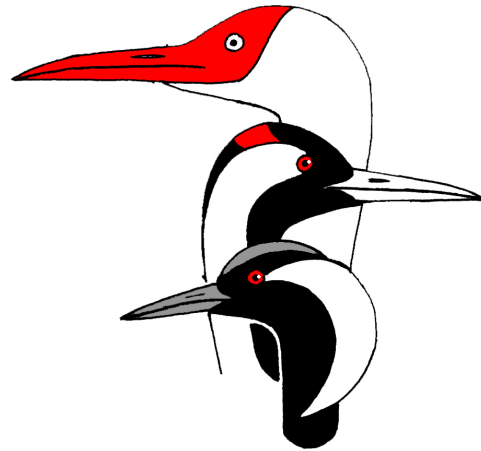


MECCG Newsletter

2023 / No. 1

Middle East Crane Conservation Group

To help
Siberian, Eurasian and Demoiselle
Cranes in the Middle East



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Establishing of the Middle East Crane Conservation Group

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The International Crane Foundation initiated the establishment of an informal Middle East Crane Conservation Group (MECCG) to exchange information about the biology and welfare of three species of cranes within that region: Eurasian, Demoiselle, and Siberian Cranes (Fig. 1).

There are two subspecies of Eurasian Cranes in the Middle East – the Western Eurasian Cranes (*Grus grus grus*) and the Transcaucasian Eurasian Cranes (*G.g. archibaldi*). The Western Eurasian Cranes number in the tens of thousands. Part of this group migrates from breeding grounds in Eastern Europe and western Russia to winter in Turkey, Israel, Iraq, Iran, Ethiopia and Sudan, with largest numbers in Hula Valley in Israel. In sharp contrast, the Transcaucasian Cranes are critically endangered, numbering perhaps 250–300 birds breeding on high altitude wetlands in Georgia, Armenia, western Iran and eastern Turkey. They migrate short distances to lower and warmer altitudes to south Turkey and Iraq (Nowald et al 2021).

There are two geographically separate populations of Demoiselle Cranes breeding on the steppe zone of Ukraine, Russia and Kazakhstan. Those nesting north of the Azov-Black Seas in Ukraine and southwest of Russia number perhaps 2000, migrate to winter in Chad with transit stops in Turkey and Cyprus. Those nesting from northwest of the Caspian Sea in Russia to

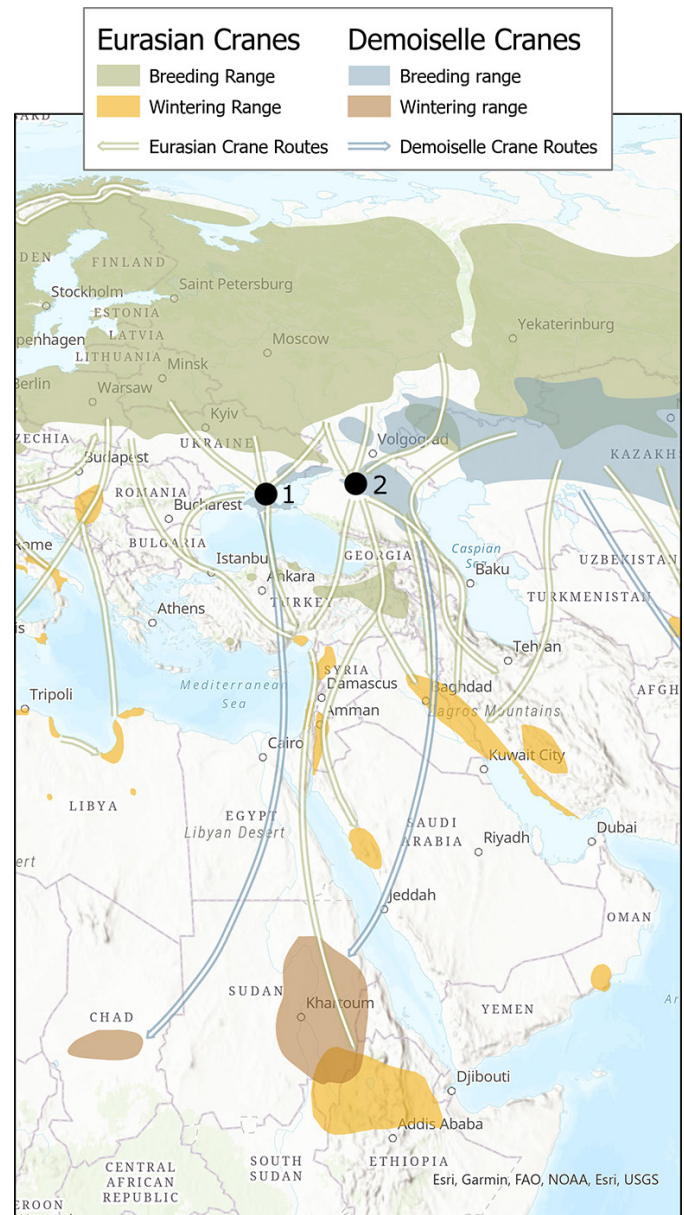


Fig. 1. Area of activity of Middle East Crane Conservation Group (1 – Sivash Bay, 2 – Manych Valley)

regions of Western Kazakhstan and west to the Ural Mountains, number in the tens of thousands, migrate along a route west of Caspian Sea and across Saudi Arabia to winter in Sudan, Ethiopia and Eritrea (Ilyashenko et al 2022).

Historically the Siberian Crane wintered on wetlands along the Caspian lowland of Iran. Believed extirpated from that region, it was a surprise when a tiny flock of 10–12 cranes was discovered in 1979 in a waterfowl trapping complex in Fereydoonkenar in Mazandaran Province. Through satellite telemetry their migration route was mapped along the west side of the Caspian Sea to the delta of the Volga River, then east to the Naurzum wetlands of Kazakhstan, and finally north to their breeding ground on wilderness wetland just west of the Ob River near the Russian town, Uvat. Since 2007, only a single Siberian Crane has arrived in Fereydoonkenar (Mirande & Ilyashenko 2019).

Although all three species of cranes are legally protected in most nations, there

are recent incidents of mass shooting of both Eurasian and Demoiselle cranes. Shooting in the 1970s was also attributed to the decline of the Siberian Cranes to but a single survivor. Wetland conservation and restoration is also a critical issue especially for the Transcaucasian Eurasian Cranes. For Siberian Cranes, restoration might be possible through migration training of captive-reared cranes by following ultra-light aircraft from the former breeding in Russia to the Caspian lowlands of Iran.

Colleagues in Turkey will compile an annual newsletter about cranes and conservation challenges within the region. It will be shared electronically with the group. Through MECCG we hope subgroups will be formed to collaborate in addressing evolving challenges. We hope a meeting of MECCG will convene during the International Crane Conference in Tartu, Estonia, August 21–25, 2023. For more information about the meeting and MECCG, please contact me (george@saving-cranes.org).

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Monitoring the Transcaucasian Eurasian Crane in Georgia in 2021 and 2022

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The isolated Transcaucasian subspecies of the Eurasian Crane (*Grus grus archibaldi*) is located mainly in Eastern Turkey as well as a small number in Georgia, Armenia, and Iran.

In Georgia, nests were first found in 1978 and 1981. Since that time the changes in numbers, habitat and distribution of this subspecies is alarming.

Breeding habitats are located in treeless mountain steppes on the South Georgian Upland of the Samtskhe-Javakheti Region in the southern part of the country near the borders between Turkey and Armenia. For breeding, this subspecies prefers a variety of shallow wetlands with stagnant water located between hills and ridges, lake shores, temporary islands on lakes, seasonally flooded meadows around lakes, swamps, or along river banks.

The highest breeding sites are located on the lakes of Abulgel (2,184 m above sea level) and Avchalagioli (2,060 m above sea level) on the Samsari Mountain Range (Fig. 1) and Lake Madatapa (2,112 m above sea level) (Fig. 2), and the lowest sites are in the eastern part of the Tsalka Hollow (1,760 m above sea level) (Fig. 3), in the Sulda Wetland (1,853 m above sea level) (Fig. 4) and in the Kartsakhi Marsh near the village of Phillipovka (1,847 m above sea level) (Fig. 5).

In 2021 and 2022, the field work was conducted from April to July.



Fig. 1. Habitats of the Transcaucasian Eurasian Crane on the alpine lakes of the Samari Range (Lake Abulgel on the right, Lake Avchalagioli on the left). Photo by Alexander Abuladze



Fig. 2. Habitats on the alpine Lake Madatapa. Photo by Elena Ilyashenko



Fig. 3. Habitats in the Tsalka Hollow. Photo by Alexander Abuladze



Fig. 4. Habitat on Sulda Wetland. Photo by Elena Ilyashenko



Fig. 5. A pair in the Kartsakhi Marsh near the village of Philippovka, July 2022. Photo by Elena Ilyashenko

In 2021, in late April and early May, 17 breeding pairs and three nests were found. In addition, four solitary non-breeding adults were recorded during this period. All 17 pairs had started breeding, at least 15 of them had laid eggs and hatched chicks (Fig. 6). The reason why two pairs did not nest could not be identified. 15 pairs hatched at least 27 chicks, with an average of 1.8 chicks per pair. At least 23 chicks in 14 pairs fledged. Thus, the breeding success was 1.64 chicks.

In 2022, during field work on 20-23 April, 17 breeding pairs previously discovered were checked, of which 15 had started to breed. In addition, one non-breeding pair and at least four (late April) and three (mid-May – early June) solitary non-breeding adults were recorded in breeding habitats. At least 14 pairs successfully bred: they made clutches and chicks hatched. The breeding of one pair was unsuccessful, probably due to disturbance since in this area (the north-western shore of Lake Madatapa) a large number of cattle and sheep were grazed daily, accompanied by three or four shepherds and several dogs.

14 pairs hatched at least 23 chicks, with an average of 1.64 chicks per pair. At least 16 chicks in 13 pairs fledged. Thus, the breeding success was 1.67 chicks per pair. The breeding success of 15 breeding pairs (number of occupied nests) was 1.07 chicks per nest.



Fig. 6. A pair with two chicks on Lake Avchlagioli, on July 20, 2021. Photo by Alexander Abuladze

Both in 2021 and 2022, cranes tagged in 2017 and 2018 were sighted in pairs on lakes of Abulgel, Avchalgel, and Madatapa as well as on the wetlands of Sulda and Kartsakhi (Fig. 7, 8).

An increase in the number of breeding pairs in 2021 and 2022 compared to 12–15 pairs in 2011–2019, may be partly due to restrictions imposed in the country due to the pandemic in 2020 and 2021. For example, in March–May 2020, a ban was introduced on movement between settlements, even with the use of personal vehicles. A significant number of farmers greatly reduced the intensity of seasonal work in the spring of 2020. This applied to livestock farming, which is one of the main limiting factors for cranes: sheep trample the meadows, and shepherd dogs pose a direct threat to chicks. In addition, due to the small number of working farmers in 2020, the use of water from lakes for irrigating fields decreased. Both in 2020 and 2021 the water level in the lakes was higher and the area of swamps

and wetlands around the lakes was more extensive than in the previous few years. Although tourists rarely visit the breeding sites of cranes, nevertheless, in 2020 there were practically no tourists, even domestic ones, and in 2021 their number was many times less than in 2019. These circumstances significantly reduced the anthropogenic pressure and disturbance.

We are grateful to volunteers – birdwatchers Petr Afonin (USA), Robert Jensen (Denmark), Igor Yuditsky (Belarus) and Neil Kochetkov (Russia), who participated in field work and partially financed the costs. We would like to thank Tamaz Karapetyan, Head of Security of the Javakheti National Park and Masis Markosyan, Ranger, for their support. In addition, this article includes the results of observations carried out in the habitats of cranes by colleagues from the Institute of Zoology of Ilia State University of Georgia – I. Natradze, A. Bukhnikashvili and G. Sheklashvili, who conducted field work in the Javakheti Highlands in the spring of 2021, and from the Severtsov Institute of Ecology and Russian Academy of Sciences, Moscow, V. and E. Ilyashenko, who visited the habitats of cranes in July 2022.

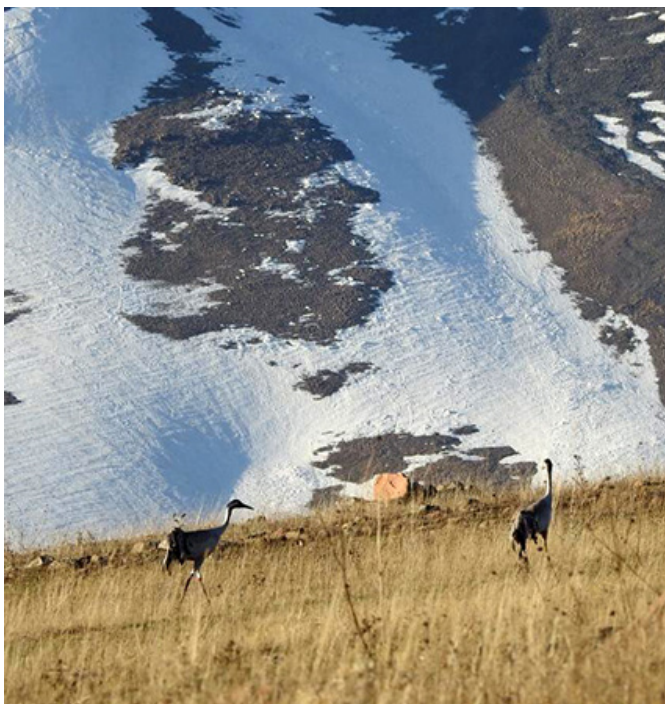


Fig. 7. The crane (ind. band combination White-Blue-Red), banded on Lake Avchalgioli on 10 July 2018, and nesting on Lake Abulgel, 7 km from the place of banding with a partner. Photo by Alexander Abuladze



Fig. 8. The Eurasian Crane male (individual band combination White-Red-Green), tagged on Lake Madatapa on 9 July 2017 and breeding on the same lake, 14 May 2021. Photo by Alexander Abuladze

Returning the Demoiselle Crane in Turkey after 17 years!

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After 17 years, the breeding of a Demoiselle Crane has been recorded in Turkey. Two of the 15 different crane species in the world were breeding in Anatolia until the early 2000s – the Demoiselle Crane and Transcaucasian Eurasian Crane (*Grus grus archibaldi*). The breeding population of the Demoiselle Crane was mostly concentrated in the Central and Eastern Anatolia Regions according to literature records (Van der Ven 1982, Van der Ven & Cheyselinck 1981, Kasperek 1983). The last Demoiselle Crane breeding was recorded in 2004 around Muş Bulanık and the last sighting was in 2008 in Erçek Lake (East Turkey) (Akarsu et al 2013). This species has not been seen in known breeding sites for many years.

On May 18, 2021 the nature photographer Engin Bıyıkoğlu first observed a pair of Demoiselle Cranes during fieldwork in Amasya Merzifon in Amasya Province in the central Black Sea region of Turkey



Fig. 1. Location of the sighting of a Demoiselle Crane breeding pair

(Fig. 1, 2). Then he saw a nest with eggs when the incubated crane stood (Fig. 3, 4). The pair was again seen by Engin Bıyıkoğlu on June 18 swimming with a small chick across the lake (Fig. 5). Then he observed the pair with the fledged juvenile on July 31 (Fig. 6), and this observation showed that the breeding was successful.

In 2022 the pair returned, has bred again and successfully reared a young Demoiselle Crane. The family with the fledged chick was seen by Engin Bıyıkıoğlu on August 27, 2022 (Fig. 7). At the same time, based on my visits the site and contacts with the authorities operating in the region, I also confirmed that the species successfully breed in the field.

Successful breeding in each of two years allows us to consider the Demoiselle Cranes as a breeding species in Turkey. Further investigation will be conducted to continue monitoring the breeding pair and look for new pairs.

The Ministry of Agriculture and Forestry officials took a series of measures to protect this rare bird. Demoiselle Cranes are not only a natural value for Anatolia, but also they are still in this land in terms of our cultural value. It is of vital importance for the continuity of folk songs and various cultural productions (Ozdog & Alpaslan 2019).



Fig. 2. Habitat of a Demoiselle Crane pair near Merzifon, Central Turkey. Photo by Engin Biyıkliođlu



Fig. 3, 4. Incubating pair of the Demoiselle Crane on 18 May 2021. Photos by Engin Biyıkliođlu

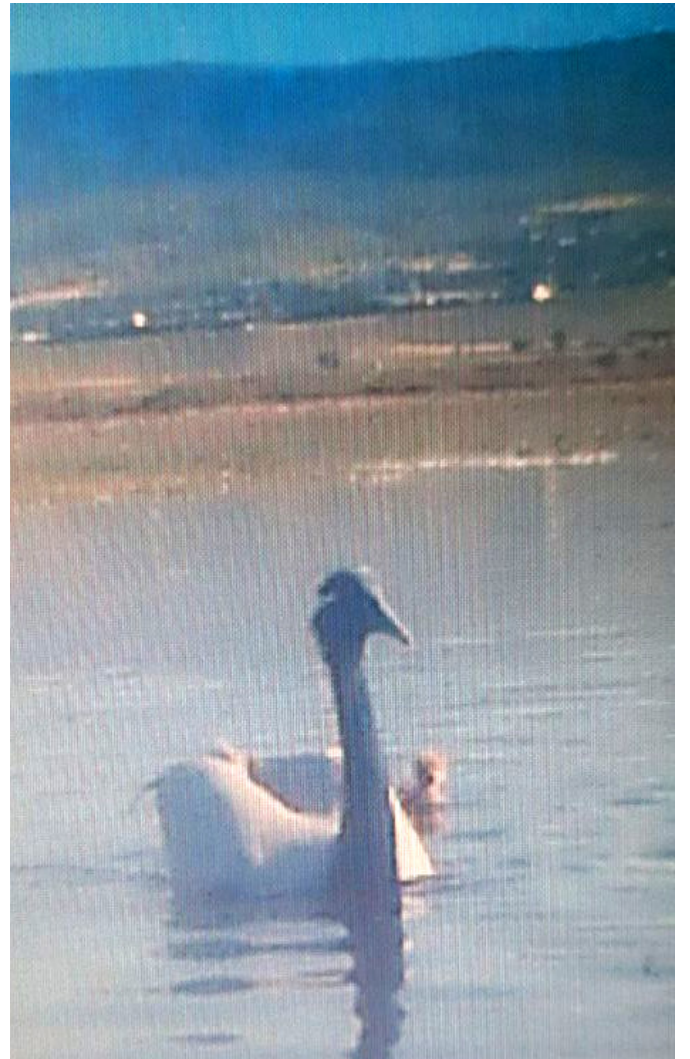


Fig. 5. The Demoiselle Crane with a small chick swimming accros the lake on 18 June 2021. Photo by Engin Biyıkliođlu



Fig. 6. The Demoiselle Crane pair with a fledged juvenile on 31 July 2021. Photo by Engin Bıyıköğlü



Fig. 7. The Demoiselle Crane family with a fledged chick on August 27, 2022. Photo by Engin Bıyıköğlü

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Wintering of GPS-GSM Tagged Demoiselle Cranes in Africa

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The current breeding range of the Demoiselle Crane spreads from the Azov-Black Sea Region in the west across the south of Russia, Kazakhstan, Kyrgyzstan, and Mongolia to northeast China, covering steppe and semi-desert zones. The European part of the range is most fragmented and can be divided into the Azov-Black Sea populations and three almost isolated breeding groups: Middle Don, Caspian and Volga-Ural (Fig. 1) (Ilyashenko 2019). In Turkey the isolated population returned for breeding after 17 years (Akarsu 2022).

The total population of the Demoiselle Crane is estimated at 170,000–220,000 birds (Ilyashenko, 2019). Demoiselle Cranes from the European part of the breeding range (Ukraine, south of European Russia, and Western Kazakhstan) spend the winter in North-Eastern Africa (Johnsgard 1983, Urban 1987). It was assumed that the wintering area spread from Chad to Ethiopia through Sudan (Meine & Archibald 1996).

The first information about the Demoiselle Crane wintering in Sudan was based on

the killing of a young individual near Dongola in the Middle Nile Basin in December 1892. This bird was tagged in Ukraine in the same year (Andryushchenko et al 2006). Demoiselle Cranes wintering in the White Nile River Valley in Sudan were described by B. Berg (1930). In 1986 the wintering area in Sudan was determined by joint French and Sudan surveys. It included the provinces of Gezira, Hartum, Kassala, and Blue Nile with the largest crane concentration in the basins of the White and Blue Nile Rivers and the Atbara River (Nikolas 1987, Urban & Gichuki 1991). Newton (1996) proposed that the birds which breed in Ukraine and in the Caspian Lowland west of the Volga River spend the winter in Sudan.

In Ethiopia, in the Kafta Sheraro National Park, 21,500 Demoiselle Cranes were recorded in March 2009 (Gebremedhin et al 2009), but in the winter of 2010/2011 cranes were not found here (Gunter Nowald pers. comm., 2011).

In the Republic of Chad Demoiselle Cranes were sighted near the lakes of Chad, Fitri and Ipo (Johnsgard 1983, Urban & Gichu-

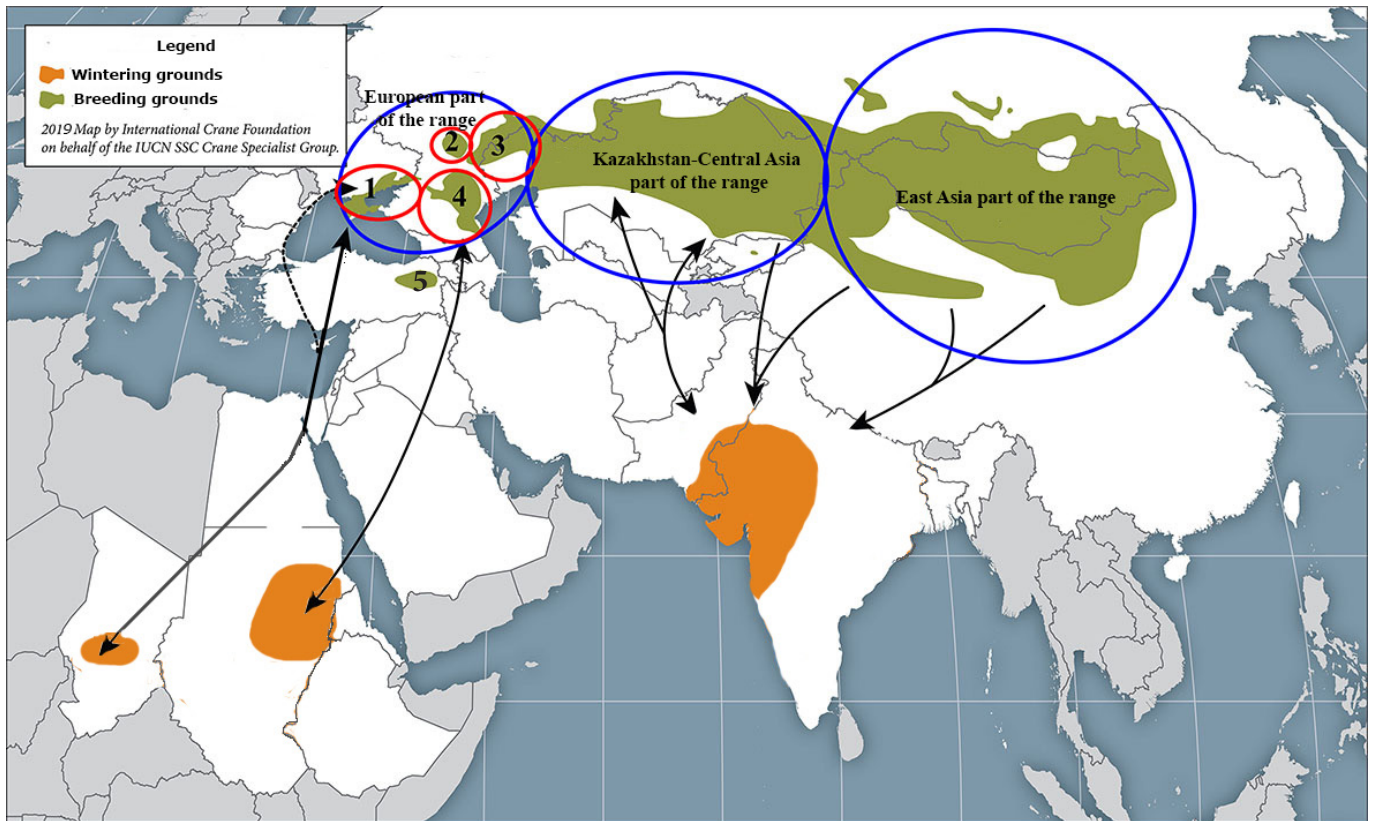


Fig. 1. The range of the Demoiselle Crane (Ilyashenko 2019). The European part includes: 1) Azov-Black Seas population; 2) Middle Don breeding flock; 3) Caspian breeding flock; 4) Volga-Ural breeding flock; 5) Turkey isolated population (according to Mirande & Harris 2019)

ki 1991, Meine & Archibald 1996, Beilfuss et al 2007). Although, some authors write about large flocks on Chad Lake (Mackworth-Praed & Grant 1970), while others note seeing a group of only 24 individuals in October 1991 (Scholte 1996). One individual was recorded in North-East Nigeria in 1991 (Urban & Gichuki 1991).

Our investigations aimed to determine a comprehensive image of Demoiselle Crane migration routes, determine the origination of birds which spend winter in North-East Africa, and document key sites at wintering grounds for further conservation purposes.

Catching and tagging of Demoiselle Cranes was conducted from 2017 to 2022 in the European part of their range in Ukraine, Russia and Western Kazakhstan. We banded 159 Demoiselle Cranes and 100 of them were tagged with GPS-GSM transmitters (Fig. 2).

The cranes tagged with the transmitters

were tracked via the website www.move-bank.org from 2017 to 2021. The data were processed using Microsoft Office Excel and Google Earth Pro programs. The biotope of the location was determined using the Google Earth Pro program.

Wintering in Chad

Tracking of Demoiselle Crane juveniles of the Azov-Black Sea breeding flock showed that they migrate through Turkey, Cyprus and Egypt to the Republic of Chad, crossing the Black and Mediterranean Seas and the Sahara Desert. In both autumn and spring cranes use the same flyway (Fig. 3) (Ilyashenko et al 2022). The wintering grounds are located mainly in the Batha Region of the Sahel, in the deserted bushy savannah.

Cranes arrived at the wintering grounds in Chad in late August. After arrival and until early or middle October they stayed in the lowlands in the northwest of the region. For the period from middle Octo-



Fig. 2. Examples of banding of chicks at the age over 35 days: A – cranes of Azov-Black Sea breeding flock; B – cranes of Caspian and Volga Ural breeding flocks. Photos by Valentin Ilyashenko

ber through middle November the Demoiselles moved either to the Bahr el Gazel River Valley, flowing from the Chad Lake or in the Batha River Valley, which flows into the Fitri Lake, or to the east of the Batha Region. In this eastern site, they stayed in the river valleys flowing from the Ouddai Mountain Range, west of the village of Bitline and Abeche. It is located in the south of the Ouadi Rime-Ouadi Achim Nature Reserve. During November, most of the cranes gathered at the main wintering site located in the swampy area of the Batha River Valley at the confluence of two rivers, between the villages of Absiuf, Am Sak and Bani Assan (Fig. 4). Here they stayed for 3.5–4 months before

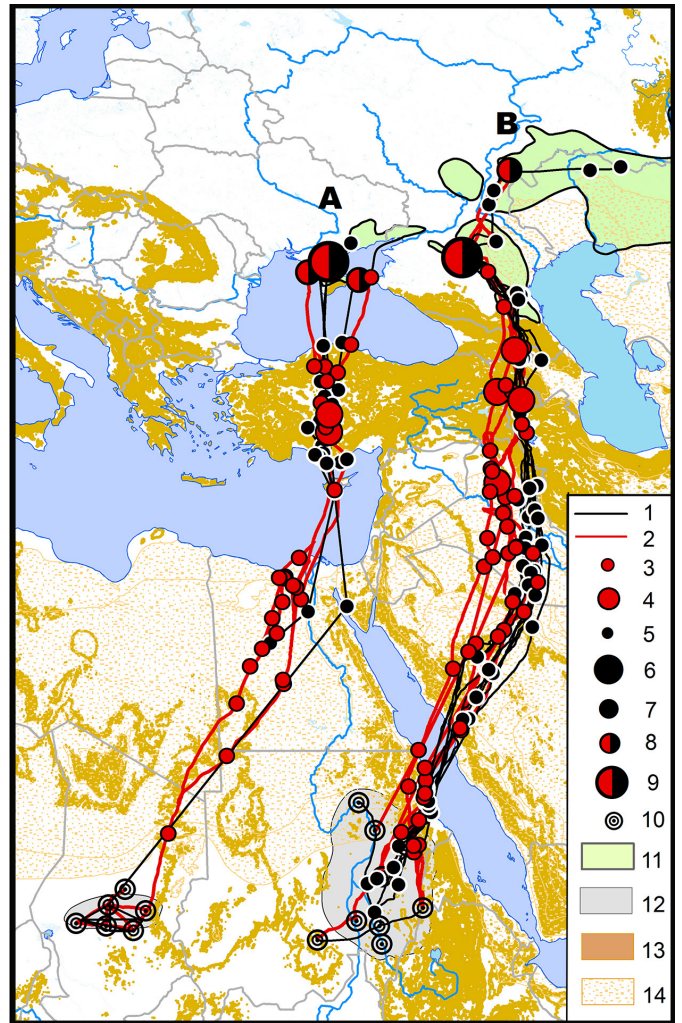


Fig. 3. Autumn and spring migration routes of the Demoiselle Crane from different parts of its breeding range: A – flyway of Azov-Black Sea breeding flock; B – flyway of Caspian and Volga-Ural breeding flocks; 1 – autumn migration routes; 2 – spring migration routes; 3 – spring transit stopovers; 4 – spring staging areas; 5 – autumn transit stopovers; 6 – autumn pre-migratory and migratory staging areas; 7 – key areas during autumn migration; 8 – spring and autumn staging areas; 9 – key areas during spring and autumn migrations; 10 – key wintering sites; 11 – breeding grounds; 12 – wintering grounds; 13 – mountains up to 600 m above sea level; 14 – deserts (according to Ilyashenko et al 2022).

the spring migration. The total wintering area covers approximately 12,500 km². Crane redistribution between key sites during wintering season is obviously associated with climatic conditions (<http://www.restbee.ru/world/afrika/chad>). The rainy season here is from May to Octo-

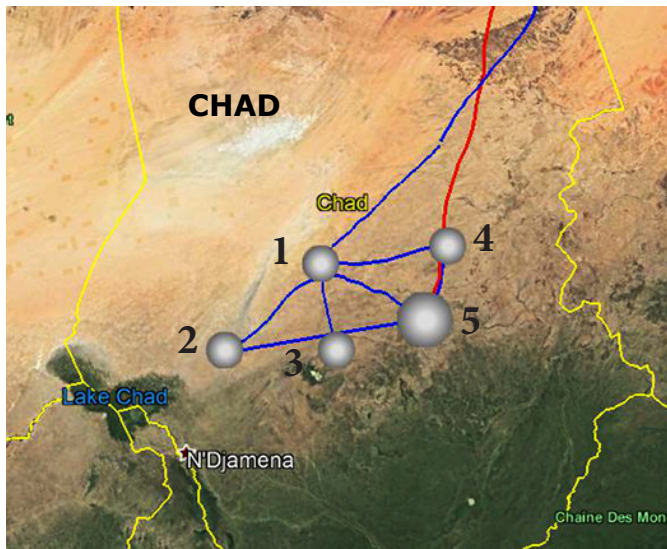


Fig. 4. Main wintering sites in Chad Republic: 1 – area between Gemel and Goz Geti, the first stopover after arrival in autumn; 2 – Bahr el Gazel River Valley; 3 – Batha River Valley; 4 – river valleys flowing from the Ouddai Mountain Range, west of the village of Bitline and Abeche river valleys flowing from the Ouddai Mountain Range, west of the village of Bitline and Abeche; 5 – swampy area between the villages of Absiuf, Am Sak and Bani Assan

ber, therefore cranes probably stayed in the lowlands of the west of the Batha Region or in the river valleys in the east of the region where water is still preserved during September through October. In November, most cranes moved to a swamp on the Batha River, which does not dry out during the entire wintering period. They flew to feed in the savannah or in the fields to the west – southwest of the swamp at a distance of 15–20 km.

Wintering in Sudan

Remote tracking showed that tagged Demoiselle Cranes from Caspian and Volga-Ural breeding flocks gathered at the staging area in Central Ciscaucasia and from here they started their migration. Their flyway passed over south Russia, Eastern Georgia, Western Azerbaijan, Armenia, Western Iran, Western Iraq, and Saudi Arabia to wintering grounds in Sudan (Fig. 3) (Ilyashenko et al 2022). On

the way, they crossed such geographical barriers as the Caucasus Mountains, the Syrian and the Great Nefud Deserts and the Red Sea. The cranes flew with quite a narrow front from 70 to 250 km. The spring migration went along almost the same flyway as in autumn.

Cranes arrived at the wintering grounds during the first half of September. After crossing the Red Sea towards Port Sudan, they rested for one to two days on the western coast 15–20 km north or south of this city. After that they continued their flight to Kassala Province, where they stayed three to seven days in Atbara River Valley and then moved to the Blue Nile Basin. During September and October, they stayed in the interfluvium of the Dinder and Rahad Rivers, tributaries of the Blue Nile River, moving within 200–300 km from the north to the south between Khartoum and Sennar, with the greatest concentration near the cities of Wad Medani and Munirah. In November some cranes either moved north to the Nile Valley between the cities of Berber and Et Tikkawin, or to the west to the North Kordufan Province to Abu Habil River Valley, the tributary of the White Nile River, near Umm Ruwaba city in El Obeid Region, or to the east to the Shagr en Nile River Valley near Umm Angareib, 100 km east of Khartoum. During the second half of winter, most of the cranes moved to the easternmost wintering site in Tekeze River Valley at the junction of the borders of Sudan, Eritrea and Ethiopia near the cities of Omhajer in Eritrea and Himora in Ethiopia, including the Kafta Sheraro National Park in Ethiopia (Fig. 5). Here they stayed until the spring migration. Cranes moving between key sites during wintering period is probably associated with climate conditions (<http://www.gecont.ru/articles/geo/sudan.htm>). After the rainy season starts, they moved from flooded areas in the Dinder and Rahad Interfluvium

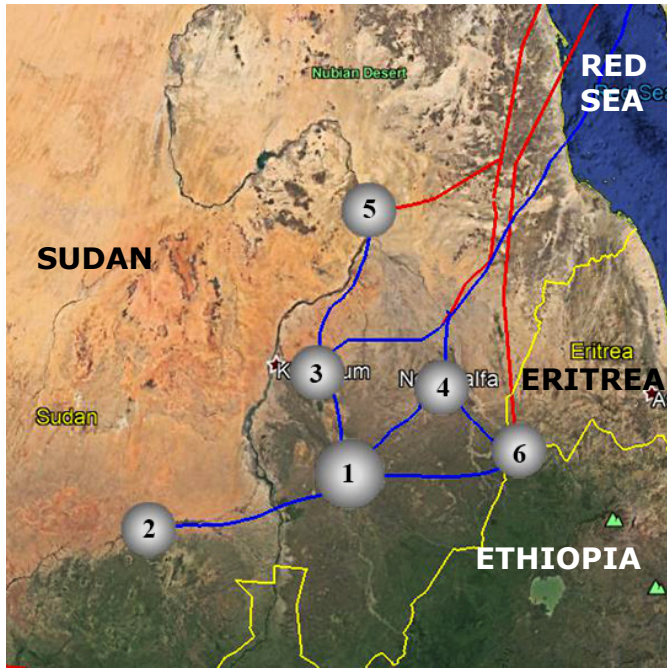


Fig. 5. Main wintering sites in Sudan: 1 – Dinder and Rahad Interfluve; 2 – Abu Habil River Valley; 3 – area between Khartoum and Sennar, with the greatest concentration near the cities of Wad Medani and Munirah; 4 – Shagr en Nile River Valley near Umm Angareib; 5 – Nile River Valley between Berber and Et Tikkawin; 6 – Tekeze River Valley in the junction of Sudan, Ethiopia and Eritrea

to more dry areas in the north and in the west.

Thus, the wintering grounds in the Nile, White Nile, Blue Nile, Atbara and Tekeze River Basins cover eight provinces in Sudan (River Nile, Khartoum, Gezirah, Sennar, Gedarif, White Nile, North Kordufan, and Kassala), northwest of Tigray Province in Ethiopia, and southwest of Gash-Barka Province in Eritrea. Wintering grounds stretch from the bend of the Nile River in the Abu Hamad Region in the north to Ed Damazin in the south with a length of 900 km in the meridional direction and from El Obeid in the west to Himora in the east with a length of 700 km in latitudinal direction.

Tracking has shown that Demoiselle Cranes from the Azov-Black Sea population and from the Caspian and Volga-Ural breeding flocks have different flyways and

wintering grounds. These two wintering areas are separated by the Darfur Mountains in western Sudan and Eddeni, Erdi and Wadai Mountains in eastern Chad. Movements of cranes between them during the winter were not recorded. The number of Demoiselle Cranes wintering in Chad is estimated at 2,000, and the number of cranes wintering in Sudan at 40,000–57,000 (Ilyashenko 2019).

The key wintering sites were determined in Chad and Sudan. In Chad they are located in 1) lowlands in the northwest of the region (August–September), 2) Bahr el Gazel River Valley in the Chad Lake Basin (October–November), 2) Batha River Valley in the Fitri Lake Basin (October–November), 3) valleys of rivers flowing from the Waddai Mountain Range west of the village of Bitlin (October–November), 4) Batha River Valley between villages of Absiuf, Am Sak and Bani Assan (December–March).

The key wintering sites in Sudan are located in 1) Atabara River Valley in Kassala Province (September, March), 2) Dinder and Rahad Interfluve in the basin of Blue Nile River (September–March) (Fig. , 3) area between Khartoum and Sennar, with the greatest concentration near the cities of Wad Medani and Munirah, 4) Nile River Valley between settlements of Berber and Et Tikkawin (November–March), 4) Abu Habil River Valley in the basin of White Nile River near Umm Ruwaba (November–March), 5) Shagr en Nile River Valley near Umm Angareib (November–March), 6) Tekeze River Valley in the junction of Sudan, Ethiopia and Eritrea (January – March).



Fig. 6. Wintering site of the Demoiselle Crane in the Dinder and Rahad Interfluve in Sudan. Photo by Oliver Pineau

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Wintering Grounds of the Demoiselle Crane in Sudan

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There are three crane species in Sudan: Black Crowned-Crane (*Balearica pavonina*) – breeding; Demoiselle (*Anthropoides virgo*) and Eurasian (*Grus grus*) Cranes – wintering.

Eurasian Cranes are common in the western states of Darfour and Cordofan and the Upper Nile River according to personal previous sightings and observations.

The number of Demoiselle Cranes that winter in Sudan are not known, nor is the distribution. A few studies were carried out to evaluate the status of some species, but there were no studies ever done for the Demoiselle Cranes except their general records in Sennar State.

Demoiselle Cranes were recorded in the Rahad wetland (N 12,61711; E 34,04314) in Sennar State, Central Sudan, and in other locations nearby (Elbadawi 2018). They were also recorded by a national surveillance team study of the waterbirds of Northern Sudan in the framework of the project conducted by the four partners listed above to reinforce the IWC in the Nile River Basin.

During the wet season, the author found about 16,000 Demoiselle Cranes in Rahad 45 on December 27, 2011, where the team recorded 21,000 individuals on January 9, 2012. However, on December 21, 2012 their numbers had declined to 4,390 due to unknown reasons. This decline may be attributed to the following: 1) the disturbance of intensive human activities around the wetlands such as grazing, agriculture and hunting;

2) the availability of food and water; or 3) the behaviour of the birds, which tend to change wintering sites.

According to information from local communities, cranes are usually seen at the same time of migration. We recorded about 1,400 individuals near El Suki in 2012 and 8 individuals near Rahad 45 in November 2017. There is a strong expectation that cranes settled at El Mafaza area in El Gadarif State, and near El Ginana at East Darfur State (Fig. 1).

The major threats encountered by the Demoiselle Cranes include 1) shooting by weapons and trapping with nets; 2) agriculture and pesticides; 3) disturbance by human activities such as grazing and cutting of trees; and 4) the lack of legal protection of habitat and against poaching.

In some regions local communities cannot possess a firearm due to legal regulations, therefore they hunt with traditional means like "safaroag", a kind of boomerang (Fig. 2). They use it mainly for hunting of very slow-moving birds, also small mammals like hares and rabbits. Those who use it normally tend to hunt one or two animals, up to five maximum, while those who use firearms can kill hundreds and sometimes more animals. Unfortunately, the majority of hunters now have firearms and nets for hunting.

It can be concluded that Demoiselle Cranes are a regular wintering species in Sudan, and their migration to Sudan is compatible with the availability of food, mainly crops of dura and sesame.

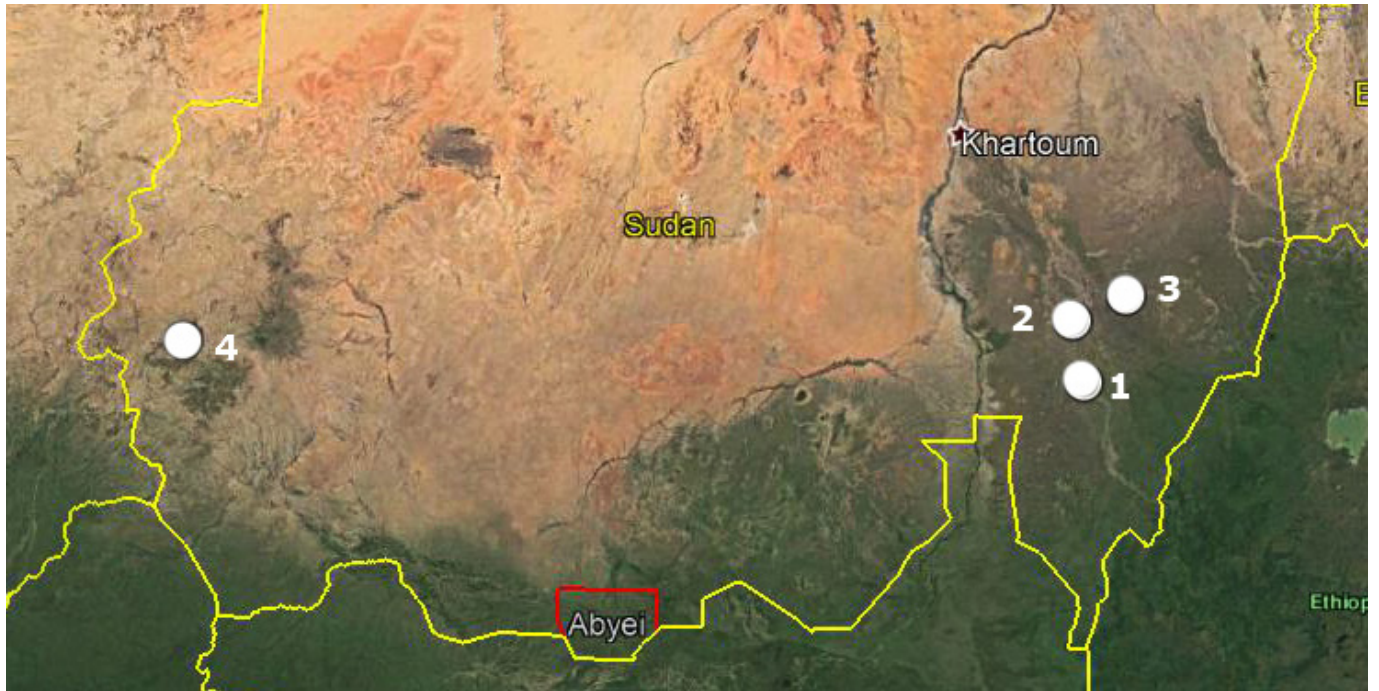


Fig. 1. Records of Demoiselle Cranes in Sudan: 1 – Rahad 45; 2 – El Suki; 3 – El Mafaza; 4 – El Ginana

It is urgently recommended that surveys are quickly conducted of all sites where birds can be found.

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Fig. 2. Local people use "safaroag" for hunting of large birds and small animals

Threats for the Demoiselle Crane at breeding grounds in the European part of its range and along its flyway

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The Demoiselle Crane is wide-spread species in steppe and semi-desert zones of Eurasia. Over the past 100 years, the species has been extirpated from Northern Africa (Morocco, Alger, and Tunis), the Iberian Peninsula (Spain, Portugal), Balkan Peninsula (Bulgaria and Romania), Western Eurasia (Azerbaijan, Armenia, Moldova & Southwestern Ukraine) and quite recently from Eastern Turkey and some regions of Ukraine and Russia due to high economic development. During the last 15–20 years the decline of the specie’s numbers is registered across the current breeding range from Azov-Black Sea Region to Northeastern China. The heaviest decrease has been recorded in the European part of the range which spreads from the western coast of the Azov and Black Seas in the west to the West Kazakhstan and Cis-Urals in the east. The number of the Demoiselle Cranes have decreased here approximately by 3–5 times, and by 2–3 times in the most optimal habitats, which have become mosaic. The main reasons for the declining numbers are threats at breeding grounds and along flyways.

Threats at breeding grounds in the European part of the range

The main threats include shrinking of habitats due to climate change and reduction of water resources, changes in livestock grazing, poisoning, and disturbance.

Our investigations since 2017 have shown

continuing desertification in the south of the range (Fig. 1). However, there are a lot of freely flowing artesian springs there (Fig. 2). This allows cranes to breed near artesian flooding even in very dry semi-deserts and deserts. In the north of the range, the dry steppe habitats have been transformed to grassland with high and dense grass due to mild winters (Fig. 3). Such habitats became unsuitable for Demoiselle Crane breeding.

The optimal habitats are located in the middle of the range in Central Cascausia and Caspian Lowland. However, the reduction of fresh water resources has occurred there. Connected with severe drought since 2000, destruction of irrigation systems use due to high cost of water after economical crisis, reduce of artesian wells number and modernization of remain artesian well using. To avoid water loss and to decrease payment for



Fig. 1. Desertification of crane habitats in the south of the range in Dagestan in 2022. Photo by Elena Ilyashenko



Fig. 2. Freely flowing artesian springs in Dagestan (A) and cranes on the artesian well flooding (B) Photos by Elena Ilyashenko



Fig. 3. Steppe habitats which are transformed into grasslands in the north of the breeding range in Volgograd Region. Photo by Elena Ilyashenko



Fig. 4. Artesian well water is taken in barrel for livestock watering (A) and a pair at the place of the former artesian well (B). Photos by Elena Ilyashenko

water use, water from artesian sources began to be taken into barrels and became the only water used for the watering of livestock. Therefore, cranes cannot drink in such farms (Fig. 4). Besides, waterers for cows are very high and crane chicks cannot reach water in them, even the water remaining after livestock have finished watering.

Kalmyks are Buddhists and are very kind to nature. Through the website of the main Buddhist Temple, we turned to the Kalmyks and asked them to put low drinking bowls for livestock and leave water in them for cranes.

The isolated Azov-Black Sea breeding group is the most endangered. Increasing uncontrolled tourism, and new plowing for steppe have led to a decrease in the number of suitable habitats. This loss has caused a high density of crane pairs to be concentrated at only a few available habitats. During last four years we observed 12 unique pairs in the area of 4 km², where crane breeding sites were located in 200–300 m between each other.

The other threat is crane **poisoning**. In 2021 and 2022, dead Demoiselle and Eurasian Cranes were found in Dzharylgach Lake in West Crimea. The lake is semi fresh and surrounded by agricultural fields. This place is used as migration stopover and staging area in spring and autumn and as a summer area for immature Demoiselle Cranes. In May 2021, five Demoiselle and two Eurasian Cranes were found dead, and in May 2022 – 18 Demoiselle and six Eurasian Cranes (Fig. 5). An official letter was sent to the Crimea Government and the Nature Conservation Agency of the Republic of Crimea with the request to record that the problem causing crane death was by poisoning. The main issue for the recommendation is to prohibit using chemicals on fields located around Dzharylgach Lake.

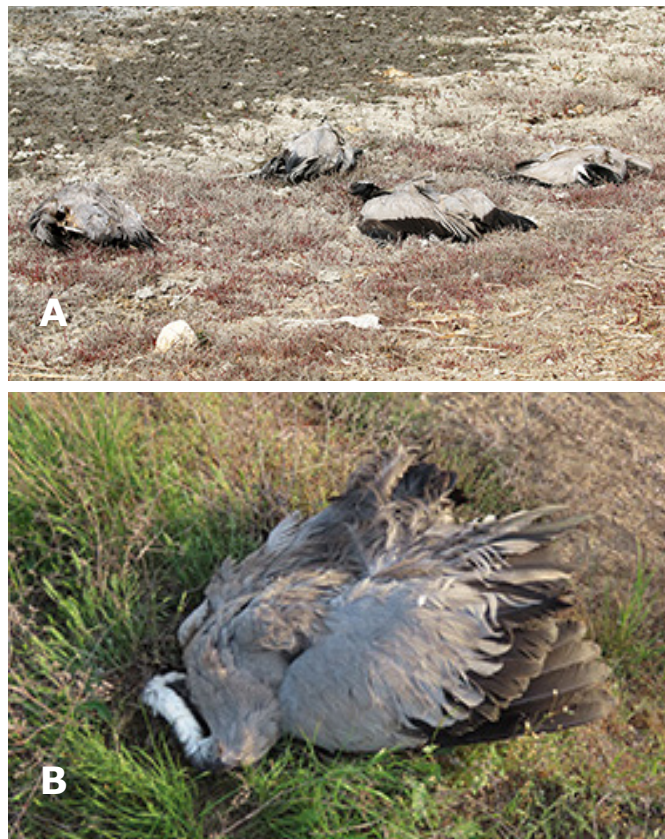


Fig. 5. Dead poisoned Demoiselle (A) and Eurasian (B) cranes in the Dzharylgach Lake, West Crimea in May 2022. Photos by Grigory Prokopov

Threats along flyway

The last investigations using remote tracking showed that Demoiselle Cranes use two different flyways and different wintering grounds. The cranes from the isolated Azov-Black Sea population migrate through Black and Mediterranean Seas, Nile Delta, and Sahara Desert to the center of the Republic of Chad. The cranes from Central Ciscaucasia, Caspian Lowland, Volga-Ural Interfluve, and Cis-Urals gather in Manych Valley in Ciscaucasia and then fly in a very narrow front through Caucasus Mountains, the Tigris and Euphrates Interfluve, huge area of deserts, and the Red Sea to the Nile River Basin in Sudan.

It is unknown about threats along the flyway and wintering grounds of the Azov-Black Sea population. The main threat for cranes using the second flyway is hunting in Saudi Arabia. Hunters in this country are

familiar with the Demoiselle Crane migration through their region. They know that cranes need to find water when crossing the desert. Hunters construct small ponds or spread blue plastic to attract migrating cranes to land. Thirsty exhausted cranes land, attracted by water, decoys, and recordings of crane calls. Hunters hide, waiting for cranes to land and then start shooting with automatic guns, slaughtering or injuring cranes while they try to escape. In effect, the hunters have created an artificial ecological trap.

It is unknown the actual number of cranes killed during migration through Saudi Arabia. However, at least two of 37 Demoiselle Cranes tagged in 2019 in Russia and Western Kazakhstan were confirmed shot and videos on the internet show repeated mass shootings (Fig. 6).

Historically, crane hunting was a traditional, but uncommon event in Saudi Arabia. Now crane hunting has become increasingly popular due to new technol-



Fig. 6. Mass crane hunting in Saudi Arabia (Internet resource)

ogies (i.e. modern four-wheel drive vehicles, automatic guns) and the ability to advertise crane hunting through social networks. Although hunting is legally prohibited in Saudi Arabia, it has been explained that culturally the Saudi people love hunting and feel pride when they hunt larger numbers of cranes, making it difficult to control hunting.

Conservation measures needs

Without appropriate measures, the threats at breeding grounds and along the flyway can lead to loss of Demoiselle Cranes throughout the European part of its range.

To support recovery of the Demoiselle Crane population in the European part of its range it is necessary to address the following.

At breeding grounds

- To set low drinkers for cow watering that cranes and their chicks can use for drinking.
- Control use of chemicals against rodents on fields around lakes where cranes forage during summer and autumn.
- Regulate hunting on identified key staging areas and migration stopovers.
- Increase the number of protected areas at breeding grounds.

Along the flyway

- Strengthen control of crane hunting in Saudi Arabia and increase the penalties for offenders.
- Increase public awareness against crane hunting along flyways and the potential impacts of the current activities on the global population.

Crane population under jeopardy and peril deserves attention in Pakistan

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The capture of cranes from the wild and tamed as pets, is a tradition in the southern districts of Khyber Pakhtunkhwa in Pakistan. Trapping cranes during their north – south migration has been a practice for centuries here. This tradition, requiring the skills of tossing a long-weighted cord into the air, and using live decoy cranes and their calls to deceive passing migrating cranes to land, was like a sacred taboo in the area. The local hunters, usually influential and rich, would set up camps on the Kashew, Kurram and Indus

ivers. They would entertain themselves during the day with gossip, playing cards, and discussing local affairs. These camps would serve socializing, political, and even relational and cultural needs. In the evening, all would get up on their feet to trap cranes. Though no reliable estimates of the pre-1980s exist, this tradition of crane trapping was more or less sustainable, as it was reliant on specialized skills of the local hunters, was geographically limited in the absence of communication and developed transportation means,



Fig. 1. Demoiselle Cranes which were caught during spring migration in Pakistan in spring 2023. Photo from Internet

and was entertainment and cultural celebration.

The sustainability of this tradition of crane hunting became challenged with flow of weaponry into the region, a consequence of the war in Afghanistan. Many novices, finding cheap automatic rifles and ammunition in their hands, were finding cranes and other migrating birds easy targets for their shooting. Their belief that the supply of birds was unlimited in the nature was not helpful. Soon, the crane numbers were obviously declining on their migrating routes of Indus, Kashew and Kurram rivers, the grounds for the traditional crane hunting/trapping. In the quest to trap even more cranes, the crane hunters started expanding to other areas such as Musa Khel and Zhob in Balochistan. To keep the tradition alive, the crane hunters from Bannu and Lakki started arduous journeys to trap cranes along the Zhob river and Rakhni in Musa Khel. The cranes trapped in a year during that time was estimated at 4000 to 5000. This was not sustainable by any means, and the result was a sharp decline in migratory cranes. This era also witnessed the extinction of the central population of Siberian cranes, an irreversible loss to nature.

The sustainability of this sport was challenged simultaneously by two additional factors, introduction of business and commercial interests in captive cranes, and improved transportation and communication such as the development of Indus Highway, the National Highway 70 between Loralai and Dera Ghazi Khan and the motorways. With growing demand in the market in addition to the traditional intake for captive cranes, the crane hunters started exploring new hunting grounds. The improved transportation extended the geographies for the crane trapping, which provided an opportunity for people outside of the Khyber Pakhtunkhwa's southern districts to learn

and adopt this sport. In the 2000s, the crane hunters were traveling as far as the Hub dam in Sindh and Lasbella district in Balochistan. In 2012, the crane hunters didn't spare the Qamar Din Karez and the nearby crane staging grounds such as the Zari Daggar. This expansion of the hunting lands put tremendous pressure on crane populations migrating through Pakistan. The only place which is still not accessed by crane trappers from the Bannu, Lakki and elsewhere, is the Wasta Lake. Its owner, Hafiz Nurul Haq, is a dedicated conservationist and bird lover, who has his own hunting rules for the area, with no place for live trapping.

With technological advances, there have been innovations in every field. The same is true for crane hunting. The hunters benefited from it in different ways, communication networks such as the cell phones available to everyone, and then recording and playing devices. The crane hunters have started using calling devices instead of pet cranes. This has reduced the cost by eliminating setting up crane camps, and has hindered trackability by the law implementing authorities, such as the Wildlife Department's personnel. Though, there is an improved law enforcement in Balochistan, as reported by the Chief Conservator of Wildlife, Mr. Sharif Uddin, the hunters continue to use calling devices to attract cranes, which is very hard to track and trace. It is therefore possible that hunting pressure, both from live trapping and from shooting, might have continued to increase. There is need for assessment of the current trends in cranes hunting in Pakistan, impact of the evolution in crane hunting practices on crane populations, legal measures required, extension services needed for educating crane hunters and conservationists, and crane conservation measures to stop the damage even if reversal is difficult at this time.

Lessons from avian influenza outbreak among Eurasian Cranes in the Hula Valley, Israel, in winter 2021/2021

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The Hula Valley is located along the Great Valley in northern Israel. The Valley once supported one of the largest freshwater wetlands in the Middle East. This wetland was drained in the 1950s for cotton cultivation, and only small part of the region was protected as the Hula Nature Reserve (Shanni et al 2012). Until the 1990s, Eurasian Cranes used this area as a migration stopover site between the breeding grounds in North-Eastern Europe, Belorussia, Ukraine, European Russia, and Western Kazakhstan and the wintering ground in Ethiopia and Sudan; only a few hundred stayed in the Hula Valley for the winter.

Since the 1990s, after the restoration of Lake Agamon and the replacement of cotton with corn, sunflower, peanuts and other crops, the Hula Valley became important for wintering cranes. Their numbers increased to 45,000 in the winter of 2017/2018 (Inbar Rubin, pers. comm.) due to improved conditions for foraging and roosting. Cranes arrive in the Hula Valley mainly in late October – November. Many stop over and migrate onward to Africa, while a varying amount stay for the winter in the Hula Valley.

The increase in the number of cranes wintering in the Hula Valley has led to strong pressure on agricultural fields, where they caused great damage in the 1990s and early 2000s: in December – January, a sowing campaign takes place in Hula

and the cranes eat away the sown seeds almost completely.

To mitigate the damage caused by cranes, a management scheme was collaborated including the following activities: a) during autumn stopover period (October – November) cranes are allowed to forage freely on fields where there is no potential damage (fields with remains of peanuts and corn); b) during the early winter cranes are allowed to forage only in specifically designated areas and kept away from seeded fields; in addition the supplementary feeding station located within Agamon Hula park provides food on a limited scale; c) for the rest winter, due to insufficient natural food, low ground temperature and sensitive newly planted crops, massive daily feeding is carried out at the feeding station in order to prevent crop damage (Shanni et al 2012). Depending on crane numbers and weather conditions, 8–10 tons of corn are spread in the feeding station daily. Cranes are driven aggressively from sensitive crops fields using non-lethal methods. This intensive management has produced a significant reduction in agricultural damage and increased public awareness and crane-focused tourism.

In recent years the management of cranes in the Hula Valley was fairly successful in mitigating the conflict with farmers. However, there was a concern that excessive concentration in a very limited area could

lead to epizootic outbreaks. Therefore, the outbreak of avian influenza (AI) in 2021 was not unexpected, but the surprise was that it caused such a mass death of cranes, which were previously considered resistant to AI virus.

Avian influenza outbreak in the Hula Valley

In Israel, the avian influenza started in October 2021 in poultry farms. On 30 November the first case was recorded in a wild bird: one infected Great White Pelican in the Heffer Valley. On 5 December the first case of a crane death was registered in the Hula Valley and on December 10, ten dead cranes were tested, and H5N1 virus confirmed. On December 22, the number of dead cranes was estimated at 5,000. The outbreak peaked on December 17–22, 2021 (Fig. 1, 2).

At the same time, AI continued to spread in poultry farms mainly in northern Israel, with over one million chickens and tur-

keys culled in an attempt to control the spread of the outbreak.

On December 23, 2021 the AI outbreak was declared as a national crisis, and control was taken over by National Security Council with the participation of relevant government environmental authorities, and the Jewish National Fund (KKL-JNF) who manage Agamon Hula Park, and non-governmental organizations.

On December 26–27, 2021 removal of cranes carcasses started in Agamon Hula and adjacent areas. Special teams in protective suits began to collect dead cranes from the water body and surrounding fields. Thus, the necessary measures were taken only 10 days after the mass death began.

The mortality was estimated at 8,000 out of 25,000 Eurasian Cranes that were counted this winter. It should be noted that such a massive AI outbreak in cranes has been recorded for the first time in the world. The second mass mortality in cranes was registered in winter 2022/2023 at wintering grounds in Izumi in Japan (Haraguchi 2023).

In January 2022, numbers of AI cases in Hula Valley dropped dramatically, with very few or zero new cases. However, during January 2022, AI was identified in other parts of Israel in wild birds, main-



Fig. 1, 2. Sick and dead Eurasian Cranes on Lake Agamon during the peak of AI outbreak. Photos by Yuval Dax and Nadav Israeli

ly Great White Pelicans, of which several tens were confirmed with H5N1 (Fig. 3). Also a few cormorants, herons and other birds were confirmed with H5N1.

The virus can persist in water for several weeks. In the Agamon Park, cranes roost in the main water body. The virus is expected to remain in the lake for several months, so there was a risk of a new outbreak, especially during the coming spring migration, when the Hula Valley was used again as a stopover site by the cranes wintering in Africa. In addition to cranes, storks, pelicans, many other birds stopover and concentrate in the Hula Valley, often sharing the same foraging fields and roost sites with cranes. Luckily, no repeating AI outbreak was noted in wild

birds in Israel in spring 2022 and in winter 2022/23.

Measures

These measures were taken to stop the spread of avian influenza in Israel:

1. Cleaning up Lake Agamon and the surrounding fields from corpses.
2. Lake Agamon is connected by channels with the Jordan River and the wetlands of the Hula Nature Reserve adjacent to the park. To prevent the spread of the disease, ducts were blocked.
3. Lake Agamon was flooded to increase water levels and discourage cranes roosting in infected water. Most cranes started to use for night resting a reservoir in the neighboring Hula Nature Reserve.
4. Supplementary feeding of cranes was continued during the outbreak, to avoid the spread of the disease throughout the country. However, the feeding technique was changed, spreading out feeding sites to avoid concentration.

In the long term, supplementary feeding of cranes and others birds sensitive to AI should be evaluated in relation to risk of zoonotic disease outbreaks and mitigation of conflict with farmers. Management of large natural areas with rich natural food sources, and better sanitization of agricultural fields to reduce residual amounts of crops could reduce numbers wintering in Israel, and reduce pressure on agricultural lands.

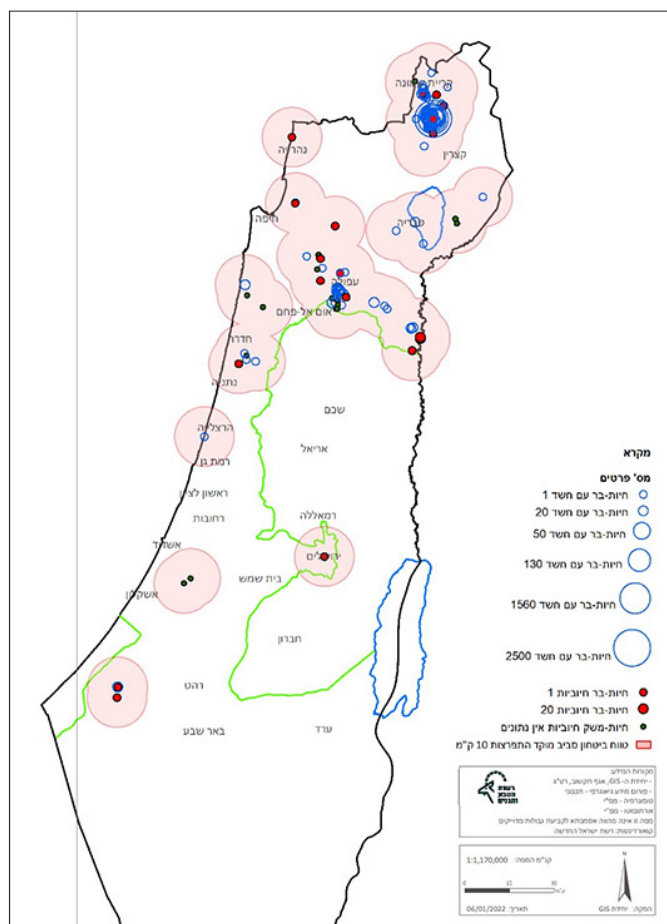


Fig. 3. Avian Influenza spreading in Israel (red circle – AI confirmed in wild birds, blue circle – AI suspected in wild birds, black circle – AI confirmed in poultry farms, rose polygon – 10 km safety zones around AI outbreak location). Prepared by Israel Nature and Parks Authority

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Hope and effort for the dream of life and survival

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The Siberian Crane is a critically endangered species of birds. There used to be three populations, of which the 'central' population was already extinct by 2002. Omid (in Persian "hope") is the only known survivor of the Western population of Siberian cranes in the wild. He is the only Siberian crane in the world who retains the ancient knowledge of the migration route and timing of the western population. The survival of this population, and the preservation of this migration flyway in the wild, all depends on Omid. Siberian cranes are on the verge of extinction due to various reasons especially hunting.

Group of Siberian Cranes discovered by Dr. Ali Ashtiani in 1978. They numbered 12–14 cranes and inhabited a wetland complex where local people trapped wild ducks and geese. In 1985, Russian colleague, Dr. Yuri Markin, discovered new breeding grounds by attaching a satellite transmitter to a male crane in Iran. During the 1990s, the population declined. For 15 years, only a single male named Omid appeared each autumn in Iran.

Paying attention to these points has provoked us humans to do our best to preserve Omid and increase Siberian cranes of the western population in the wild, an effort that has not been successful in the past years.

No one knows the exact age of the bird, but Omid has been observed for less than fifteen years. In captivity, their lifespan has been recorded up to about 70 years.

We hope that Omid will have a long life and that our human efforts will be helpful for the survival of its generation, but nature is full of challenges and dangers, and its survival so far is a miracle and a cause for hope.

Humans and ecosystem changes brought him to the brink of extinction, but will humans be able to help him? We are doing our best to retain our hope and we are organizing an international effort with the most expert and experienced people in the world in the field of Siberian cranes.

Omid usually spends four months in the Fereydunkenar wetland by the Caspian Sea in Northern Iran. His migration path is about five thousand kilometers and there are many dangers for Siberian cranes on this route. But the continued presence of Omid in a certain area every winter has made it possible to protect and help him at least when he is in Iran (Fig. 1).

In the last year my friend George Archibald, Co-founder of the International Crane Foundation (the ICF), informed me that there was a suitable Siberian Crane female in Belgium, available to accompany Omid on his migrations. I then established a relationship between the Cracid & Crane Breeding and Conservation Center (CBCC) in Belgium and the Department of Environment (DoE) of the Islamic Republic of Iran. We informed the Vice-President and Head of the DoE, Ali Salajegheh. Plans were made at the highest level of the DoE to save Omid and



Fig. 1. The wild Siberian Crane male named Omid. Photo by Keramat Hafezi Birgani



Fig. 2. The released Siberian Crane female named Roya. Photo by Keramat Hafezi Birgani

maintain the flyway, so that in this way, the bird transfer operation began.

As soon as the CBCC was introduced and the contact with a Siberian crane exporter was made, the necessary measures were taken to obtain permits from the CBCC and the DoE. But the spread of avian flu in Europe made it more difficult, complicated, and time-consuming to get the proper permits.

Many measures and numerous international permits were needed to transfer a Siberian Crane to Iran with the participation of the DoE and the CBCC. Roya (whose name means "Dream" in Persian) was the female Siberian Crane presented in perfect health by the CBCC to the DoE (Fig. 2).

Geer Scheres from the CBCC was by our side at all times and contributed his counsel and experience, earning our appreciation as he continues to help us.

The transportation and planned release of Roya was described as "a big step for the survival of the species" by Geer Scheres. "The intention is to save part of an already very small population."

The ICF has been working for 50 years with the advice of experts and scientists from different parts of the world for the protection and survival of Siberian cranes and has a lot of experience in this field. For this reason, we asked George Archibald to help us in this project, and he also provided advice for this action in Iran. The DoE is the main party responsible for this project in Iran, and they have made a valiant and valuable effort.

The CBCC, with many years of experience in breeding Siberian cranes and endangered species, opened and maintained valuable communication and cooperation with the DoE. They gave Roya, a beautiful Siberian crane to Iran's nature, and throughout the whole process, provided valuable experience and advice.

After Roya's arrival in Iran, she was placed in the release structure. A special cage was placed near Omid's habitat so that the release could be done slowly and gradually after observing the possible desire of the two birds.

After seeing two Siberian Cranes together and observing the interaction and sounds

and behavior of Roya and Omid, Roya was released. From the very first moments both Siberian Cranes danced together and soon the birds started to fly and explore the environment and feed on the wetland (Fig. 3).

Report on the meeting of Omid and Roya by Keramat Hafezi Birgani, Koros Rabiei.

January 31, 2023; 9:41 am - report setting time; release site is Ojakeleh, Fereydonkener, Mazandaran Province, Iran.

Omid approached the release structure early in the morning. The weather was foggy; 7:03 Omid was about 30 meters from Roya. At 7:15, with the name and remembrance of God and prayers for the best, the door was slowly opened. At 7:23 am, Roya left the cage very calmly and without flying and went towards Omid; Omid and Roya fed together.

At 7:50, they danced and sang together for the first time in the beautiful plains of the Caspian Sea in northern Iran.

At 7:57 Roya flew about 200-300 meters and Omid quickly walked towards her. They stayed for a few minutes and then

flew 300 meters. Now Omid and Roya are about 200 meters apart; Roya is preening her feathers.

Everything is excellent, we wish everything continues to go well!

Me, together with the environmental rangers, monitored Roya and Omid day and night.

In the early days of releasing the bird Omid came from north of the wetland to see Roya and stayed only a few hours, but their time together increased every day, so that in the following days, both birds were together all day and night, and Roya even flew with Omid at night and went to roost in the northern areas of the wetland (Fig. 4).

Roya, a seven-year-old crane was fresh and brave against natural hazards (Fig. 5). This Siberian crane had little contact with humans. On the other hand, her vigilance and natural instinct were also very excellent, so that after soft release, she was completely alert and fresh, she was feeding on food from the appropriate environment, and also adapted against challenges such as the night, the fog and the



Fig. 3. Omid with Roya soon after her release into the wild. Photo by Keramat Hafezi Birgani



Fig. 4. Cranes fed well and got used to each other. Photo by Keramat Hafezi Birgani



Fig. 5. Roya was brave against natural hazards. Photo by Keramat Hafezi Birgani



Fig. 6. Roya was also fully ready to defend and alert against the Golden Jackals. Photo by Keramat Hafezi Birgani

dangers of wild life. She bravely adapted to the conditions of nature and benefited from Omid's training. Siberian cranes of the CBCC are descendants of the cranes of the western population of Russia, which in the past were used by the CBCC and the ICF to preserve the survival of this species in the world.

In the pictures, I recorded some of the dangers of wildlife which we observed during round-the-clock monitoring after the release of Roya. Carnivores such as a large number of Golden Jackals (Fig. 6) (due to the proximity of the Hyrcanian forest patches), Jungle Cat, Eurasian Otter (at night), as well as birds of prey such as the White-tailed Sea Eagle, Greater Spotted Eagle (Fig. 7), Eastern Imperial Eagle, Northern Goshawk, and Black Kite were some of the powerful birds of prey in the wintering area of Roya and Omid.

There are many natural and artificial dangers facing migratory birds, we hope that with the grace of God Almighty, they will overcome these dangers with good health, and that they will be responsible for the survival of the western population



Fig. 7. Roya repelled several attacks and dangerous dives of the Greater Spotted Eagle. Photo by Keramat Hafezi Birgani

of the Siberian cranes of the world, and that Roya will also learn the knowledge of migration from Omid.

In the days close to the time of migration, they flew together around the wetland. They danced and called.

On 5 March, in the morning, the Siberian Crane pair – Omid and Roya, started

spring migration to the north. Together they passed the Sorkhrood Lagoon. The weather was sunny and calm.

According to the DoE of the Mazandaran Province, two Siberian cranes began their long and perilous flight from Fereydunkenar wetland to Western Siberia.

"Omid arrived in Iran on October 27 and after 130 days of wintering in northern Iran's wetland, it left the resort for Siberia accompanied by Roya who spent 34 days with him," Ata'ollah Kavian, the Director-General of the DoE of the northern province of Mazandaran, was quoted Omid has spent winters in Iran consecutively for the past 15 years, even after he lost his mate Arezoo (meaning 'wish' in Persian) (Fig. 8).



Fig. 8. Keramat Hafezi Birgani (the second from the left) and rangers of the Department of Environment of Mazandaran Province (from the left to the right): Mojtaba Alizadeh, Ali Shirgahi, and Abdollah Dadbin with the empty transfer box from the CBCC Belgium in Fereydounkenar - the wintering site of Omid in Mazandaran Province, Iran

After the start of the first migration of Omid with Roya, Roya was seen alone on the migration route but she was healthy and was captured on March 12, 2023.

Iranian colleagues of the DoE of Mazandaran Province handle Roya in a safe manner. Roya was successfully captured and is being kept in Iran to have the opportunity to be with Omid again next autumn in 2023. We hope that they will be successful in the second migration.

Now Roya is in perfect health in Iran and is waiting for Omid's return in autumn.

The efforts to find Omid by our Russian colleagues continue, and if the exact location of Omid in Siberia is determined, our Russian colleagues have announced their readiness to release young Siberian cranes from the Oka Crane Breeding Center in Ryazan Region into Omid's summering area, but of course Omid has not yet been observed in the vast summering area. It is for this reason that all the past actions of the ICF and Russian colleagues have focused on Iran to save the western population.

The CBCC has also announced its readiness to donate the Siberian cranes that will be born this summer to Iran to be released in the wintering area in the north of Iran in autumn 2023, and thus all scientific efforts will be made for the survival of the western population of the Siberian crane. Of course, all these measures depend on the observation and return of Omid, and we and the world's Siberian crane experts are doing our best and we maintain our hope.