasian Cranes (*Grus grus*) and Demoiselle Cranes (*Anthropoides virgo*).


Photo from ICF archive

IMPORTANCE FOR OTHER WATERBIRDS

The site supports impressive aggregations of waterfowl species during the winter, especially if rainfall has been normal during the preceding monsoon. Bar-headed Geese (*Anser indicus*), Greylag Geese (*A. anser*), Ruddy Shelducks (*Tadorna ferruginea*), Shovelers (*Anas clypeata*), Gadwalls (*A. strepera*), Common Teals (*A. crecca*), European Wigeons (*A. penelope*), Pintails (*A. acuta*), Spot-billed Ducks (*A. poecilorhyncha*), Comb Ducks (*Sarkidiornis melanotos*), Lesser Whistling-ducks (*Dendrocygna javanica*), Cotton Pygmy Geese (*Nettapus coromandelianus*), Red-crested Pochards (*Netta rufina*), Common Pochards (*Aythya ferina*) and Ferruginous Ducks (*A. nyroca*) are duck species that occur here regularly. The site also has large numbers of waders wintering here, including ibises, spoonbills, godwits, sandpipers, stints, plovers and snipes. Numbers of wintering birds are usually in the hundreds of thousands.


Photo by K.S.G. Sundar

NEGATIVE FACTORS

Spread of Prosopis juliflora: Prosopis juliflora is a non-native invasive tree species from South America that was introduced to India for afforestation of denuded lands. The seeds are spread by herbivores like cattle and Nilgai Antelope. Seedlings can establish themselves in large numbers in dry years. This causes changes in plant composition, converts grasslands (important for wintering waterbirds) to woodland areas, and dominates both understory and canopy vegetation. This plant has very good coppicing ability and is difficult to control through cutting.

Introduction and spread of African Catfish: The African Catfish *(Clarias gariepinus)* was distributed to

neighboring villages to assist with hunger alleviation. This fast-growing, invasive species found its way into KNP through the canals and has established itself since 2003. The fish actively predates on all local varieties of fish, as well as on birds (Anoop et al. 2009). The African Catfish grows rapidly and has a wide head, preventing fish-eating waterbirds from eating it; even large birds like Pelicans have been observed choking on this invasive fish. The reduction of local fish can be a serious threat to many species of waterbirds. The African Catfish has accessory breathing organs, can survive droughts by digging into the soil, and can travel on land to reach wetlands (de Graaf & Janssen 1996).


Photo by E. Ilyashenko


Photo by K.S.G. Sundar


Photo by K.S.G. Sundar

Reduced water flow into KNP: In the past, the park was periodically flooded by water released from the Ajan Dam, a reservoir situated one kilometer away from the park boundary. The Ajan Dam in turn received water diverted from the Gambhiri River through the Pichuna Canal. In 2003, another large dam—the Pachna Dam—was constructed in the Gambhiri River 100 km upstream from the Ajan Dam. The Gambhiri River has virtually stopped flowing beyond the Pachna Dam ever since. This has resulted in the drying up of a 100-km stretch of river from Pachna to Ajan and has created a severe drinking water shortage in the catchment. During construction of the Pachna Dam, an agreement was made that, whenever required, water should be released for KNP. However, due to conflicts with farmers, the agreement has not been honoured.

KNP is presently dependent on the seasonal monsoon rainfall for most of its water. The Park administration pumps up groundwater each winter in three sections to maintain habitat for wintering waterbirds. However, the groundwater is salty and carries the risk of deteriorating the soil quality and altering the plant community. Rainfall patterns are predicted to alter in this area due to global climate change, and the number of extreme events is expected to increase, with dry years corresponding to El Niño (Kumar et al. 2006). This will further threaten the well-being of KNP due to irregular monsoonal rains.

CONSERVATION MEASURES TAKEN/PROPOSED

Control of Prosopis juliflora: Invasion of Prosopis juliflora poses a serious threat to the fragile ecosystem of KNP. As a highly adaptable and non-exacting species, this plant managed to spread all over the park within a few years' time. Every juliflora plant had to be uprooted since its rapid coppicing ability enabled it to grow back after the branches were cut.

Several thousands of plants were proliferating in the park, so uprooting—especially of the mother trees—required a huge sum of money, which was difficult to obtain. Since extraction of biological material for commercial purposes is not permitted under the Wildlife Protection Act of 1972, eco-development committees set up within KNP were tasked with the removal of the plants. The park management took up the challenge of motivating the villagers around KNP to perform this task and ultimately succeeded in creating an agreement for the villagers to uproot *P. juliflora* in lieu of the wood thus obtained from these trees. Through people's participation, the Park administration freed about 1027 ha from the *P. juliflora*. A systematic plan for regular monitoring of the invasive species and their removal has been formulated by involving district administration and the local communities.

Control of African Catfish: The African Catfish has been rapidly replacing the indigenous fishes in KNP since its accidental introduction in 2004. The KNP management took up the task of removing this species during a

population peak one summer when the water spread was restricted to a single deep water body in a section of the park. Local fishermen were brought in and in an intensive operation lasting a few weeks, most of the stock of African Catfish was removed using local fishing equipment. A committee consisting of representatives from the Department of Fisheries, the Department of Animal Husbandry, and Park Administration was created for the project. The fishermen were allowed to take home a small quantity of the fish to meet their wages, and the rest of the catch was set out for carnivorous birds and mammals in the park. More than 12 tons of African Catfish were removed, and the largest individuals measured up to 1.2 m long and weighed up to 9 kg. A gut content analysis of the removed fish revealed the presence of Indian Moorhen, Blue-tailed Bee-eater, Rose-ringed Parakeet, almost all species of indigenous fishes, and aquatic vegetation.


Photo by K.S. G. Sundar

INTERNATIONAL IMPORTANCE

The site is included in *the List of Wetlands of International Importance (Ramsar)* and is designated a World Heritage Site by UNESCO under the World Heritage Convention. It was designated as a part of the W*estern/ Central Asian Site Network for the Siberian Crane and Other Waterbirds* in May 2007.

26. Etawah-Mainpuri

Compiler:

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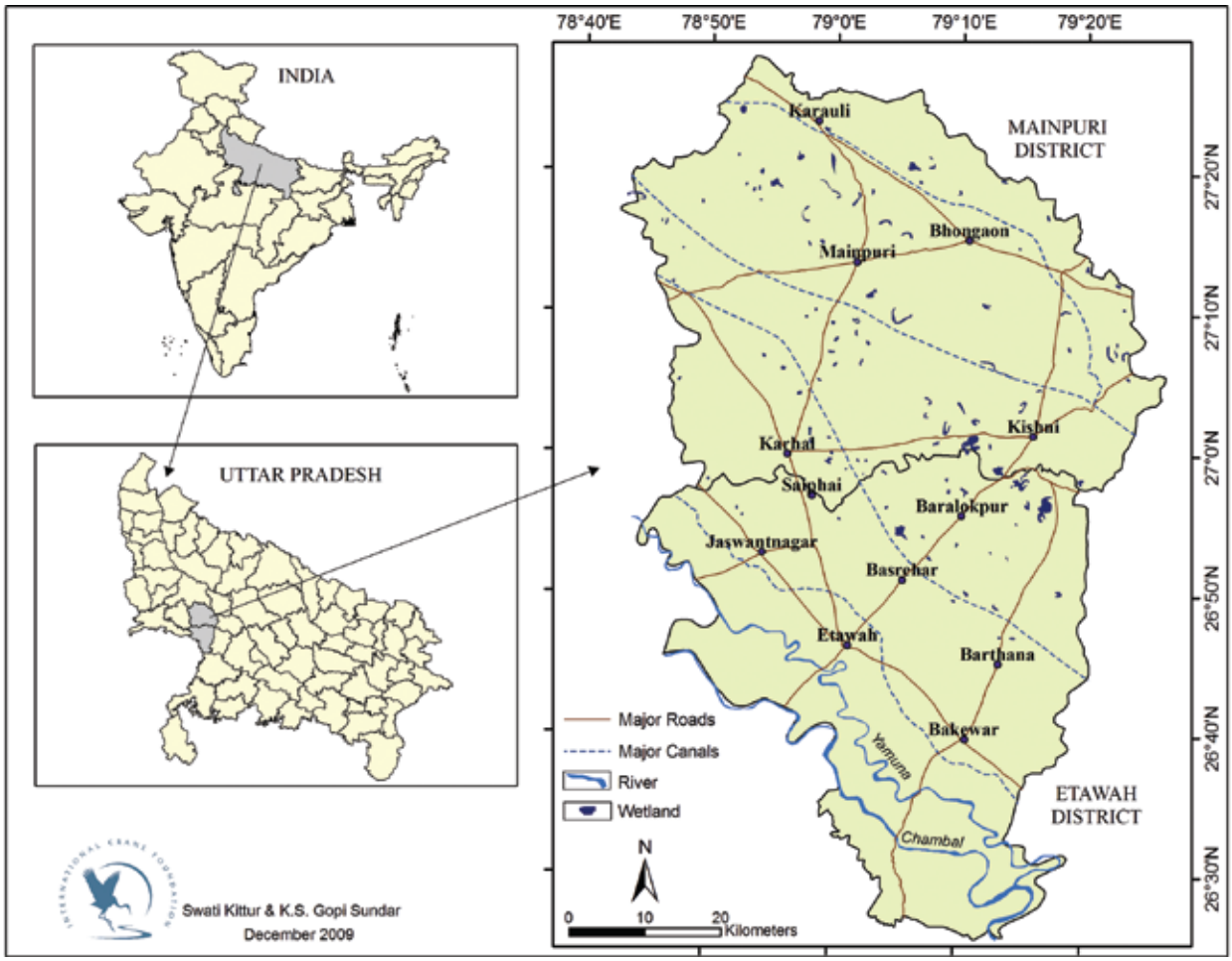

GEOGRAPHICAL COORDINATES

26º45'-26º55'N; 78º25'-79º30'E

ALTITUDE

50 m above sea level

AREA

Etawah: 2,434 km²;
Mainpuri: 2,745 km²

OVERVIEW

The wetlands of Etawah-Mainpuri lie in the state of Uttar Pradesh in north-central India, to the north of Madhya Pradesh and the Chambal River. It forms the western fringe of the Indo-Gangetic Floodplains and is bounded by both the Gangetic and Yamuna River basins. The landscape is flat and mostly agricultural, with human habitation, canals and saline wastelands alongside nearly 50 wetlands of various sizes. Traditional cropping patterns, unmechanized agriculture, limited use of pesticides and other chemicals, and an active network of irrigation canals serve to make the area perfect for large waterbirds (Sundar 2006). Three seasons can be distinguished by temperature and rainfall regimes: summer (March–June), monsoon or the rainy season (July–October), and winter (November–February).


Photo by C. Prentice

IMPORTANCE FOR THE SIBERIAN CRANE

In Etawah-Mainpuri, the Sarsai Nawar Lake and a number of other wetlands nearby are historical sites for the Siberian Crane, where significant populations occurred in the late 1880s (BirdLife International 2001). It is suspected that other wetlands in the region also supported Siberian Cranes more than 150 years ago.


Photo by E. Ilyashenko

IMPORTANCE FOR OTHER CRANE SPECIES

The area is the most important location for the Sarus Crane (*Grus antigone*), a globally threatened species (Sundar et al. 2000), and for a very small number of the migratory Eurasian Crane (*Grus grus*) and Demoiselle Crane (*Anthropoides virgo*).


Photo by K.S. G. Sundar

IMPORTANCE FOR OTHER WATERBIRDS

The wetlands of this region are valuable for waterbirds, resident and migratory, due to their placement between flooded rice fields as well as their diversity in size and depth. More than 330 bird species have been documented in the region, including many wintering waterfowl (K.S.G. Sundar, unpublished data). The wetlands are particularly important for wintering populations of ducks, waders, and pelicans (Scott 1990). The uniqueness of the region lies in the apparent persistence of farmers' ancient value systems (Sundar 2009) that has allowed the habitat and bird populations to remain unchanged since the 1880s. The region has enjoyed documentation of the bird life


Photo by K.S. G. Sundar

and wetlands since the mid-1880s, providing an important historical context to wetland conservation. Additionally, wetlands are managed by the villages' administrations, and practically all the waterfowl are outside the protected area. Thus the uniqueness of the site stems from both species richness, large waterbird populations, and cultural and traditional practices that help maintain the birds and their habitat.

NEGATIVE FACTORS

Projects to improve wastelands, development of towns, and construction of an airport in the middle of an important patchwork of wetlands are some problems that the site faces. Largely, however, maintaining the existing land use, cropping practices and favourable farmer attitudes towards cranes and other birds will allow the continued persistence of wetlands and waterbirds in the region. Illegal conversions of community wetlands to private crop fields or to water chestnut cultivation are an increasing threat in many wetlands and require careful discussions with village councils to ensure that this is minimized. Changes in rainfall patterns due to global climate change are predicted in this region. Rainfall is expected to become more intense except for droughts in years with El Niño. Glacial melt in the Himalayas is also expected to change water flow in the major rivers of the region. These changes are expected to increase water flow in some years and reduce water flow if glaciers melt completely. This may result in changes in crops—from flooded rice paddies to drier lentil and corn crops and will negatively affect wetlands and waterbirds.


Photo by K.S. G. Sundar


Photo by K.S.G. Sundar

CONSERVATION MEASURES TAKEN/PROPOSED

All wetlands are owned by village councils, which manage the wetlands as common lands for the general benefit of the villages. Wetlands experience a huge amount of human use but continue to provide crucial habitat for several waterbird species. Some wetlands in the region have been listed as nationally important sites by the Ministry of Environment and Forests, and annual grants to conduct research and conservation activities are given out to deserving proposals. The High Court of Uttar Pradesh and the Supreme Court of India have provided directives that wetlands are not "wastelands" and should be managed taking into consideration the variety of ecological services they provide to local farmers and to biodiversity. Several wetlands in Etawah-Mainpuri have been recognized as Important Bird Areas.


Photo by K.S.G. Sundar

Maintaining current land use and cropping patterns is crucial. Developmental projects that may not be sensitive to wetland services and to the importance of the region as a waterbird repository will require discussion and appropriate alterations before implementation.

INTERNATIONAL IMPORTANCE

The site is proposed for inclusion in *the Western/Central Asian Site Network for the Siberian Crane and Other Waterbirds.*

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International Crane Foundation

The International Crane Foundation (ICF) works worldwide to conserve cranes and the wetland and grassland ecosystems on which they depend. ICF is dedicated to providing experience, knowledge, and inspiration to involve people in resolving threats to these ecosystems.

For more than 35 years, ICF has gathered unique collaborators and led effective community-based conservation programs, research projects and innovative captive breeding and reintroduction efforts. Today, the organization has 35 staff members and hundreds of volunteers working with partners in 22 countries. These efforts have inspired international cooperation while helping improve livelihoods for people at crane sites around the world.

ICF Co-founders George Archibald and Ronald Sauey pioneered conservation work with Siberian Cranes through collaborations with Afghanistan, India, Iran, China and Russia. This early work was expanded and strengthened by other ICF researchers and a network of conservationists inspired by the great white crane.

Twenty years of conservation efforts were drawn together through the Convention on Migratory Species (CMS) leading to the creation in 1993 of a Memorandum of Understanding Concerning Conservation Measures for the Siberian Cranes (MoU), an innovative conservation model designed to encourage cooperation among all eleven Siberian Crane range states to develop and coordinate conservation action plans.

From this base, ICF in collaboration with the governments of China, Iran, Kazakhstan, and Russia launched a joint initiative adopting the Siberian Crane as a flagship species to protect and maintain the ecological integrity of a network of globally important wetlands. The Siberian Crane Wetland Project (SCWP) began in 2003 funded by the Global Environment Facility (GEF) and implemented through the United Nations Environment Programme (UNEP). By focusing on the chain of wetlands encompassed by the Siberian Crane's flyways, the project successfully directed conservation effort to these threatened wetland ecosystems, benefiting hundreds of plant and animal species as well as human communities that depend on wetlands for water and natural resources.

For further information on ICF, CMS, SCWP and Siberian Crane Flyway Coordination (SCFC) please see the following websites:

www.savingcranes.org
www.cms.int
www.sibeflyway.org