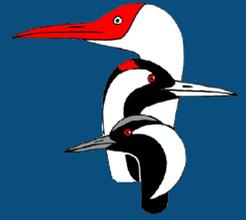


# CENTRAL-ASIA MIDDLE EAST CRANE CONSERVATION GROUP



Issue 3, December 2025

Editorial Board: Claire Mirande, Karen Mesmer, Robert Mesmer, Beverly Pfister, Angela Woodward, Bethany Dempze, Elena Ilyashenko

## An Update From the Co-Founder

by George Archibald, Ph.D.

Dear friends and colleagues,

The Central Asia and Middle East Crane Conservation Group (CAMEC), established at the International Crane Foundation (ICF) in January of 2025, under the direction of Afghan conservationist, Mr. Wali Modaqiq, and now resident in the USA and employed at ICF headquarters, has made substantial progress during the past 12 months.

To date, 81 individuals from 24 nations and institutions have joined CAMEC. In December of 2024, CAMEC issued its' second newsletter to members. It included five reports, about:

1. Situational Analysis of Hunting Pressure on Crane in Pakistan
2. Understanding the Movement of Demoiselle Cranes During Winter Between Foraging and Resting Areas in Khichan, Rajasthan is Vital for Effective Conservation Planning
3. Public Awareness and Ecological Education at Demoiselle Cranes Breeding Grounds
4. Wasta Lake of Hafiz Nooul-Haq, A Crane Paradise
5. Turkey Crane Project-2024

This is the third newsletter, the contents of which are outlined in Wali's introductory remarks.

Wali has made great progress in communicating with colleagues in both Lebanon and Pakistan about issues related to the illegal shooting of cranes and the establishment of a new crane reserve in Pakistan where

thousands of Eurasian and Demoiselle cranes gather during their spring migration. He has also delivered in Farsi language, to 29 colleagues in Iran, a presentation about the history of Siberian Cranes that recently wintered in Iran and that we hope can be restored.

In addition, Wali has organized a series of four webinars titled "Cranes without Borders- (Protecting Cranes Through the Seasons)".

1. The first webinar focused on the "Current Status and Threats for the Demoiselle Crane at Breeding Grounds in Russian (given by Dr. Elena Ilyashenko) and in Mongolia (given by Dr. Nyamba Batbayar).
2. The second webinar explored "Human-Wildlife Co-existence at Crane Wintering Grounds" in India (given by Dr. Sujit Narwade) and in Israel (given by Dr. Yoav Perlman)
3. The third webinar addressed the topic "Crane Hunting along Flyways – Challenges" in Turkey (given by Ferdi Akarsu) and in Pakistan (given by Khan Malook Khan)
4. The last one focused on "Risks to Crane Reintroduction" two presentations on "Lessons learned and results of the Whooping Crane reintroduction" (given by Hillary Thompson) and on "Assessing Risks for the Siberian Crane Reintroduction" (given by Dr. Elena Ilyashenko and Dr. Valentin Ilyashenko)

Each webinar is followed by a discussion. It was a thrill to observe

come much valuable information being shared among nations within the ranges of the CAMEC cranes. I encourage you to download the webinars if you have not already experienced them. [They can be accessed at this hyperlink.](#)

I hope you will encourage others to join CAMEC. At the International Crane Foundation, we have a slogan "Cranes Unite Us". In these times with such enormous challenges for peace and well bring for humans, the majestic cranes provide a focus where mutual interests bring us all closer together for Greater Good.

Wishing you all personal happiness and achievements in conservation.

**George Archibald, Ph.D.**

Co-Founder, International Crane Foundation



Demioiselle Cranes at winter feeding area in Khichan, India.

# INTRODUCTORY REMARKS AND CONTENT



It is my pleasure to share with you the third edition of the Central Asia and the Middle East Crane Conservation Group newsletter. This issue shows how dedicated and cooperative our community is, bringing together 12 different articles, reports, and stories. Our contributors kindly shared their knowledge and experiences:

1. [Tribute in Memory of Ellen Vuosalo](#)
2. [In Memoriam, Dr. Steven Landfried](#)
3. [A Journey into Conservation Planning at the Khichan Conservation Reserve](#)
4. [Field Observations Story of Cranes](#)
5. [Fieldwork Report on Crane Hunting and Conservation Observations](#)
6. [History and Status of the Western/Central Asian Population of the Siberian Crane](#)
7. [I Feel Lucky Observing the Siberian Cranes in Bahratpur, India](#)
8. [Protecting Cranes in Conflict and Post-Conflict Countries-The Case of Afghanistan and the Middle East](#)
9. [Safeguarding the Skies: Crane Conservation in North Lebanon](#)
10. [Sky of Iran Awaits the Hopeful Flight of Cranes](#)
11. [The Demoiselle Crane Status in the European Part of the Range in 2025](#)
12. [Towards Crane-friendly Agriculture](#)

I am very thankful to all the authors and contributors for their hard work and knowledge which have made this edition enriched. A special thank you to CAMEC members from Afghanistan, India, Iran, Lebanon, Pakistan, and Russia for their important reports and articles. Your volunteer work not only helps crane conservation in our region but also shows our community's unity as we face challenges together. Thank you also to our team of editors, International Crane Foundation (ICF) volunteers, crane lovers, and to the External Affairs Division of ICF. Their hard and deliberate work made publishing of this newsletter possible.

This newsletter shows what we can do when we work together with passion and a shared goal. I hope the articles give you helpful information and inspire you to keep working to protect cranes in Central Asia and the Middle East.

With thanks and warm regards,

**Wali Modaqiq**

Central Asia Program Coordinator, International Crane Foundation

# IN MEMORY OF ELLEN VUOSALO



**Lisa Poulak**, Environmental Consultant



**Figure 1:** Photos by Lisa Poulak at Ellen's house, in Ruyan Mazandaran, Iran

It's hard to describe Ellen Vuosalo, who was called Mrs. Tavakoli in Iran, in accordance with her ex-husband's family name. Despite her simple "hippie" style, Ellen had a very sophisticated personality that could not fit in any box. A visit to her house in Mazandaran, which she had shipped from her native Finland and assembled in Iran, would to some degree reflect who she truly was. Although she was known as the "Mother of the Cranes" in Iran because of her devotion to Siberian Cranes, Ellen was interested in ALL aspects of life and living things. This included philosophy, poetry, photography, wildlife conservation, botany, anthropology, history, geography, and even medicine—a field that she wanted to study in the 1960s but had to give up due to tuberculosis in her 20s. Later on, in her 90s, this keen interest in medicine helped her

avoid relying too much on outside care and medical support from doctors in the little town of Ruyan, where she had decided to stay after a divorce from her husband in the late 1970s. She always emphasized that this was just the right spot for her, given the mild weather in between the Caspian Sea and the ancient Hyrcanian forest, especially compared to the cold and dark winters in Finland.

As a foreigner who stayed in Iran despite the 1979 Revolution, Ellen did not have a particularly easy or luxurious life, but she made the best out of it. She took every opportunity to travel around Iran and learn about the diverse nature and culture of the country. She interacted with people from all walk of life, documenting her trips through pictures and writings, conducting research from time to time on a topic that intrigued her. This is how Ellen ended up with many notes and some articles and a few booklets. She wrote especially to remember and also to raise awareness about unique plants, animals and ecosystems of Iran, such as the sturgeon fish of the Caspian Sea which produces the world known Caviar, the Mazandaran tiger that is now extinct, the flamingoes of the Miankaleh Biosphere Reserve, the mangroves and the migratory birds of Qeshm Island, the coral reefs of the Persian Gulf, and the migratory birds of

the Iranian Ramsar Sites, including the Critically Endangered Siberian Cranes. In fact, Ellen always tried to build a bridge between Iran and the outside world, sharing her experiences in nature conservation and advocacy at international conferences that she participated in, despite serious financial limitations partially due to high inflation and international economic sanctions on Iran. Her interest in sharing was probably due to her rather holistic worldview. Her Master's thesis in journalism having been precisely on communication between developed and developing countries.

Ellen Vuosalo was born in Toronto, Canada to Finnish parents. She lived in Maple Ridge area in British Columbia until she was in pre-school and had to move with her mother to Finland. This was just before the World War II, and gradually Finland was dragged into the war with Russia. This is probably why she was a proud supporter of peace. When she was 18, her father, who was still in Canada, offered her a ticket to America. Ellen travelled on a ship all the way to New York and ended up enrolling at the University of California-Los Angeles to study science. That is where she met her future husband, who was Iranian. After their marriage they lived in L.A., where Ellen worked as a social worker and a teacher and raised three children. By the early 1970s, the marriage had broken down. Ellen's husband took the kids to Iran without her consent. Ellen followed her children, and that is how she found herself in Iran in the final decade of the Shah's period. It was an era of rapid modernization, with a lot of foreign influence, namely American presence. With her strong educational background, she was recruited at Amir Kabir University. However, with the 1979 Revolution and formation of an Islamic regime, and then the Iran-Iraq War in the early 1980s, many affluent and educated people left the country. While many foreigners fled, Ellen stayed. She explained that she had just bought a piece of land in Ruyan, Mazandaran and ordered her house from Finland. Maybe she stayed for the house, maybe she liked the weather, or maybe she had no other choice at that time.

During this difficult political period, Ellen spent long hours in nature, enjoying her house and busy working at Babolsar University. It was in late 70s that she started monitoring and observing the Siberian Cranes based on advice from an expert at the Department of Environment, Abbass Ashtiani who had just discovered these precious birds in the Fereydunkenar wetlands. The Fereydunkenar wetland is the only known wintering habitat of the Western population of Siberian Cranes. The entire Western population at that time numbered only 12-14 birds. Ellen lived not too far from the site and each year from mid-October to mid-March, she monitored and observed the number and behavior of the flock. Locals remember her always in rubber boots and carrying her heavy bag with camera and binoculars. The Fereydunkenar wetlands, now registered as a Ramsar

Site, are locally known as “Damgahs”, where flooded rice fields turn into wetlands after the rice harvest, based on Indigenous knowledge providing enough water, food and shelter for over 40 species of migratory birds, in winter. Annually, a number of the birds (mainly Mallard, Teal and Geese) are harvested through traditional methods of trapping (netting). Christopher Savage, in his article “Wildfowling in Iran,” described in detail these different trapping methods, used along the Caspian coast, which is an important flyway for Palearctic migratory birds.

In the 1980s, Ellen was probably the only woman who visited the Damgahs, as the area was normally strictly guarded against outsiders. She gradually gained the trust of the farmer/ duck trappers who allowed her spend long hours at the Damgahs, looking for the Siberian cranes and observing their behavior. Her scientific rigor is reflected in papers she presented at international crane conferences and also an extensive article on the “ Damgahs” she published in the Journal of Anthropology of the Middle East in 2018. In the late 1990s, Iran joined the international community in signing and ratifying the Convention on Biological Diversity (CBD), therefore, international funding became available for biodiversity conservation in Iran through the Global Environment Facility (GEF). Ellen got a small group of conservationist friends together to form the Mazandaran Crane Conservation Association and got a proposal ready for the United Nations Development Program (UNDP)’s Small Grants Programme. The grant was approved in 2001. For the first time, a project was implemented on protection of the Siberian Crane’s wintering habitat in Iran. Ellen was the coordinator of this project from 2001 to 2004, working closely with the local duck trappers and getting their support in protecting the Siberian Cranes. Handicrafts were made with Siberian Crane motifs to raise public awareness about these critically endangered birds. Ellen successfully got funding from the Embassy of Finland to provide training and learning opportunities for the Damgah trappers to engage them in bird monitoring. These projects paved the way for a much larger regional project proposed by the International Crane Foundation on protecting the wetlands on the migratory route of the Siberian Cranes, with support from United Nations Environment Programme (UNEP) and GEF (2004-2009). For odd reasons, Ellen and her NGO were not involved in this project.



Photo by: Lisa Pourlak

However, Ellen never ceased to go to the Damgahs and in fact, kept up a warm relationship with the local people. This bonding was reflected in her funeral, where hundreds of mourners showed up on January 10th, 2025 to peacefully participate in her burial ceremonies in Ruyan, Mazandaran, not far from her beloved house. Ever since, several public events have been held in loving memory of Ellen Vuosalo Tavakoli, namely by the Municipality of Ruyan, by the local people of Fereydunkenar, and also by the Hariri Museum in Babol. A statue of her standing alongside a Siberian Crane was inaugurated in one of these ceremonies. It was Ellen's wish that her house would be turned into a hub for keen readers and researchers. She wanted it to be a place for self-discovery, reflection and appreciation for all the amazing aspects of life and living forms that we normally overlook during our daily routine life.

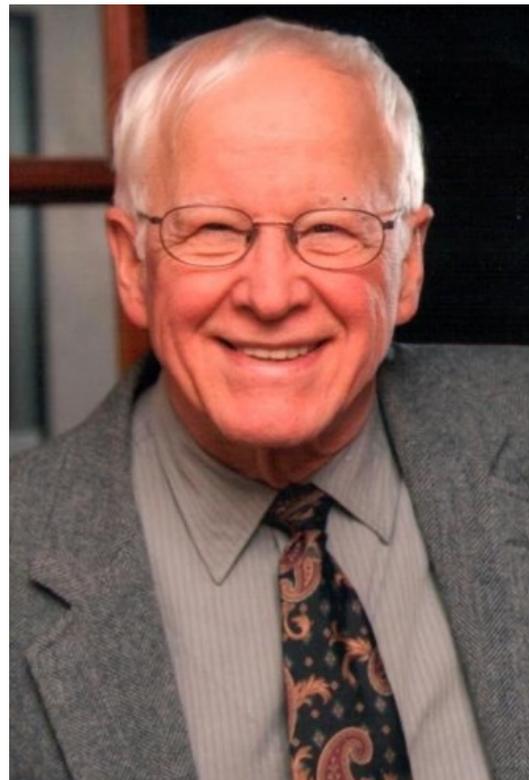
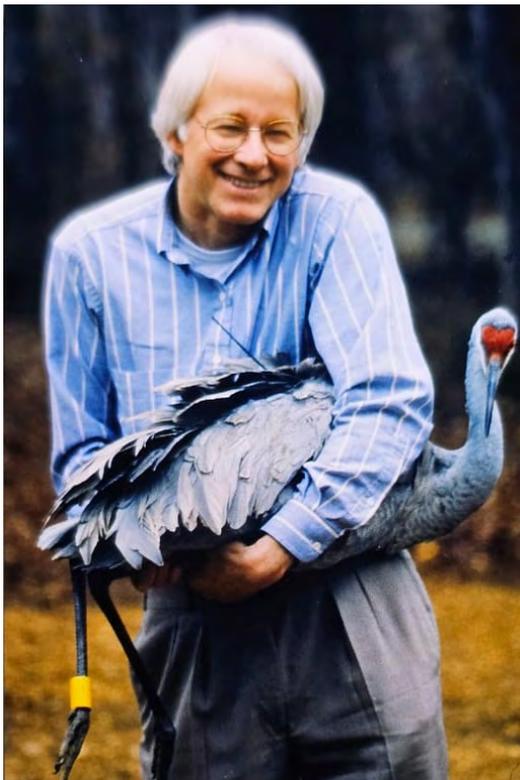
May her charming smile, her hearty laugh and her strong and bold attitude in life, be remembered as her legacy. Without those like Ellen, who love People and Nature, conservation efforts and impacts will remain very limited.

# IN MEMORIAM, DR. STEVEN LANDFRIED



**1944-2025**

Dr. Steven E. Landfried, age 80, passed away on Sunday, September 21, 2025. Steve was a passionate educator who worked with kids at risk and a skilled photographer who devoted much of his personal time to the conservation of cranes. In 1979, he became the first public affairs officer of the International Crane Foundation in Baraboo, Wisconsin. Two years later, he began a twenty-five-year association with the International Affairs Office of the U.S. Fish & Wildlife Service. That consultancy focused on last-ditch efforts to save the critically endangered Siberian cranes from extinction along the Central Asian flyway. His advocacy for crane conservation and satellite tracking of wildlife led to unique photographic adventures around the world. His work was highlighted in the award-winning 1985 film "Crane Hunters of Pakistan" and the New Explorers Series production narrated by Bill Kurtis in the 1995 documentary "Journey to Save a Crane." Those efforts stretched from 1982 to 2005. He was a long-time member of the Education and Communication Commission of the International Union for the Conservation of Nature (IUCN). Thank you, Steve, for your devotion and contributions to crane conservation.



# A JOURNEY INTO CONSERVATION PLANNING AT THE KHICHAN CONSERVATION RESERVE: A RAMSAR SITE FOR LANDSCAPE-LEVEL PLANNING BEYOND BOUNDARIES



**Dr. Sujit Narwade**, Deputy Director, Bombay Natural History Society (BNHS)

Through this article, I would like to introduce the readers to the vibrant Khichan Conservation Reserve, a Ramsar site where innovative conservation meets sustainability. In the vast arid expanse of Rajasthan's Thar Desert, the village of Khichan has emerged as a global symbol of community-led bird conservation. Each winter, over 20,000 Demoiselle Cranes (*Anthropoides virgo*) descend upon its wetlands and farmlands, transforming the landscape into a living canvas of wings and wonder. In February 2025, this ecological marvel was formally recognised as Ramsar Site No. 2568, covering 54.19 hectares—a milestone that reflects not just natural beauty, but the power of strategic planning and collaboration.

At the heart of this achievement lies a robust Management Plan for the Khichan Conservation Reserve, prepared by the Office of Deputy Conservator of Forests (DyCF), Jodhpur, with technical inputs from the Bombay Natural History Society (BNHS) in partnership with the Rajasthan Forest Department and the local community.

## **Building the Management Plan: Science Meets Stewardship**

According to the Wildlife (Protection) Act of 1972 in India, all protected areas, including conservation reserves and Ramsar sites, must have management plans. The Chief Wildlife Warden of the state needs to endorse management of the Protected Areas according to these approved plans to ensure they are scientifically sound, ecologically balanced, and administratively effective. These plans help with habitat restoration, species protection, zoning, tourism management, and community involvement. They also promote cooperation between different departments such as forest, veterinary, water management, and tourism. Moreover, these plans provide a basis for monitoring progress, securing funding, and enforcing laws. For Khichan, having a management plan was crucial for local participation in national and international conservation efforts.

The Management Plan for Khichan Crane Reserve was designed to ensure the long-term conservation of Khichan's unique wetland and arid habitats, with a focus on:

- **Habitat Mapping:** BNHS conducted detailed surveys of Vijayasagar Talab and Ratri Nadi, identifying key roosting, feeding, and drinking zones for cranes and other wildlife.
- **Threat Assessment:** The plan addressed critical threats such as powerline collisions, pesticide poisoning, water scarcity, and unregulated tourism.
- **Restoration Strategies:** Recommendations included the removal of exotic and invasive plants and native vegetation revival, wetland desilting, and buffer zone creation to reduce disturbance.
- **Monitoring Protocols:** A framework for regular bird counts, water quality testing, and community-based reporting was established.
- **Zonation and Regulation:** Clear guidelines were proposed for tourism and infrastructure development to minimise ecological disruption.

### **Interdepartmental Coordination: A Shared Vision**

The preparation and implementation of the Management Plan required seamless coordination across multiple departments:

- The **Forest Department** led the legal and administrative process to notify the Conservation Reserve and facilitate Ramsar nomination.
- The **Wetland authority of Rajasthan** plays a crucial role in managing wetlands statewide, ensuring compliance with the Wetlands (Conservation and Management) Rules, 2017. It reviews integrated management plans for Ramsar sites and coordinates with various departments to regulate land use and prevent encroachments. It also promotes community participation and monitors ecological health through regular assessments.
- The **Veterinary Department** contributed to crane health monitoring and the treatment of injured birds.
- The **Water Resources Department** supported hydrological assessments and water management strategies.
- The **Tourism Department** was engaged to align visitor infrastructure with conservation goals.
- The **Ministry of Environment, Forest and Climate Change (MoEFCC)** reviewed and approved the Ramsar Information Sheet (RIS)
- **Wetlands International** validated the details of ecological, hydrological, and cultural data.

### **Community as Co-Managers**

Khichan's residents—especially the Jain community—played a pivotal role in shaping and supporting crane conservation efforts. Their decades-old tradition of crane feeding, along with local knowledge of water sources and bird behaviour, has enriched the high concentration of cranes in Khichan. BNHS and the Forest Department conducted stakeholder meetings, awareness sessions, and training workshops to ensure that villagers understood the plan's objectives and could participate in its implementation. Individuals like Sevaram Mali became local champions, assisting in bird rescue, monitoring, and outreach.

### **Ramsar Designation: A Tool for Protection and Progress**

The Ramsar designation not only affirms Khichan's global ecological importance but also strengthens the legal and financial foundation for its conservation. It opens doors to:

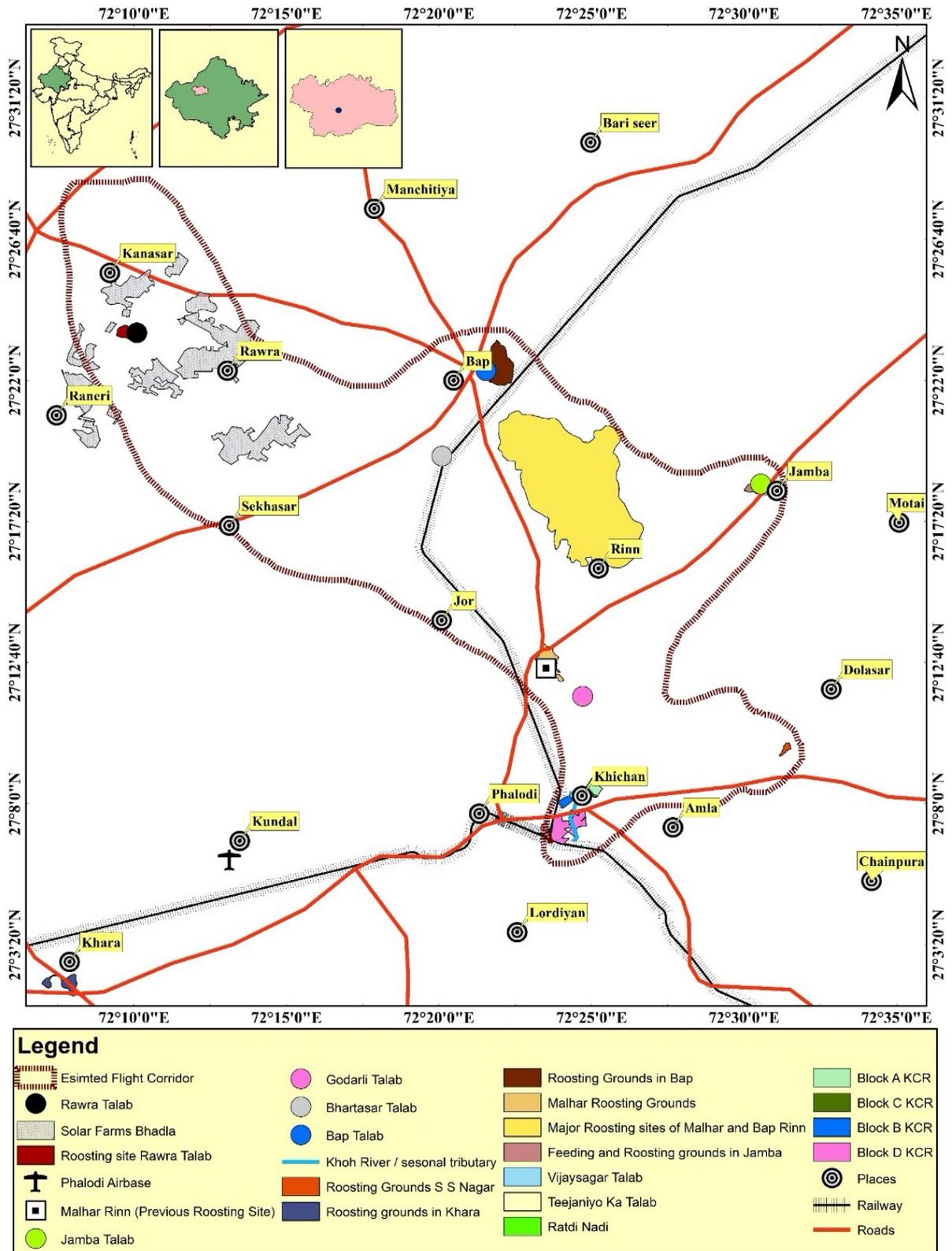
- **International funding** for habitat restoration and research
- **Technical support** from wetland experts and global networks
- **Eco-tourism opportunities** that benefit local livelihoods
- **Integration into national conservation and climate resilience programs**

### **Looking Ahead: From Plan to Practice**

With the Management Plan as its compass, Khichan is poised to become a **model for arid zone wetland conservation**. BNHS wish to continue to support:

- Capacity building for local youth and forest staff
- Monitoring of crane populations and habitat health
- Policy advocacy to balance renewable energy expansion with ecological safeguards
- Linkages with One Health surveillance, recognising the shared health of birds, livestock, and people

Khichan's journey reminds us that conservation is not just about protecting species—it's about planning with precision, partnering across sectors, and honouring the wisdom of communities.



**Figure 1:** Map showing essential sites of the Demoiselle Cranes in the Khichan landscape, Thar Desert, Rajasthan, India



**Figure 2:** Demoiselle Cranes are at risk of colliding with power lines in the Khichan landscape.



**Figure 3:** Demoiselle Cranes in the human-dominated landscape of Khichan.



**Figure 4:** Free-ranging dogs pose a significant threat to ground-dwelling birds.



**Figure 5:** Locally, people are making efforts to provide protection at their own level.



**Figure 6:** Mr Sevaram Mali, a local conservationist, is showing sites where wires were buried underground in Khichan.

# FIELD OBSERVATION STORY OF CRANES



## Ehsan Wazir

I began my wildlife conservation work in Wana, Waziristan while working as a journalist from 2001 to 2007, during the period when militants moved from Afghanistan into Pakistan's tribal areas. My reporting led me to an incident where a local boy killed a bird that carried a ring from Sweden a Blue Throat (*Luscinia svecica*). With limited communication options, I sent details about the bird to Sweden via mail.



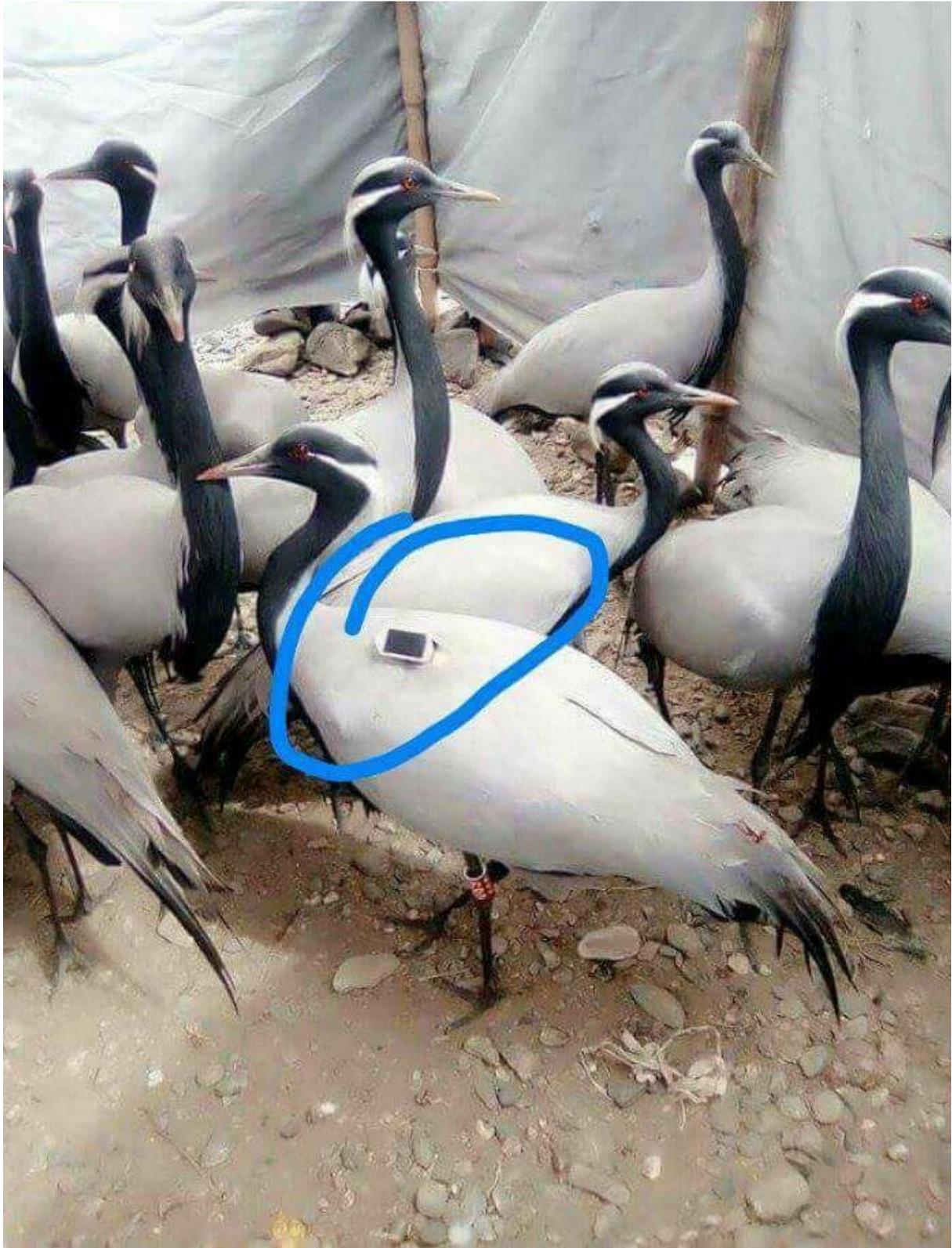
Two weeks later, my brother received a call on my landline telephone. It was Thomas Holmberg from Sweden who told me that he had received my letter. He told me that he had sent a letter from the Annsjon Birds station along with some field photographs and a brochure. After I received the parcel I started my real practice of wildlife conservation, intending to continue it the rest of my life.

Since this time, I have recovered 12 ringed birds, reported all these birds to their countries and received data from their ringing centers. When we received access to the internet, I started contacts with different countries and their wildlife organizations in the world, and now we are sharing all kinds of information and guidelines with each other for the betterment of wildlife conservation. There is one statement very necessary for me to write about, that is Dr. George Archibald, Co-founder of International Crane Foundation (ICF). Since we got access to the internet, I report any ringed bird to him, tracing the exact country and location of the bird. He has always responded and helped me, so I thank him and appreciate his efforts for crane conservation worldwide.

Over the past twenty-five years, I have focused on protecting Demoiselle and Eurasian Cranes in Pakistan's tribal belt, where hunting poses a major threat. My team conducted surveys with the International Crane Foundation (ICF), confirming that hunters frequently target cranes during migration, using threads and iron pieces for capture. Previously, even firearms like AK-47s were used. Thanks to advocacy by organizations such as ICF, International Union for Conservation of Nature (IUCN), media outreach, and actions by local authorities, hunting with guns has been banned in the region.



**Figure 1:** Pet Demoiselle Cranes Pair with their newly born Chicks. Wana, South Waziristan, Pakistan.



**Figure 2:** Captured Demoiselle Crane with attached Solar Panel Tracker, South Waziristan, Pakistan.

During the March and April hunting season, they capture hundreds or possibly thousands of Demoiselle cranes. It is a challenging task for the conservationists since each year the hunters use new methods for crane hunting. Hunters now use MP3 players with crane calls and the Internet to lure and capture cranes more easily during migration, sometimes trapping entire flocks through these methods.



**Figure 3:** Use of recorded crane calls allows hunters to lure wild birds and capture flocks of birds, South Waziristan, Pakistan.

I faced a lot of challenges during my field work and conservation. In the last two decades I have recovered 6 banded Demoiselle cranes from different countries including Russia, Mongolia and China. One of the Chinese Demoiselle Cranes was recovered with a tracker, but unfortunately their feathers were already cut by the hunters. I have already reported these tagged cranes to their country of origin and in response, I received the complete data from them. I translated a booklet with information and awareness on cranes into Pashto for ICF, and we distributed hundreds of copies to hunters and local community members. I also established roadside signboards with “Cranes are our guests; we should protect them”. This was during a very tense situation when the war on terror was at its peak.



**Figure 4:** Demoiselle Crane banded in Mongolia and captured in Khber Pukhtunkhwas, Pakistan. March 31, 2025.

There are hunter groups that are still powerfully influential, and that becomes a hurdle for the campaign of conservationists. In some hunter groups there are government servants involved, and they often keep the hunters safe from any kind of wildlife laws in the area. The migration routes of cranes are in some areas of Sindh province, Baluchistan province, Punjab province and in Khyber Pakhtunkhwa Tribal area of South Waziristan. There are three high risk spots in Pakistan for the cranes during migration where the hunters ruthlessly hunt the cranes. One of these areas is in the Punjab province of Rajanpur. There are also some areas in Baluchistan where the hunters shoot the cranes with their guns for food. In Khyber Pakhtunkhwa Province, some areas like Bannu District, Lakki District and especially South Waziristan, hunters have made hunting a business, where they trap and capture hundreds of cranes during crane migration. After closing the camps, they start buying and selling the cranes. Some well-known buyers collect cranes, and hunters often keep them as pets. Many of these birds continue to live in people's homes before they are illegally taken to the popular open market called Salwaram Mela in Domil Tehsil, Bannu District.

Many owners love and care for their pet cranes as they love and care for their kids. Unfortunately, they use their pet cranes at hunting camps every year to trap and capture new cranes. The wildlife departments of Pakistan have strong laws for wildlife,

but enforcement is a big challenge for them. The wildlife departments now have some young and energetic officers that play a vital role in the implementation of wildlife laws. Hopefully they will succeed and decrease the pressure of hunting.

There are more challenges I have faced in the past, but there is one tragedy that occurred to me which I can't forget. Thirteen years ago, a friend who is a wildlife officer in the District Lakki contacted me and asked that I come to his office with my camera. He said that he found 97 Demoiselle Cranes on the Banochi Wanda Check Post, Pizu Lakki District. He wanted to move them to Bannu wildlife office. I told him that I would arrive soon. After I reached his office, we traveled to Banochi Wanda Check post which was about 100 kilometers away. He told me that the hunters were from my District Lakki and one of them is a school teacher. I requested that my friend hand over the cranes, but he replied that a report of the cranes had already been sent to the wildlife secretary of Khyber Pakhunkhawa. The secretary called right then and was told that the cranes were being taken to Bannu wildlife sanctuary. My friend then told me that it was out of his control to do anything to the hunters.

When we reached the check post, dozens of wildlife watchers were present with the cranes. The hunters were also there and requested that they be given the cranes. The wildlife officer did not listen to them because he was also under pressure from the secretary's order. It was a painful moment when I tried to take some pictures of the cranes. I found 17 cranes that were dead due to suffocation. I took some pictures just for recording. One hunter asked me to request my officer friend if he would give them the cranes. I told them that he is very loyal and honest officer, and he can't grant that request. Then we rushed to the Bannu wildlife sanctuary with the cranes and left them in the sanctuary.

We reached Dera Ismail Khan in the late evening. After some days, I saw the story in one of the English newspapers that the Bannu Court imposed a fine of one Lakh sixty thousand Pakistani rupees (160,000) on the smugglers and hunters of Demoiselle cranes. I thought the story of hunters was closed and I didn't realize that it would turn serious. After five or six months when I was in my home city, Wana, Waziristan, a man came towards me, put his hands on my shoulder and asked me if I was Ehsan. I replied yes, and he asked if I was the one who took pictures of the cranes at the Banochi Wanda Check post. He told me that the hunters had made a deal with the officer, but my pictures broke the deal, and that they paid the fine to court. The man said that I was responsible for the cranes and the imposed fine and that I should be ready for

Jirga (Group of Mediators). This was a hard and heavy day for me in my life because I was shy in front of my brothers and friends. The control area was in the hands of pro-government Taliban (Peace Committee).

After some days, the Jirga called me, and I went there with my elder brother. There were some Taliban Aman Committee members along with the local elders of the area. We all sat down in one of the Wana Bazar Market grounds. The Jirga members made arguments on behalf of the hunter and said that I had broken the deal of the hunter with the officer when I took pictures of cranes. Then my brother and friends presented the arguments on my behalf that the case isn't concerned with Wana City, so it is essential that both the parties discuss it in the area where the issue was created. But the Jirga members were in a hurry. They declared a decision and imposed a fine on me of 8 sheep. I bought sheep and turned them over to the hunter.

I was busy with routine activities, but also with the campaign and conservation of wildlife in the area. Whenever I met new people, I tried to start a discussion about the importance of wildlife to attract them to the conservation of cranes and other bird species of the area.

We conducted two surveys on Demoiselle and Eurasian cranes in 2011 and in 2024 with the collaboration and assistance of ICF. In the field of wildlife conservation, there are more respectable ornithologists and conservationists, but some of them are special to me. They gave me courage and pushed me ahead in practical fieldwork on wildlife conservation. These are Thomas Holm Berg from Sweden, Dr. Guo Yumin from Beijing Forestry University, China, Dr. George Archibald, Co-founder, ICF, USA, Dr. Ahmad Khan from the USA, Wali Modaqiq from the USA, and the conservator of Wildlife KPK, Abdul Haleem Khan Marwat from Pakistan.



**Figure 4:** Campaign among young people at Gomal Zam Dam, Wana, South Waziristan, Pakistan.

We now have a new group of younger members, which has been created by ICF especially for the Central Asia and Middle East Crane Conservation Group (CAMEC). We will try to attract more youth for this worthy cause of protecting cranes and other wildlife for upcoming generations. The mother planet's beauty will be incomplete without birds, animals, and forestry. We need to speed up the activities of wildlife conservation and the new young members of the CAMEC group can help to do this by decreasing the pressure on crane hunting. We need to train them for upcoming challenges so they can easily handle and solve any kind of issue with their good manners and well-trained tactics.

When we have strong coordination on the national and international level, then we can reach our real goal and achievements. We need to have a strong communication system, workshops, and training sessions in schools, colleges and universities on the national and international level in developing countries. All the developed countries should show support for this noble cause and assist the developing countries in the conservation of wildlife. This especially includes Eurasian and Demoiselle cranes, since they are threatened in some developing countries like Pakistan and Afghanistan. The developed countries should work with the developing countries mentioned to help them take serious action against illegal hunting of Demoiselle and Eurasian cranes and other wildlife species. I have started this worthy work alone, but now we have more than enough activists in this field who want to become practical workers. They need training and other techniques for field work, and also to attract hunters of cranes to convert them into wildlife lovers. I hope that all that our new group of conservationists will be a ray of hope for the conservation of Demoiselle and Eurasian cranes. Let's together say, "Conserve the Demoiselle and Eurasian Cranes". Thanks, Ehsan Ullah Wazir, Waziristan Nature Conservation Organization (WNCO).

# FIELDWORK REPORT ON CRANE HUNTING AND CONSERVATION OBSERATIONS



**Najeeb Khan**, Conservationist & CAMEC Member

Months of Visits: March and August 2025

## Abstract

This report documents field observations from the Kharan Desert and Wasta Lake, Balochistan, Pakistan, during March and August 2025. These sites serve as important stopover and feeding habitats for migratory Eurasian Crane (*Grus grus*) and Demoiselle Cranes (*Anthropoides virgo*) along the Central Asian flyway. The report highlights the ecological characteristics of these landscapes, details ongoing threats from organized crane hunting, and provides GPS-based evidence of key stopover points. It further discusses challenges for field conservationists, local community perspectives, and the potential for applying technological tools such as GPS tracking, acoustic monitoring, and remote field cameras to enhance monitoring and protection. Recommendations are presented for enforcement support, community engagement, and future data-driven conservation across Pakistan's crane habitats.

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## 1. Introduction

As a dedicated member of the Central Asia–Middle East Crane Conservation Group (CAMEC), I conducted fieldwork in two critical areas of Balochistan, Pakistan — the Kharan Desert and Wasta Lake. Both represent vital stopover habitats for migratory Eurasian Cranes and Demoiselle Cranes moving across Central Asia.

### The objectives of these visits were to:

- Assess the ecological importance of these habitats for cranes.
- Document current threats, particularly hunting.
- Collect photographic and geospatial evidence for conservation reporting.
- Explore opportunities to integrate modern technology into crane monitoring and protection efforts.

This report summarizes key observations, findings, and recommendations aligned with CAMEC's Terms of Reference (ToR) for research, documentation, and capacity building.

## 2. Kharan Desert: Site Description and Observations (March 2025)

### 2.1 Habitat and Landscape

The Kharan Desert, located in southwestern Balochistan, is an open, arid landscape characterized by flat plains, sandy patches, and sparsely vegetated shrubs. Seasonal ponds and irrigated agricultural fields form temporary feeding grounds that cranes use during migration. The wide horizons provide visibility for cranes but also make them vulnerable to hunting.

### 2.2 Crane Presence and Behavior

During my March 2025 visit, Eurasian Cranes were observed flying at several key locations. No Demoiselle Cranes were reported. Flocks typically ranged from a few individuals to several dozen birds, using the area briefly as a stopover site before continuing migration. Based on field interviews and observations, the cranes stayed overnight at these sites before continuing their migration the next day.



### 2.3 Hunting Practices and Threats

Hunting in the Kharan Desert is highly organized and occurs through two major methods:

- Live Trapping: Cranes are captured with nets and sound lures. Trapped birds are sold for approximately 30,000 PKR per pair, often to dealers from outside Kharan,

suggesting commercial trade networks.

- **Mass Killing:** Large numbers of cranes are killed using firearms, often attracted by MP3 sound systems that broadcast crane calls.

Such activities occur in remote areas, making enforcement extremely difficult. Local communities are reluctant to discuss these practices due to fear of social or economic repercussions.

## **2.4 Risks and Field Challenges**

Fieldwork in Kharan is challenging and sometimes unsafe. Hunters operate in isolated regions, and the absence of local enforcement increases risks for conservationists and researchers. Careful coordination and remote monitoring are essential for safe operations.



## **3. Wasta Lake: Ecological Importance and Observations (August 2025)**

### **3.1 Habitat Description**

Wasta Lake is a shallow wetland undergoing reconstruction and rehabilitation with funding estimated around 47 Crore PKR. Conversations with Abdul Razaq, leader of the Mardan Zai tribe, confirmed plans to restore the lake's ecological capacity for migratory birds.

The lake's shallow water, reed margins, and surrounding open areas provide valuable

roosting and foraging habitat. Once fully restored, Wasta Lake could serve as one of the most important wetland staging sites in Balochistan.

### **3.2 Crane Activity and Timing**

Cranes were observed and reported by local residents resting and foraging along the lake edges. Small flocks of Eurasian Cranes used the site as a temporary stopover during their migration. Cranes benefit from the availability of shallow water, seeds, and aquatic invertebrates in the region.

### **3.3 Hunting Pressure and Local Dynamics**

Despite its ecological importance, hunting remains widespread around Wasta Lake, particularly during migration peaks in September–October and March–April. Both live trapping and shooting occur, often facilitated by organized groups. Awareness about the ecological value of cranes remains low, and law enforcement presence is minimal.



Wasta Lake, Balochistan – a vital wetland habitat that supports migratory cranes and waterbirds. The site is expected to regain its ecological value following restoration efforts.  
Photo Credit: Najeeb Khan

## **4. Community Engagement and Cultural Context**

During my visit, I met Abdul Razaq, leader of the Mardan Zai tribe, at Wasta Lake to discuss future conservation cooperation. Local elders expressed interest in protecting the site if external partners could support capacity building, awareness activities, and small-scale livelihood alternatives for hunters.

Working in these areas requires trust-building and cultural sensitivity, as some community members rely economically on hunting-related activities. The success of any conservation program depends on understanding these local realities.



Meeting with Abdul Razaq, leader of the Mardan Zai tribe, at Wasta Lake, Balochistan (August 2025). We discussed future conservation efforts to protect and restore this vital wetland habitat for migratory cranes and other waterbirds during its ongoing reconstruction.

Photo Credit: Najeeb Khan

## 5. Law Enforcement and Policy Context

Hunting of migratory cranes is illegal under Pakistan’s wildlife protection framework, but enforcement is inconsistent. The provincial Balochistan Forest and Wildlife Department has legal authority for wildlife protection, yet its operations are limited by insufficient staff, resources, and security constraints.

### Key Needs for Enforcement Support:

1. Capacity building and training for wildlife officers in modern monitoring and data collection.
2. Basic field equipment: vehicles, communication devices, cameras, and protective gear.
3. Cross-sector coordination: cooperation between wildlife departments, law enforcement agencies, and community leaders.
4. Community engagement: incentive programs for hunters to transition into conservation and ecotourism roles.

## 6. Integrating Technology for Monitoring and Protection

Building on my background in electronics, I see strong potential for integrating technology into Pakistan’s crane conservation strategy:

- GPS and Satellite Tracking: For mapping migration routes through Balochistan.
- Acoustic Sensors: To detect gunshots or sound lures in real time.
- High-Resolution Cameras and Binoculars: For safe field evidence collection.
- Remote Monitoring Training: To empower local conservationists to work in high-risk zones.

These tools would enhance field safety, data accuracy, and alignment with CAMEC’s focus on research and documentation.

## 7. Coordinates of Observation Points

Site	Location	Coordinates
Kharan Desert – Point A	Crane Stopover	28.0454707, 64.7983825
Kharan Desert – Point B	Stopover & hunting site	28.0532433, 64.8356830
Kharan Desert – Point C	Feeding area	28.1747931, 65.1703835
Kharan Desert – Point D	Resting site	28.1953921, 65.2090874
Kharan Desert – Point E	High-risk hunting area	28.1742650, 65.1908118
Wasta Lake (center)	Main wetland body	31.5920000, 68.2535000
Wasta Lake “Brunj” hut	Observation Point	31.5924722, 68.2697500

## 8. Conclusions and Recommendations

- Ecological Value: Kharan Desert and Wasta Lake are critical yet underprotected stopovers for migratory Eurasian Crane.
- Hunting Pressure: Hunting is organized, involving both local and external actors.
- Conservation Risks: Field safety remains a challenge; stronger enforcement and awareness are essential.
- Opportunities: Rehabilitation of Wasta Lake presents a valuable opportunity for habitat restoration and crane protection.

### Next Steps:

1. Strengthen community-based awareness and engagement programs.
2. Provide technological tools and training to conservation teams.

3. Develop a collaborative enforcement framework with local authorities.
  4. Continue data-driven monitoring to inform regional flyway conservation strategies.
- \*\*\*This revised report is respectfully submitted to the Central Asia–Middle East Crane Conservation Group (CAMEC) and the International Crane Foundation (ICF) for review, publication, and future collaboration.

### **Appendix: Visual Documentation**

Includes photo and short video evidence (March–August 2025):

- Mass crane killing at Kharan Desert
- Wasta Lake landscape and mud hut (“Brunj”)
- Meeting with tribal leader at Wasta Lake
- Video clip – Wasta Lake overview (August 2025)



# HISTORY AND STATUS OF THE WESTERN/CENTRAL ASIAN POPULATION OF THE SIBERIAN CRANE

Elena Ilyashenko<sup>1</sup> and Claire Mirande<sup>2</sup>

<sup>1</sup>Severtsov Institute of Ecology and Evolution Russian Academy of Science, Flint Crane Working Group of Eurasia, Moscow, Russia

<sup>2</sup>International Crane Foundation, Baraboo, Wisconsin, USA

The Siberian Crane (*Leucogeranus leucogeranus*) is the world's third rarest crane, but it is considered by the International Crane Foundation (ICF) as the most endangered crane because of threats to wintering grounds. The Siberian Crane is listed in the International Union for the Conservation of Nature (IUCN) Red List as a Critically Endangered species ([www.iucnredlist.org](http://www.iucnredlist.org)) and is also listed in regional and national Red Data Books, bilateral agreements, and international conventions.

The Siberian Crane is a monotypic species with two isolated populations. The East Asian population spends the winter in China on Poyang Lake in the Lower Yangtze River Basin and breeds in the northeast Siberian tundra between the Yana and Kolyma Rivers. The Western/Central Asian population is divided into a Western Asian flock and a Central Asian flock. The West Asian flock formerly wintered near the Caspian Sea in the Islamic Republic of Iran and nests in the central part of Western Siberia. The Central Asian flock

formerly wintered in northern India and bred in western Siberia near the low reaches of the Ob River (Meine and Archibald 1996, Mirande and Harris 2019) (Figure 1).



**Figure 1:** Distribution of the Western/Central Population of the Siberian Crane (Mirande and Harris 2019)

After the description of the Siberian Crane as a species by P.S. Pallas (1773), the long history of research and conservation has been a fragmented chain of information and accidental observations. Investigations indicated that it occurred in northern Europe, Western and Eastern Siberia, Central Asia, Russian Far East and China, but breeding areas were not confirmed. Reliable information on distribution was gathered over 200 years, mainly in the 20th century, and we now

know much more about this species.

Siberian Cranes that nested in northern Europe and wintered in the Balkan Peninsula until the middle of the 20th century were extirpated in the 1970s (Nankinov 1995), and the population in Western Siberia has now almost disappeared. The main population occurs only in the eastern flyway where numbers increased from 3,600 to 7,000 (Safonova et al. 2025, Jiang Hongxing, pers. comm., 2025) from 2015-2024 based on intensive conservation efforts.

This paper focuses on the history of the Western/Central Asian population which bred in West Siberia, reasons for its decline, conservation and research efforts undertaken, and thoughts on the way forward.

## **BREEDING GROUNDS**

### **Central Asian Flock**

When Pallas (1773) first described the Siberian Crane as a species in the forest-steppe regions of Russia, he proposed that its breeding area was located in southwestern Siberia. From the late 1800s to early 1900s this crane was described as a common breeding bird in the taiga marshes in the Ob River Basin, although no descriptions of nests, eggs, or unfledged chicks were given. Until the late 1970s, there was fragmentary and uncertain information on Siberian Crane distribution in the northern taiga marshes in the Ob River Basin (Sorokin and Shilina 2010).

In 1944, Vadim Raevsky (1976) observed a Siberian Crane family with an unfledged chick in Western Siberia. During the next 40 years this sighting was the only documented confirmation of the breeding in Western Siberia.

In 1978, an unfledged chick was captured in the Lower Ob River Basin. Its location allowed researchers to search for the breeding grounds. In 1981, Alexander Sorokin and Yury Kotyukov made a wide aerial survey and discovered eight breeding pairs of the Central Asian flock in the Kunovat River Basin, a tributary of the Ob River (Sorokin and Kotyukov 1982).

From 1981-2008 regular aerial surveys were conducted on the tributaries of the Ob River in Yamalo-Nenetskiy (YaNAR) and Khanty-Mansiyskiy (KhMAR) Autonomous Regions. In 1987 the highest number of Siberian Cranes was observed in the Kunovat River Basin including nine breeding pairs and one territorial pair. Since 1981, the numbers of

breeding pairs of the Central Asian flock had decreased. From 1994-2001 several single birds were occasionally sighted and only one breeding pair was regularly monitored there. In August 2002 only one bird, probably from this pair, was sighted. In 2003, for the first time since 1981, the Siberian Crane was not found in the Kunovat River Basin (Shilina 2008).

Researchers continued to conduct aerial surveys, distribute questionnaires, and interview local people with support from the Sterkh Foundation, ICF, and the United Nations Environment Program/Global Environment Facility Siberian Crane Wetland Project (UNEP/GEF SCWP) (2003-2006). From 2003-2008, 22 sightings of usually one or two Siberian Cranes were observed mostly in spring and autumn. Five sightings were recorded during the summer breeding season (Shilina 2008). From 2013-2017, only one Siberian Crane was reported through questionnaires in YaNAR on 7 May 2015 (Sorokin and Shilina 2018).

### **Western Asian Flock**

Breeding grounds of the Western Asian flock of the Siberian Crane were discovered in 1996, after Yury Markin placed a satellite transmitter (PTT) on a wild adult male from a family wintering in Iran (Sorokin and Markin 1996). This PTT enabled researchers to follow the crane's spring migration route, which ended on 23 May on a marsh in Konda and Alymka Interfluve in the Lower Irtysh River Basin, an Ob River tributary. During an aerial survey on 22 June 1996, a pair was observed with a two-week-old chick. In early August 1997, this pair was located at the same breeding territory and had a two-month-old chick. Seven kilometers away, another pair with a chick of the same age was found. In 2002, 2004, and 2005, aerial surveys were conducted under support by UNEP/GEF SCWP and in 2008 and 2011 under support from the gas-oil company ITERA. During the June 2005 aerial survey, no nests were found, but two individuals were seen separately on different days in the Konda and Alymka Interfluve with 10 km between sighting locations. The first crane was in breeding plumage (feathers stained), and it is possible that it was not alone. The second was not seen clearly. In August 2008 and in June and September 2011, Siberian Cranes were not found at breeding grounds of the Western Asian flock.

Information on the Western Asian flock was collected from local people through a questionnaire and interviews with hunters, fishermen, pilots, and other people connected to and interested in nature. From 2005-2010, there were eight sightings reported by local people, mostly in spring and autumn, plus three sightings on breeding

grounds (Shilina 2008, Sorokin and Shilina 2018).

From 2010-2019 several sightings by local people were reported in KhMAR including two pairs and a group of three cranes in different locations (Porgunev and Yemtsev 2020). Annually from 2014-2019 a single Siberian Crane was sighted at the same location in the Upper Agan River Basin at the same location (Figure 2).



**Figure 2:** A lone Siberian Crane sighted over the floodplain of the Upper Agan River. Photo by G. Nagibin

### **MIGRATION ROUTES**

Both the Central Asian and Western Asian flocks used the same migration route from their breeding grounds in Russia to Kazakhstan. Before reaching Kazakhstan, Siberian Cranes made a short-term migration stopover in Beloozersky Wildlife Refuge in the south of Western Siberia in Russia, near the border with northern Kazakhstan, where Eurasian Cranes (*Grus grus*) also gather for pre-migratory congregations. This stopover was confirmed by satellite tracking of a chick banded with a PTT in 1997 on the breeding grounds of the Western Asian flock as well as by data obtained through ground surveys, questionnaires, and interviews with local people. From 2000-2015, eight sightings of one-five cranes were recorded at this site.

In Kazakhstan Siberian Cranes staged along migration for up to 1.5-2 month to rest and replenish food reserves. Historically there were 25 sites where they were recorded in steppe lake systems as well as in Irgiz and Turgai lowlands in northern Kazakhstan, north and east Aral Sea coast, north Caspian Sea coast, and Ural Delta in Western

Kazakhstan, and Tengis Lake in Central Kazakhstan. Since the middle of 20th century, 95 sightings with confirmed data were reported. More than 60% of all records were in the Naurzum Nature Reserve (NNR) with regular monitoring since 1933 when the reserve was established (Bragin 2008). In 1934 up to 100 individuals were sighted there (Mikheev 1938). Since that time numbers decreased, and ornithologists and local people sighted from one-seven birds in the 2000s and 2010s (Figure 3). The most recent registrations of one or two birds by local hunters were in 2018, 2021, and 2022 (the last one) in the Naurzum Lake System.



**Figure 3.** A Siberian Crane in Naurzum Nature Reserve, 28 August 2007. Photo by E. Bragin

After resting in Kazakhstan, Siberian Cranes migrated in one of two directions: along the central flyway through Uzbekistan, Turkmenistan, Afghanistan, Pakistan to India; or along the western flyway through Russia and Azerbaijan to Iran.

### **Central Flyway**

In Uzbekistan in the 18th and 19th centuries there were several sightings in different parts of country (Lanovenko 2004). There are still reports in the past decade. Almost all Siberian Cranes were sighted in flocks of Eurasian Cranes, and one record was in a flock of the Demoiselle Crane (*Anthropoides virgo*). The most interesting was the latest sighting of 10 Siberian Cranes in a large flock of Eurasian Crane. Sightings were recorded at location along the main spring and fall flyways of the Eurasian Crane and other large birds.

In Turkmenistan there were three sightings of migratory Siberian Cranes in 1970s-1990s. Two-five individuals were observed in flocks of the Eurasian Crane during spring and fall migrations (Red Data Book of Turkmenistan 1999). Over the last 30 years there were no Siberian Crane sightings in Turkmenistan.

Siberian Cranes have been reported at stopovers in Lake Ab-i-Estada and Dasht-e-Nawar in Afghanistan and the Zhob Valley in Pakistan (Khan 2010). On 25-26 March 1970 in Ab-i-Estada 76 Siberian Cranes fed on mudbanks, as Eurasian and Demoiselle Cranes fed on adjacent fields (F.J. Koning, unpublished report). The last confirmed sighting in Afghanistan was in March of 1977 when 56 cranes were observed at Lake Ab-i-Estada and confirmed through distinctive brown feather patterns of subadults (Sauey 1985). There were no records of this species during the last 50 years.

### **Western Flyway**

Following a long rest at the Naurzum wetlands, the Western Asian flock flew along the north coast of the Caspian Sea across the Ural Delta in Kazakhstan to a traditional migration stopover at the Astrakhan State Nature Reserve in the Volga Delta. There were 27 sightings from 1935-1971 (Rusanov and Chernyavskaya 1976). The biggest groups consisted of 20-22 birds. There was a gap in migration monitoring until autumn 1998 when satellite telemetry was used to track the autumn migration route. This research stressed that the Volga Delta is a vital wetland to the welfare of this population. Consequently, since 1999 regular monitoring has been conducted. Importantly on 29 November 2006, four birds were observed almost one month after the arrival of a single Siberian Crane to the wintering ground in Iran. Recent sightings of 1-15 individuals from 2011-2015 proved that this migration stopover was the most important migration stopover along the western flyway.

After short-term stopovers to rest in the Volga Delta, Siberian Cranes continued their migration along the west coast of the Caspian Sea over Kalmykia and Dagestan in Russia and Azerbaijan.

In Dagestan sightings of up to five individuals were reported in the 1990s including an adult Siberian Crane marked with a PTT on 12 March 1996. In August 2016 five cranes with adult plumage were sighted but the date of this sighting indicates that these were either immature or non-breeding individuals (Sorokin and Shilina 2018).

In Azerbaijan sightings of one-three Siberian Cranes have been recorded in Kyzyl-Agach Nature Reserve and Shirvan National Park along western Caspian Sea coast in November 2000, 2002, and 2003 (Shilina 2008).

In recent years ornithologists have determined that there are three flyways for Eurasian and Demoiselle Cranes that cross Azerbaijan (Sultanov and Kerimov 2008). In addition

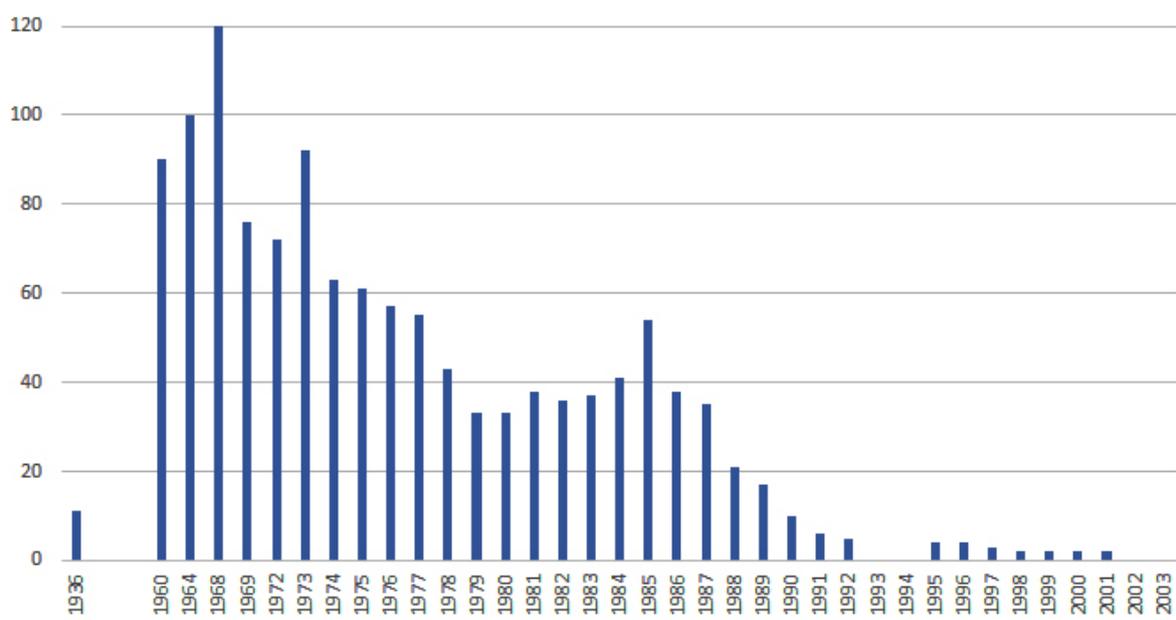
to the flyway along the Caspian Sea coast, there are two other flyways that cross Azerbaijan through the center and the west of the country. Sightings of four cranes in autumn 2006 and 15 cranes in 2011 at Astrakhan Nature Reserve suggest use of a western flyway in Azerbaijan that goes to Iraq and Jordan and existence of unknown wintering grounds. This is supported by the sighting of three Siberian Cranes in the winter of 2001 in a seasonally flooded mudflat in Jordan. It is also supported by three sightings in western Azerbaijan.

## WINTERING GROUNDS

### Central Asian Flock

Historically, the Central Asian flock wintered in wetlands in the Etawah and Mainpuri districts of India (Keswal 1888). In the nineteenth century, after the creation of artificial wetlands in the Gangetic Plain in Bharatpur, Rajasthan State, in northwestern India, Siberian Cranes were regularly observed there and since the 1960s were strictly protected and counted. In 1967 Keoladeo (Ghana) National Park (KNP) was established in Bharatpur on the eastern fringe of the Punjab Plains.

KNP was the last consistently confirmed wintering area for this species where they used wetlands maintained by a system of artificial water impoundments surrounded by dikes. Although strictly protected in India and provided ample wetlands at KNP, Siberian Crane numbers declined from 120 birds in winter 1968/1969 to just one pair in winter 1998/1999 (Kumar et al. 2010) (Figures 4, 5, 6). The last sighting of this pair was in winter 2001/2002, when the park received less water from an upstream reservoir because of



**Figure 4:** Numbers of the Siberian Cranes of the Central Asian flock at the wintering ground in Keoladeo National Park, India (Kumar et al. 2010)



**Figure 5:** Siberian Cranes in Keoladeo National Park in 1970s. Photo from the ICF archive.

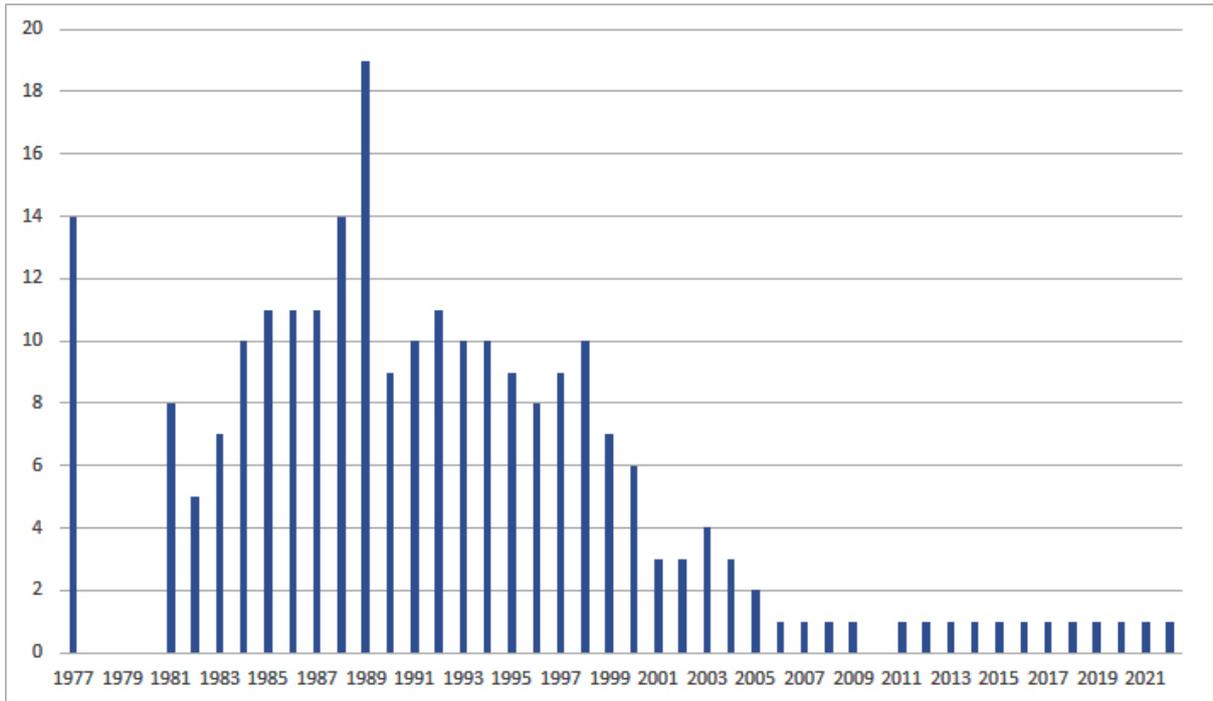


**Figure 6:** The Siberian Crane male from the last pair wintered in 2001/2002 in Keoladeo National Park, India. Photo by N.C. Dhingra

### **Western Asian Flock**

The Western Asian flock spent the winter in the South Caspian lowlands in Mazandaran Province, Islamic Republic of Iran. Fragmentary data suggested that this species was recorded in wetlands on lowlands besides the Caspian Sea coast. However, they were not observed during the comprehensive mid-winter waterfowl counts conducted by the Iranian Department of the Environment (DoE) since the 1960's, until the winter 1977/78. That winter a small group of 11–14 Siberian Cranes was re-discovered near the coastal town of Fereydoon Kenar in Mazandaran Province (Ashtiani 1987). They were wintering at three duck and goose trapping complexes (damgahs) where a ban on shooting and other disturbances attracts waterfowl to flooded harvested rice fields. Siberian Cranes were never numerous in Fereydoon Kenar. A maximum of seven-nineteen birds wintered here during the period from 1970s to 1990s. Due to various factors such as the space demands of the cranes, natural mortality, illegal hunting, and habitat destruction, the Western/Asian flock started to decline since the late 1990s (Figure 7). The last record of a family with a chick was in winter 2003/2004 (Figure 8). Since winter 2006/2007 only one Siberian Crane named Omid/Hope/Nadezhda has wintered in the Fereydoon Kenar damgah (Sadeghi Zadehan and Fazeli 2010) (Figure 9). An exception to this was the winter of 2009/2010, when a lone individual spent the winter in Azerbaijan. The last sighting of Omid was in winter 2022/2023 (Hafezi Birgani 2023).

Aerial surveys over other potential wintering grounds in Mazandaran Province in 2000 failed to find Siberian Cranes. Comprehensive ground surveys in both Gilan and Mazandaran Provinces in 2000 and 2003 also failed, and the annual midwinter waterbird counts across the south Caspian lowlands have not found any cranes (Sadeghi Zadehan et al. 2009).



**Figure 7:** Numbers of the Siberian Crane of the Western Asian flock at the wintering ground in Fereydoon Kenar, Islamic Republic of Iran.



**Figure 8:** Last sighting of the family with a chick in Fereydoon Kenar in winter 2003/2004. Photo by S. Sadeghi Zadeگان



**Figure 9:** Sighting of the lone Siberian Crane named Omid in Fereydoon Kenar in winter 2022/2023 along with captive-bred released crane named Roya. Photo by K. Hafezi Birgani

## THREATS

Updated from Mirande and Ilyashenko 2019.

- Traditional hunting along the flyways, especially in Afghanistan and Pakistan, is believed to be a primary cause of decline of this population. Crane hunting was formerly widespread in these countries but was recently made illegal in all areas. Hunting is difficult to control, however, especially in tribal areas. Following the collapse of the USSR, hunting escalated in Russia, Azerbaijan, Kazakhstan, and Uzbekistan.
- Human densities are high at wintering areas in Iran. The remaining habitats at Ezbaran and Fereydoon Kenar are privately owned and dependent on the goodwill of local rice farmers and the persistence of the traditional livelihood of duck trappers who restrict hunting. The Department of the Environment has officially established a Non-Shooting Area at Fereydoon Kenar (Sadeghi Zadegan 2011).
- Disease is a risk, especially at wintering areas in Iran.

## CONSERVATION AND RESEARCH EFFORTS

Updated from Mirande and Ilyashenko 2019.

- Sixteen sites of importance to the Siberian Crane that are also significant to global biodiversity were included in the UNEP/GEF SCWP (2003–2009) which aimed to protect an ecological network of these sites. Community and science-based management plans were developed for all project sites (Harris 2009, Mirande and Prentice 2010).
- Eleven range states developed the seventh Conservation Plan for the species (2010–2012) under the UNEP/Convention on Migratory Species (CMS) Siberian Crane Memorandum of Understanding (MOU) (see [http://www.cms.int/species/siberian\\_crane/sib\\_cnspln.htm](http://www.cms.int/species/siberian_crane/sib_cnspln.htm) for details). The Siberian Crane MOU was the first MOU developed under the auspices of CMS in 1993 (<http://www.cms.int/en/legalinstrument/siberian-crane>).
- China's Forestry and Grassland Administration and Chinese provincial agencies manage critical wetlands, assessed impacts of water management, and conduct monitoring research, outreach, and networking with local, national, and international organizations.
- Siberian Crane listed in Red Data Book of the Russian Federation, providing the highest status of nature protection legislation for the species in Russia.
- In 2023 the national strategy on the Siberian Crane conservation was approved by Ministry of Natural Resources and Ecology of the Russian Federation
- Cranes and their key wetlands monitored and studied on the breeding grounds

(Yana-Indigirka tundra) and migratory sites (basins of upper Indigirka and Middle Aldan) by the Institute for Biological Problems of the Cryolithozone, Yakutian Science Center) in Russia, and the Amur/Heilong River basin (migration sites) by nature reserve staff in China.

- The Oka Crane Breeding Center (OCBC), ICF, Cracid and Crane Breeding Center (CBCC), and zoos maintain a species bank with the capability of providing birds for release (Kashentseva and Belterman 2014).
- A “Flight of Hope” project was conducted by Russia (All-Russian Research Institute for Nature Protection, Sterkh Foundation, Administrations of YaNAR and KhMAR, Oka State Nature Biosphere Reserve, and ITERA and Petrosresurs Oil Companies) in collaboration with Uzbekistan (Gosbioncontrol, Institute of Zoology of Academy of Science of the Republic of Uzbekistan, Center for Breeding of Rare Animals) (Shilina et al. 2011). The project aims to develop a viable technique for reestablishing the Western/Central Asian flocks.

## Reintroduction

A comprehensive conservation measure for restoring the Western/Central Population is replenishing it with captive-reared Siberian Cranes using different techniques (Figures 10 and 11) adapted from experiences with reintroduction programs of other cranes species such as Whooping (*Grus americana*), Wattled (*Bugeranus carunculatus*), and Red-crowned (*Grus japonensis*) Cranes. An overview is presented below. (See V.Yu. Ilyashenko 2023 for additional details and references).



**Figure 10:** Parent-rearing technique at OCBC. Photo by T. Kashentseva



**Figure 11:** Isolation-rearing (costume-rearing) technique in OCBC. Photo by G. Nosachenko

Reintroduction efforts have resulted in the release of 235 Siberian Cranes ranging from four months to three years old on breeding and wintering grounds and at migration stopovers for the period from 1991 to 2023 (Table 1). Birds were reared mainly at the OCBC in Russia (194), as well as in ICF in USA (40) and CBCC in Belgium (1) using isolation-rearing (costume-rearing by humans) and parent-rearing (by captive Siberian Crane pairs) techniques.

**Table 1.** Result of reintroduction of captive-bred Siberian Cranes into the wild.

##	Place of Reintroduction	Status in the range	Period of release	Number of releases	Number of birds released	Number starting migration or unknown fate	Known mortality during release	Number of cranes returned to captivity
1	Kunovat River Basin, north of Western Siberia, Russia	Breeding	1991-2023	16	70	42	12	16
2	Konda-Alymka Interfluve	Breeding	2012	1	2	2	-	-
2	Armizon, south of Western Siberia, Russia	Migration stopover, pre-migratory staging area of Eurasian Crane	1994-2013	11	52	36	10	6
3	Volga Delta, Russia	Migration stopover	1999-2018	14	72	68	2	2
4	“Flight of Hope” Project, Russia	Breeding/migration stopover	2002-2012	3	18	8	-	10
5	Keoladeo National Park, Rajasthan, India	Wintering	1993-1997	3	10	8	2	-
6	Fereydoon Kenar, Mazandaran, Iran	Wintering	1996/97-2022/23	8	11	6	4	1
	<b>TOTAL</b>			<b>56</b>	<b>235</b>	<b>170</b>	<b>30</b>	<b>35</b>

In summary, of the 235 released, 30 birds were known to have died and 35 were returned to the captivity after they failed to migrate or were injured. The fate of the remaining 170 birds is largely unknown with exceptions noted below.

The “Flight of Hope Project” aspired to restore the Western/Central population through isolation rearing of Siberian Crane chicks in captivity, release them on a historic breeding site, and to use ultralight aircraft to lead them from a release site to wintering

sites. In order to develop a propensity for migration in young Siberian cranes, chicks are taught from an early age to follow a hang glider (Shilina et al, 2011). This technique was developed and used to restore a migratory population of Whooping Crane in eastern USA with promising results (Thompson et al, 2022). However, there are many challenges in applying this technique to restoring Siberian Cranes. The migration route is almost three times the length of the Whooping Crane migration route. Security is questionable at best for both birds and humans in some areas. Lack of roads and communication facilities, many cultures and languages, and cumbersome federal and regional permits, complicate the proposed migration.

All released cranes were color banded, but only around 40 were also tagged with PTT (satellite) or GPS-GSM (cell phone) transmitters. Unfortunately, most of transmitters stopped working after migration started or showed only part of the flyway. Therefore, the fate of most released cranes is unknown.

Experience at the OCBC shows that isolation-rearing and parent-rearing have their own advantages and disadvantages. Parent-reared chicks are wilder and join wild cranes more successfully but are less adapted to natural conditions. Isolation-reared chicks are tamer and less afraid of people or settlements but are better adapted to natural food and conditions based on long walks to natural habitats with costumed human “parents” where they are trained to find food.

The age of chicks released into the wild is very important. The jaw and bill structure of the Siberian Crane is not fully formed until at least eight months of age. Direct observations have shown that parents feed the chicks until the beginning of March (Ilyashenko 2023). Therefore, the age of released cranes should be from one to two years old. Individuals over three years of age adapt less well to natural conditions after being kept in captivity.

Attempts to release Siberian Cranes on wintering grounds in India and Iran were unsuccessful. Either they did not start migration or joined the wild cranes on early spring migration. However, the transmitters stopped working on the migration route and none returned the following autumn for wintering. Whooping Cranes released on wintering grounds in Florida and Louisiana did not begin the spring migration but formed sedentary populations (Thompson et al, 2022). Historically Whooping Cranes had both migratory and non-migratory populations and efforts are under way to re-establish a non-migratory population in Louisiana. Establishing a non-migratory

population on the wintering grounds for Siberian Cranes is not suitable for this arctic breeding species.

Siberian Crane chicks are dependent on their parent to teach them their long and arduous migration routes. Captive-reared Siberian Crane released on their breeding grounds in the Kunovat River Basin or at their migration stopover at the Volga Delta were not able to join wild Siberian Cranes or Eurasian Crane flocks due to their absence, leading to their death after flying in inappropriate directions. One exception is the sighting of a banded Siberian Crane released in Kunovat River Basin on wintering grounds in China along with Siberian Cranes of Eastern population. It is assumed that this individual joined groups of migrating Bewick's swans using different migration and wintering sites.

The most successful release of captive-reared Siberian Cranes was at the migration stopover of Eurasian Cranes in the south of Tyumen Region at Beloozersky Wildlife Refuge near Armizon (Figure 12), where they were able to join Eurasian Crane flocks and follow them along the flyway. Some Siberian Cranes sighted in flocks of Eurasian Cranes are potentially birds released into the wild (Shilina et al, 2011).



**Figure 12:** Release of captive-reared Siberian Cranes in Beloozersky Wildlife Refuge, Tyumen Region, in August 2003. Photo by A. Shilina

Reintroduction experience of Whooping Cranes in the USA and Red-crowned Cranes (*Grus japonensis*) in Amur Region of Russia showed that single chicks join groups of wild cranes faster, while chicks released in groups are already socialized, stick together, and are not always able to migrate on their own (Ilyashenko 2023). Similar behavior

was observed the Siberian Cranes released on wintering rounds in Iran. There were four cases when a lone captive-reared Siberian Crane (both females and male) more quickly joined a lone wild individual and started spring migration with it, while groups of two of three released cranes stayed together and did not migrate.

In addition to release of chicks, a total of 39 eggs (36 produced at the OCBC and three at ICF) were placed in Eurasian Crane nests for cross-fostering on the breeding grounds in West Siberia (1991-2006, 2011, 2018) (Shilina et al 2011, Tatiana Kashenyseva, pers. comm. 2025). The goal was to determine if the Eurasian Cranes would lead the Siberian Crane chicks along their migration routes and teach them appropriate survival skills. The results were positive including two reliable cases of hatching of Siberian Crane chicks in Eurasian Cranes nests and their migration. A risk with this technique is that Siberian Crane chicks would sexually imprint on their Eurasian Crane foster parents at hatching and based on scarcity of Siberian Cranes available in the wild, would seek Eurasian Cranes as mates with potential of producing hybrid chicks in the wild (Ilyashenko 2023). There is a risk of adsorption hybridization. In Turkey in May 1985, an adult Siberian crane hybrid was encountered in a group with Eurasian cranes that did not have chicks of that year of birth (Davidson, 1985). In the OCBC in 2009, such a hybrid male was obtained by artificial insemination (Kashentseva and Postelnykh 2013). In 2018, he independently mated with a female Eurasian crane. They laid two fertile eggs, from which a male and a female hatched, i.e., viable hybrids of the second generation (Kashentseva 2020). This has been observed in Whooping Cranes cross-fostered in wild Sandhill Crane nests (Smith 2019, Lewis 1990). However, it was hoped that the cross-fostered Siberian Cranes would serve as guide birds for future releases of isolation or parent-reared chicks and teach them the migration route and survival skills.

## **WAY FORWARD**

The current status of the Western/Central Asian population is Critically Endangered. Siberian Cranes have not been confirmed on the known breeding and wintering grounds in the last decades with the exception of a lone male in Iran last seen in winter 2022/2023 (Hafezi Birgani 2023) and one or a few birds intermittently observed within the range of the population. The number of cranes reported along the western flyway has been greater than the number at the wintering ground in Iran. Scattered cranes have also been reported along the central flyway. Perhaps, there are unknown wintering sites for these remnant birds in Jordan, Iraq, Iran, or India.

The demise of the Siberian Cranes in the Western/Central Asian population is primarily

attributed to shooting. Siberian Cranes along the Central Flyway were frequently sighted in flocks of Eurasian and Demoiselle Cranes in Turkmenistan and Uzbekistan. Association with these species makes the species especially vulnerable in Afghanistan and Pakistan where crane hunting and live trapping are popular and traditional. Undoubtedly poaching was the primary cause of attrition of the Siberian Crane along the western flyway in Russia, Kazakhstan, Azerbaijan, and Iran.

Data suggested that both the Western and Central Asian flocks are either extirpated or in such low numbers and widely dispersed that they are no longer genetically and demographically viable, and natural recovery is unlikely. Some Siberian Cranes sighted along both central and western flyways may be reintroduced individuals. However, effort to replenish the Western/Central Asian population through release of captive-bred Siberian Cranes into the wild should not be considered until the security for both birds and human caretakers can be assured. Collaborative national and international efforts would need to be expanded to educate hunters and to enforce laws that protect these treasured birds in all range nations. It is hoped that widespread publicity will help reduce impacts from shooting.

If these conditions are met, lessons learned introducing Siberian Crane chicks and other crane species into the wild provide a foundation for the development of scientifically sound and adaptive management tools and pending available resources to the adoption of decisions that could support the restoration of the Western/Central population and ultimately establish a self-sustaining population. Perhaps these dreams for recovering Western/Central population can be realized through the growth of IUCN's Central Asian Flyway Network and the success of ICF's Central Asian and Middle East Crane Conservation Group (CAMEC).

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# I FEEL LUCKY OBSERVING THE SIBERIAN CRANES IN BAHRATPUR, INDIA



**Professor Hafiz Yahya**

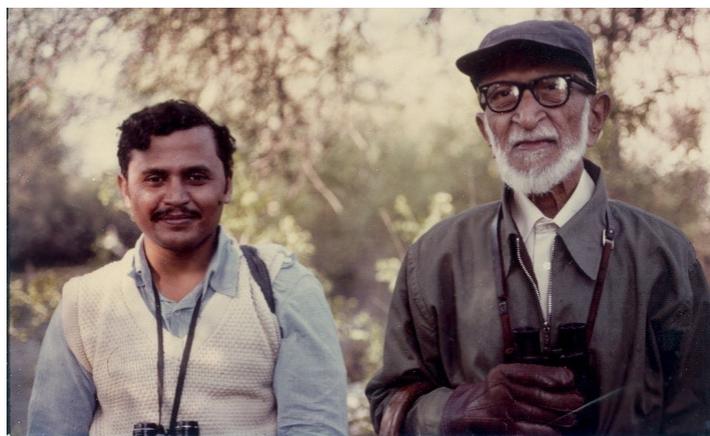
February 2025

I consider myself lucky to have observed Siberian Cranes in Bharatpur for over 20 years, but at the same time, I am saddened to have witnessed the gradual population decline and final extinction of this elegant species in India. Out of the 15 crane species found in the world, 5 species occurred in India, with the Sarus Crane being the most common and widespread in the country. But after the extinction of the Siberian Crane in India, only four species, the Sarus Crane (*Grus antigone*), the Eurasian Crane (*Gruse grus*), the Demoiselle Crane (*Anthropoides virgo*), and the Black-necked Crane (*Grus nigricollis*), remain there today.

Sadly, 10 crane species are facing one or another sort of endangerment, mostly due to habitat loss in their respective ranges around the world. Due to the persistent efforts of the International Crane Foundation (ICF), the cause of conservation of cranes is being taken care of properly. However, the conservation of cranes requires more support from the public, wildlife/wetland conservation authorities, the respective governments and NGOs all over their ranges.

In this note, I would like to highlight the events of gradual decline and some reintroduction programs of the Siberian Cranes in Bharatpur (BPR).

I started observing Siberian Cranes in BPR in 1980 when I was posted there as a Scientific Projects Officer to conduct research and oversee the development of Hydro biology and Avifauna projects under the aegis of the Bombay Natural History Society. These long duration projects were funded by the U.S. Fish and Wildlife Services.



**Figure 1:** Professor Hafiz Yahya with Dr. Salim Ali at Bharatpur National Park. Photo by Belinda Wright

In the winter of 1980, I recorded about 100 Siberian Cranes foraging in BPR. They particularly liked the partially submerged area of the wetland for feeding. They would go on feeding on sedge grass by uprooting and taking the root buds. The cranes were rather localized in the park, specifically in the C & D blocks. Their active feeding hours were during mornings and afternoons. They often called while feeding and took aerial sorties during hotter hours of the day. During the early days of arrival, they were largely quiet, but a few weeks before their return journey, they were noted to be appreciably active. Calling, fluffing wings and, at times, soaring in the sky before the final departure.

Among the 11 members of our research team, I initially was assigned to observe the cranes. After two years when I was shifted to another Endangered Species Project, Mrs. Lalitha Vijayan, a core researcher, continued observing the Siberian Cranes until 2001. However, I continued to return to BPR almost every year to demonstrate techniques of field exercises to our students of the Department of Wildlife Sciences A. M. U. ALIGARH. While there, I kept note on the dwindling population of the Siberian Cranes until 2001 when they were last seen in BPR. Later, I also monitored the unsuccessful reintroduction program of the cranes over three seasons, but unfortunately the captive-bred young could not fly to their breeding grounds in Siberia.

Siberian Cranes previously occurred in two distinct populations: the Eastern population that migrates to Eastern China and the southern population that used to visit BPR. The latter population visited BPR in fewer and fewer numbers each year and gradually became extinct in natural condition by 2001. Therefore, in a short span of only 21 years, I was moved to witness the extinction of a bird species in India!

Although the alarm of their population decline was noticed in the ornithological world in the 1990s, after 2001 when the cranes didn't visit BPR for 4-5 consecutive years, a reintroduction program was launched around 2005, and despite efforts of Birdlife International, WWF, and the local Rajasthan Forest Department, the young Siberian Cranes raised in captivity didn't fly with the last free bird, thus diminishing the hope of avian conservationists. Despite knowing the fact that in vertebrates, only 10 percent of reintroduction programs are successful, it is expected that the reintroduction program of the Western/Central Asian Population of the Siberian Crane will be taken up again in the near future vis-à-vis the conservation efforts used in establishing the Eastern Population that visits China and should be intensified.

In fact, as with many common bird species, the population of cranes is declining

almost everywhere. In India, the Sarus Crane, once occurring so commonly in parts of Uttar Pradesh, Haryana, Punjab, etc., is declining fast, mainly due to habitat loss. The populations of two visitor cranes of India: the Eurasian Crane and the Demoiselle Crane, are also not stable, whereas the Black-necked Cranes, which are breeding in some number in Laddakh and Arunachal Pradesh, are far from a viable population from futuristic points of view.

# PROTECTING CRANES IN CONFLICT AND POST-CONFLICT COUNTRIES: THE CASE OF AFGHANISTAN AND THE MIDDLE EAST



**Ghulam M. Malikyar**

September 2025

## Introduction

In many cultures, cranes are among the most iconic migratory birds, symbolizing peace, longevity, and ecological balance. Yet, in many conflict and post-conflict regions such as Afghanistan and parts of the Middle East, these species face severe threats. Ongoing wars, political instability, weak governance, and the breakdown of conservation systems have intensified pressures on fragile ecosystems. Protecting cranes in such environments requires innovative, community-driven, and pragmatic strategies that integrate biodiversity conservation with peacebuilding and human resilience.

## Key Threats to Cranes in Conflict Zones

1. Habitat loss and degradation, particularly in wetlands, river valleys, and agricultural lands that are vital for cranes, pose significant threats in conflict-affected regions. These habitats are frequently drained, polluted, or destroyed by infrastructure projects undertaken without adequate environmental safeguards. The survival of cranes is intricately linked to wetlands, rivers, and shallow lakes, yet these essential areas are under severe threat due to the impacts of conflict and instability. The construction of dams, unregulated irrigation schemes, and excessive water extraction during periods of instability drastically reduces the availability of water in critical ecosystems. In many areas, wetlands and river basins are artificially channeled, and water pumps and other tools are used to withdraw large volumes of water for agriculture or settlements. These practices deprive cranes of secure resting, roosting, and feeding grounds along their migratory routes, further endangering their populations.
2. Hunting and poaching pose serious threats to crane survival in unstable and economically challenged countries. During times of conflict or instability, weak law enforcement allows cranes to be hunted for food or trade. Sport hunting, however, remains minimal as people's priorities and capacities have shifted away from such activities.

3. In countries facing prolonged instability from weak governance and institutional collapse, the environmental governance often deteriorates or collapses entirely. The frequent weakening or dismantling of environmental agencies results in the loss of effective management of protected areas and wetlands. Without functioning institutions, enforcement of conservation laws, monitoring of species, and prevention of illegal activities such as hunting or wetland drainage become almost impossible. Moreover, political instability undermines cross-border cooperation on migratory bird conservation, leaving cranes highly vulnerable across their flyways.
4. Climate change and compounding pressures intensifies the vulnerability of ecosystems already stressed by human activity and conflict. Rising temperatures, prolonged droughts, unpredictable rainfall, and more frequent heat waves reduce the availability of freshwater in wetlands that cranes depend on. In addition to these climatic challenges, man-made pressures such as deforestation, land conversion, and overgrazing further erode habitat quality. The combined effects of climate change and human interventions create a complex set of threats, making it increasingly difficult for crane populations to survive in fragile regions.

### **Conservation Opportunities in Conflict and Post-Conflict Settings**

Despite these challenges, conflict zones often provide unexpected opportunities that include the following but not limited to:

#### **1. Temporary preservation through reduced industrial activity**

In regions affected by conflict, the slowdown or collapse of industrial and large-scale development activities can unintentionally benefit cranes and wildlife. With fewer factories, infrastructure projects, and extractive industries in operation, some wetlands, grasslands, and river systems remain less disturbed. While this preservation is not intentional, it can provide temporary refuge for cranes and other migratory species until sustainable management frameworks are re-established.

#### **2. Cultural and spiritual significance of cranes**

Cranes hold deep cultural and spiritual meaning across many societies in the Middle East and Central Asia. In Islamic traditions, respect for all living beings, prohibition of waste, and the symbolic association of cranes with peace and harmony can inspire strong local support for their protection. In Afghanistan, for example, cranes (Kolang) are celebrated as harbingers of seasonal change, carrying stories and symbolic values passed down through generations. Leveraging these cultural beliefs creates a

powerful and cost-effective opportunity to mobilize communities for conservation, even in contexts where financial resources are scarce.

### 3. **Community dependence on wetlands as a shared interest**

Local communities in conflict and post-conflict regions often rely heavily on wetlands for their daily survival, using them for water supply, fishing, grazing, and farming. This dependence, if aligned with conservation goals, can transform into a shared interest in protecting wetlands and crane habitats. By linking conservation with livelihood opportunities, such as eco-tourism, sustainable agriculture, or small-scale handicrafts, communities can see direct benefits from maintaining healthy ecosystems. This approach ensures cranes are protected not only as a matter of biodiversity but also as part of securing food, water, and income for vulnerable populations.

#### **Summary of Key Threats and Opportunities**

<b>Major Threats</b>	<b>Key Opportunities</b>
Hunting and poaching Cranes face serious survival challenges in unstable and economically poor countries.	Temporary preservation through reduced industrial activity. While unintended, this pause can offer cranes temporary refuge until stable conservation measures are introduced.
Water insecurity, as wetlands, rivers, and shallow lakes are vital habitats for cranes. These are increasingly threatened by unregulated human activity.	Cranes carry deep cultural and spiritual symbolism across the Middle East and Central Asia. In Islamic tradition, respect for creation and prohibition of waste reinforce the moral duty to protect wildlife.
Weak governance and institutional collapse often break down in conflict zones. The weakening or dismantling of environmental agencies eliminates effective management of protected areas and wetlands.	Communities often rely heavily on wetlands for water, grazing, fishing, and agriculture. This dependence creates opportunities for shared interests between human needs and crane conservation.
Rising temperatures, frequent droughts, irregular rainfall, and heat waves intensify pressures on already fragile ecosystems.	By linking crane protection with efforts to secure water for people, conservation becomes both a survival strategy and a peacebuilding opportunity. These conditions can create strong incentives for communities to engage in wetland restoration and water conservation.

## **Practical Strategies for Protecting Cranes**

### **1. Community-based Stewardship**

Mobilizing villagers, farmers, and herders as custodians of wetlands and migratory stopover sites builds on centuries-old traditions of living in balance with nature. In many Afghan and Middle Eastern communities, elders and tribal leaders historically managed water and rangelands collectively. Reviving these practices by recognizing local guardianship roles can strengthen stewardship. Small incentives, such as dignity gifts, eco-tourism ventures, bird festivals tied to migration seasons, or sustainable agriculture projects, reinforce ownership while preserving cultural pride in protecting nature.

### **2. Religious and Cultural Engagement**

Islamic values emphasize respect for all creation, the prohibition of waste, and stewardship (Mohafiz) of the Earth. Religious scholars can frame crane protection as an act of faith, connecting conservation to Quranic injunctions against corruption and destruction of nature. Locally, cranes are celebrated in folklore as messengers of seasonal change, and traditional poetry and proverbs often praise their beauty and endurance. Harnessing these cultural symbols ensures conservation is understood not as a foreign idea, but as an extension of deeply held values.

### **3. Conflict-sensitive Conservation Programs**

In conflict-affected regions, conservation must deliver both ecological and humanitarian benefits. Restoring wetlands, for example, provides not only crane habitats but also drinking water, grazing areas, and irrigation for local communities. Linking environmental care with survival needs reflects cultural traditions of hospitality and responsibility, where protecting shared resources is seen as a moral duty. Such programs reduce tensions and build trust by addressing both nature's needs and people's dignity.

### **4. Cross-border Cooperation**

Cranes migrate along the Central Asian Flyway, connecting Afghanistan with Iran, Pakistan, and Central Asia. Historically, caravans, trade routes, and tribal networks crossed these same paths, creating bonds between peoples and cultures. Building regional conservation partnerships along these ancient corridors revives the spirit of shared heritage and responsibility. Coordinated monitoring, joint research, and cross-border bird festivals can turn migratory flyways into symbols of peace and

cooperation rather than division.

#### 5. **Post-conflict Reconstruction with Cultural Identity**

Embedding wetland restoration and water management into reconstruction projects ensures biodiversity recovery alongside human development. Incorporating cultural values, such as community water-sharing traditions, ancestral respect for cranes, and Islamic teachings on land care, makes these projects more resilient and locally accepted. By framing cranes as part of cultural heritage, their protection becomes not just an ecological goal but also a means of healing identity and strengthening national pride after years of conflict.

6. **Education and awareness** can be advanced through the direct involvement of religious scholars, using mosques and local schools as platforms for conservation messages. Highlighting the courage and wisdom of ancestors who respected nature and prohibited unnecessary hunting can inspire pride and responsibility among communities. Low-cost initiatives such as awareness campaigns during crane migration seasons can strengthen cultural identity while fostering long-term stewardship, especially among young people.

#### **Case of the Middle East**

The Literature shows that the Middle East forms a critical part of the Central Asian Flyway, serving as a corridor for migratory cranes such as the Eurasian Crane, Demoiselle Crane, and Siberian Crane. Key stopover sites include wetlands in Iran (Hawizeh Marshes, Anzali Lagoon), Iraq (Mesopotamian Marshes), Israel (Hula Valley), and Turkey (Sultan Marshes). These regions face multiple challenges, conflict, political instability, water diversion, wetland drainage, and overhunting. Decades of war and socio-economic hardship have weakened environmental governance and enforcement, leaving habitats degraded and cranes increasingly vulnerable.

Despite these pressures, cultural and religious values provide opportunities for protection. Cranes are recognized in local folklore, and Islamic teachings on stewardship and respect for creation resonate across communities. Engaging local populations, religious leaders, and cross-border conservation networks can help protect wetlands and migratory routes. Community-based programs, eco-tourism, and restoration of culturally significant wetlands offer practical pathways to safeguard cranes while supporting human livelihoods.

## **Case of Afghanistan**

Afghanistan is a critical link along the Central Asian Flyway, hosting migratory species such as Demoiselle Cranes, Eurasian Cranes, and occasionally Siberian Cranes. Important habitats include the wetlands of Amu Darya, Band-e-Amir, Hamun-i-Puzak, Dasht-i-Nawar, Ab-i-Estada and numerous high-altitude lakes across the Hindu Kush and central plateau. These ecosystems provide essential stopover and staging areas for cranes, yet decades of conflict, political instability, and weak governance have severely undermined their protection.

Despite these challenges, local communities maintain a deep cultural and spiritual connection to cranes, known locally as Kolang. These birds are celebrated in folklore, poetry, and seasonal traditions, often regarded as heralds of migration and natural cycles. Historically, communities managed wetlands collectively through councils (Shuras and Mirabs) that regulated water use and grazing, reflecting a long-standing ethic of stewardship. Reviving and strengthening these local conservation councils, integrating traditional knowledge with modern ecological management, and promoting sustainable water management are key strategies to safeguard crane populations in Afghanistan.

Efforts should also emphasize community engagement through festivals, eco-tourism, and awareness campaigns that highlight the crane as both a natural and cultural symbol. By tying conservation to livelihoods, ancestral respect, and Islamic teachings on protecting nature, these initiatives can gain local legitimacy even in areas recovering from conflict.

## **Conclusion**

Protecting cranes in conflict and post-conflict countries like Afghanistan and across the Middle East goes far beyond wildlife conservation. It is an integral part of ecosystem restoration, community resilience, and peacebuilding. Cultural heritage, traditional stewardship, and local livelihoods provide natural entry points for conservation, creating solutions that are socially, economically, and spiritually sustainable.

By linking regional cooperation, community-based management, and the symbolic power of cranes, these birds can serve as ambassadors of peace, ecological balance, and sustainable development in some of the world's most fragile environments.

Conservation, in this sense, becomes a pathway to restoring trust, reinforcing identity, and reconnecting people with nature, ensuring that both humans and wildlife thrive together.

# SAFEGUARDING THE SKIES: CRANE CONSERVATION IN NORTH LEBANON



**Dr. Michel F. Sawan**, President, Lebanese Association for Migratory Birds

**Abstract:** Between February and May 2025, the Lebanese Association for Migratory Birds (LAMB), in partnership with the International Crane Foundation (ICF), launched a critical conservation initiative in North Lebanon to protect the migratory passage of Eurasian Cranes (*Grus grus*). This region lies on the African-Eurasian Flyway, a vital corridor for millions of birds that remains one of the most dangerous due to poaching and illegal wildlife trade. The project, which combined scientific monitoring, anti-poaching action, and awareness campaigns, marked a milestone in Lebanon's bird conservation efforts.

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## **Mount Terbol: A Crucial Migratory Bottleneck**

Mount Terbol in North Lebanon, with its unique topography and wind corridors, plays a central role in facilitating the spring migration of cranes and other soaring birds. The mountain provides key stopover habitat for resting and refueling but also presents serious dangers, as low-altitude flight paths expose birds to illegal hunting.

During the 2025 spring migration season, field teams recorded approximately 90,532 Eurasian Cranes in 41 flocks from February to May, Lebanon's first national estimate for crane migration. Notably, the season began unusually early, with the first major sighting in February and continued through May 1st, 2025.

## **Objectives and Methodology**

The project centered on three main objectives: field monitoring and results; combating illegal wildlife trade and anti-poaching operations; awareness and advocacy, and community outreach

### **1. Field Monitoring and Results**

Daily field surveys were conducted from February to May 1st, 2025 across Mount Terbol, Mount Dannieh, and Akkar, using binoculars, camera traps, and a Nikon D500 with a 200–500mm lens to track cranes. The surveys focused on documenting flock size, flight altitude, migration routes, and behavioral patterns, with all collected data fed into national and international conservation databases, in addition to monitoring any

violations or poaching activities.

The project recorded 90,532 Eurasian Cranes across 41 flocks between late February and early May 2025:

Month	Individuals	Flocks
February	10,167	12
March	77,000	22
April	3,300	6
May	65	1

- First major sighting: February 25 (~5,500 cranes).
- Last observation: May 1.
- A possible rare flock of 16 Demoiselle Cranes (*Grus virgo*) was reported, although not photographed due to dust.
- Two cranes were seen resting near polluted rivers in Tripoli.

This is Lebanon’s first national estimate of crane migration, a critical foundation for future conservation work.

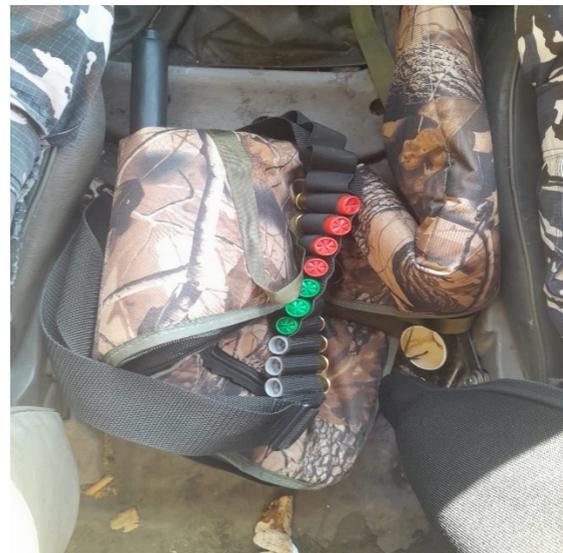
## 2. Combating Illegal Wildlife Trade and Anti-Poaching Operations

Efforts focused on identifying and reporting illegal bird trade cases—particularly involving Gray-crowned Cranes (*Balearica regulorum*) smuggled into Lebanon from Iraq and Syria. These birds are internationally protected, but Lebanon was recently notified of its suspension from the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) commercial trade due to illegal wildlife trafficking and insufficient border monitoring. This suspension has made enforcement more difficult, limiting the country’s ability to regulate and prosecute cross-border wildlife crimes. Despite this obstacle, all cases were documented and reported to the Internal Security Forces (ISF) to initiate legal action and prevent these endangered birds from being sold or exploited. Day and night patrols were carried out in known poaching hotspots, especially on Mount Terbol (Photo 1), with ISF and LAMB cooperating closely; in some cases, LAMB members operated undercover, blending in as hunters to document crimes. These actions resulted in the confiscation of illegal firearms and hunting equipment (Photo 2). A real-time WhatsApp network allowed activists and birdwatchers across Lebanon to track crane flocks and instantly alert field teams. Violations such as shooting cranes, using calling devices, and chasing birds with

motorcycles or boats were recorded and acted upon (Photos 3, 4), and thorough documentation including a poacher's TikTok video showing a killed crane prompted immediate ISF intervention.



**Photo 1:** Monitoring field with ISF units



**Photo 2:** Confiscated guns and ammunition



**Photo 3:** Poachers chasing cranes on motorcycle



**Photo 4:** Poachers chasing cranes in boats

### 3. Awareness, Advocacy, and Community Outreach

The success of the project was bolstered by public engagement:

- School-based awareness sessions were conducted across North Lebanon, engaging children, teachers, municipalities, and environmentalists.
- Television and radio interviews on national stations explained the importance of conservation of cranes and other migratory birds.
- A bird release event showcased rehabilitated birds (2 White Storks, 1 Common Buzzard, 1 Short-toed Snake Eagle, 1 Marsh Harrier, and 2 Lesser Spotted Eagles).
- The event was attended by:
  - ◆ Ambassadors from Poland, Switzerland, and Mexico (Photo 5).
  - ◆ Lebanese officials and Member of Parliament Tony Frangieh.
  - ◆ Over 200 participants including activists, students, and journalists.

These campaigns significantly increased public support and awareness of crane conservation.



**Photo 5:** Releasing some wounded birds after finishing rehabilitation in LAMB shelter with the Polish, Swiss, Mexican ambassadors and Vice Parliaments.

### Institutional Impact and Regional Collaboration

This initiative marked a major milestone for bird conservation in Lebanon. It introduced the country's first comprehensive monitoring program for Eurasian Crane migration, offering a reliable national estimate and establishing long-term data collection practices. The project also created a highly effective collaborative model that brought together Non-governmental Organizations (NGOs), ISF, the Lebanese Army, and key government ministries. Thanks to enhanced logistical support such as vehicle repairs, field rations, and improved communication tools field teams were able to significantly increase their patrol coverage and reduce response times. This operational boost strengthened coordination between all involved stakeholders, making anti-poaching actions faster and more effective.

Several high-level meetings were held with Lebanon’s Minister of Environment, Minister of Agriculture, and the Lebanese Army Commander to present documented violations and advocate for stronger enforcement. These efforts, coupled with a real-time reporting network and proactive field presence, led to a noticeable drop in poaching activity in several hotspots. Importantly, the project contributed to shifting public perception of migratory birds—from being viewed as hunting targets to recognized symbols of ecological importance and national heritage.

To build on these achievements, the project proposed a number of strategic recommendations. Protecting cranes in Lebanon for the future depends on giving priority to certain key suggestions.

First, crane monitoring should be institutionalized as an annual conservation effort led by the Ministries of Environment, Agriculture, Internal Affairs, and Municipalities, and Defense, following standardized protocols and ensuring that data is consistently shared with national and international conservation bodies.

Second, field patrols require enhanced capacity, including modern equipment such as GPS-enabled devices, high-resolution cameras, drones, and communication radios, to improve surveillance and coordination during critical migration seasons.

Third, Lebanon must pursue urgent legislative reforms to prohibit harmful hunting technologies especially automatic firearms and electronic calling devices while integrating stronger enforcement mechanisms and penalties to effectively deter violations.

Additionally, regional collaboration should be strengthened through international frameworks such as Convention of Migratory Species (CMS), the African-Eurasian Migratory Waterbird Agreement (AEWA), and CITES to harmonize enforcement and address cross-border wildlife trafficking.

Lastly, public outreach must be significantly expanded to engage schools, municipalities, and rural communities through impactful awareness strategies, including visual storytelling to demonstrate the effects of poaching and encourage a culture of conservation. Mobilizing local leaders as wildlife ambassadors will be essential for sustaining positive behavioral change. Together, these measures can position Lebanon as a forward-thinking regional leader in migratory bird conservation.

## **Conclusion**

This project marks a new chapter in Lebanon’s conservation history. Beyond providing critical migration data, it established a practical framework for future protection initiatives. It also contributed to broader protection efforts for soaring birds like storks, pelicans, flamingos, and raptors, many of which follow similar migratory paths and face similar threats. The “Conservation and Protection of Cranes” project is a pioneering step for Lebanon’s wildlife conservation landscape. It not only provided valuable scientific data and curbed illegal activity but also instilled a new conservation mindset across governmental institutions, enforcement agencies, and local communities. By highlighting Lebanon’s role in global migration routes and establishing new standards in fieldwork, monitoring, and enforcement, this project created a replicable model for other conservation efforts in the Middle East. The coordinated efforts between LAMB, ICF, ISF, the Army, schools, ambassadors, and local communities show that protecting birds is not just a conservation necessity, but also a shared social responsibility.

# SKY OF IRAN AWAITS THE HOPEFUL FLIGHT OF CRANES



## Keramat Hafezi Birgani

Cranes are one of the most endangered bird families in the world, with ten out of fifteen crane species being endangered and on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species. The Siberian Crane (*Leucogeranus leucogeranus*) is in the most challenging and worst conservation status and the Western/Central-Asian Population is on the brink of extinction in the wild.

Despite threats from rapid and unsustainable development, habitat loss, poisoning due to agricultural pesticides and fertilizers, hunting, and other threats, cranes continue to be a symbol of beauty, splendor, and dignity in the world. Three species of cranes live in Iran: the Siberian Crane (*Leucogeranus leucogeranus*), the Demoiselle Crane (*Anthropoides virgo*), and the Eurasian Crane (*Grus grus*). These cranes breed in Russia and migrate to Iran in the fall and winter. The Eurasian Crane has the widest distribution in Iran and is the common wintering species here.

### Eurasian Crane

The Eurasian Crane is a migratory bird that passes through Iran and migrates from Iran to the Arabian Peninsula, North and Northeast Africa. The Eurasian Crane is also a wintering bird in the inland wetlands of Iran, such as Gandoman Wetland in Chaharmahal and Bakhtiari Province; Meqan Wetland in Markazi Province; wetlands in Fars Province; in Taybad and on the banks of Harirud; Shorak Maleki Wetland in Khorasan Razavi Province; wetlands in Tehran; Qazvin and Hamadan and some other wetlands. Iran's inland wetlands and the agricultural fields surrounding them play an important role in the migration of cranes in Iran, which sometimes experience water



**Figure 1:** Eurasian Cranes in Gandoman Wetland, Chaharmahal and Bakhtiari Province, Iran. Photos by Keramat Hafezi Birgani

Here I would like to draw your attention to a memory from George Archibald, Co-Founder of the International Crane Foundation, about his time studying crane migration in Iran. He writes, "From December to February of 1975-76, I lived in a village beside beautiful Lake Parishan, Arjan National Park, with the objective of color marking Eurasian Cranes. We marked 90 and discovered their breeding area just west of the Ural Mountains in Russia. I am blessed with memories of flamingoes, pelicans, waterfowl, mountains, and lovely people. Our boss, Minister Eskandar Firouz, became a treasured friend until his passing somewhat recently." (Eskandar Firouz was the founder of the Iranian Environmental Organization and the World Convention on Wetlands in Ramsar, a city in northern Iran.)

### **Siberian Crane**

George Archibald also tells the story of the last of the Western population of Siberian Cranes, a group 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," he writes. "In 1985, a Russian colleague, Dr. Yuri Markin, mapped the complex migration route and discovered the breeding grounds by attaching a satellite radio transmitter to a male crane in Iran. During the 1990s, the population declined, perhaps due to widespread hunting following the collapse of the Union of Soviet Socialist Republics (USSR) and consequent food shortages for people along much of the migration route. For 15 years, only a single male named Omid (Hope) appeared each autumn in Iran."

In 2023, in collaboration with the Cracid & Crane Breeding and Conservation Center in Belgium and the Department of Environment (DoE) of the Islamic Republic of Iran, we brought a female Siberian Crane named Roya (Dream) to accompany Omid. Roya and Omid were very close and bonded to each other, but Roya was unable to continue migrating with Omid. She is now being kept in Iran. Omid has not been to Iran for two years and his status is unknown.

Omid has never been seen in the summering area in Russia in the past. Another interesting point is that in 2010, Omid did not come to Iran for wintering. The future will tell us whether Omid will come to Iran and whether he will be seen again. Roya is kept in good condition and is in perfect health in a suitable location in the south of the Caspian Sea in Fereydunkenar, which also has the possibility of development. With the support of the Siberian Crane breeding centers of the Western population, it is possible to increase the number of Siberian Cranes in Iran, and appropriate planning can be done for this.

If efforts in Iran continue in cooperation with Siberian Crane breeding centers, useful measures can be taken in the future to rewild the Western population of Siberian Cranes. This action is possible in the first step by creating a resident population in northern Iran.

Various efforts have been made for the Western population of Siberian Cranes by the Siberian Crane Breeding Center (Oka) and the International Crane Foundation. One of the most recent cases concerns the release of several Siberian Cranes by the Oka Center in Russia in June 2023. One of the captive Siberian Cranes that was released was eaten by an eagle. Two cranes of three years old started migration. They were seen visually in Kurgan Region, south of Western Siberia, and these two cranes (Logish and Kain) were sighted in the north of Kazakhstan.

In my opinion, joint actions by Siberian Crane centers, in cooperation with Iran, can lead to positive results, and we in Iran are ready for this cooperation.

### **Demoiselle Crane**

Demoiselle Cranes, which have two wintering populations in India and North Africa, are usually seen as passage migrants in Iran, with the population flying to Africa being seen in the wetlands of northwestern and western Iran during migration. They then travel through Iraq and the Arabian Peninsula, crossing the Red Sea, to winter in Sudan, Eritrea, and Ethiopia.

In October 2023, Demoiselle Cranes were first observed in the southern provinces of Iran in Hormozgan and Bushehr provinces in the northern Persian Gulf. Two adults and two juveniles were recorded in Bushehr province. In Hormozgan province, a Demoiselle Crane that was caught in a storm was released by environmentalists after a few days of care and returned to the wild.

On September 8, 2025, 350 Demoiselle Cranes were observed in the Siran Goli Wetland in Naqadeh County, West Azerbaijan Province of Iran. This year, this wetland is almost dry, and they were present in this wetland for about a week. In some years when rainfall is good, about 1,000 Demoiselle Cranes rest in these wetlands for a longer period of time on their migration route.



**Figure 2:** Demoiselle Crane, Jask, Hormozgan province, North of Persian Gulf in southern Iran. This bird was landed due to storm, then was released after some treatments. Photo by Hossein Bar Azordeh

Lake Urmia and the wetlands of northwestern Iran are the most important resting places for Demoiselle Cranes in Iran. So far, Demoiselle Cranes have not been recorded in southwestern Iran, particularly Khuzestan Province, where there is a possibility of sighting. However, this species has been recorded as rare in Kuwait, along the coast and in desert areas with water pools. One hundred were observed at Al Abraç in mid-September 1996. Kuwait is adjacent to Khuzestan Province. These cranes were probably on their way to migrate to North Africa. In southeastern Iran, in Sistan and Baluchestan province, it is also possible to see this species on its migration route to India. Unfortunately, cranes are heavily hunted on their migration routes in Iraq. During my travels to Iraq, local hunters around Hur Al-Jabaish in southern Iraq spoke of the popularity of hunting Eurasian Cranes and Demoiselle Cranes (Arabic: الكركبي), and there have also been reports and images of their hunting in the Arabian Peninsula posted on social media.

Cranes are very beloved birds in Iran, and November 5 has been named National Crane Day in Iran by crane enthusiasts due to the gathering of this species in the Meqan Wetland of Arak. The Iranian people also have a great attachment to Omid and the Siberian Cranes and hope that more efforts will be made to revive the Western Siberian Crane population, which of course depends on international cooperation.

We hope that through education, awareness, and protection, we will be able to take better care of these beautiful birds in Iran and West Asia, and that future generations will be able to observe the crane's amazing flight and hear their lovely voice in the sky.

**Photos:**



Keramat Hafezi Birgani and rangers of the Department of Environment of Mazandaran Province (from left to right): Mojtaba Alizadeh, Abdollah Dadbin and Seyed Masoud Hashemi with the empty transfer box from the CBCCC Belgium in Fereydounkenar—the wintering site of Omid in Mazandaran Province, Iran.



Siberian Crane family wintering in the wild south of the Caspian Sea. The last pair was seen by Sedegh Sadeghi-Zadeghan in winter 2003/2004. Photo by George Archibald



Omid and Roya in south of Caspian Sea, Northern Iran. Photos by: Keramat Hafezi Birgani

# THE DEMOISELLE CRANE STATUS IN THE EUROPEAN PART OF THE RANGE IN 2025



**Elena Ilyashenko, Valentin Ilyashenko, Kristina Kondrakova**

Severtsov Institute of Ecology and Evolution Russian Academy of Science, Moscow, Russia; Flint Crane Working Group of Eurasia

Annual monitoring at the Demoiselle Crane (*Anthropoides virgo*) breeding sites in the European part of its range (in Central Ciscaucasia, the Caspian Lowland, and the Trans-Volga Region) has revealed a continuing decline in numbers both in optimal habitats in the Republic of Kalmykia and in suboptimal areas in adjacent Volgograd and Saratov Regions. For example, in the Republic of Kalmykia (the Central Ciscaucasia), along an 800-km route in the area with the highest population density, 102 sightings of 297 Demoiselle cranes, including 86 pairs and 47 chicks, were recorded in the summer of 2024. In 2025, on the same route only 35 sightings of 102 individuals, including 18 pairs and 24 chicks were recorded, representing a two- to threefold decline in numbers (Fig. 1).



**Figure 1:** A pair of the Demoiselle Crane. Photo by K. Kondrakova

In June 2025, in Volgograd and Saratov Regions along a 1,400-km route, 48 individuals, including 12 pairs, 12 chicks, and 12 non-breeding individuals, were counted in suboptimal habitats. Number of Demoiselle Cranes decreased in 20 times since beginning of 2000s (Chernobai 2011). Same as in Kalmykia, the main threats include ongoing drought and depleted water resources (Fig. 2) and intensive plowing of the



**Figure 2:** Lack of water in the cow drinking bowls. Photo by E. Ilyashenko



**Figure 3:** Intensive steppe plowing. Photo by E. Ilyashenko

Severe overgrazing around livestock farms (Fig. 4), on the one hand, and the overgrowth of steppes with tall, dense vegetation due to warm winters, on the other (Fig. 5), lead to a reduction in suitable nesting sites. Predation by untethered herding dogs poses a direct threat to chicks (Fig. 6).



**Figure 4:** Overgrazing around livestock farms.  
Photo by E. Ilyashenko.



**Figure 5:** Overgrowing steppe.  
Photo by E. Ilyashenko



**Figure 6:** Dogs chase Demoiselle Cranes.  
Photo by E. Ilyashenko

In August 2024 and 2025 the censuses were conducted at a pre-migration staging area in Manych Lake Basin, where all Demoiselle Cranes from the European part of the range from the Ciscaucasia to the Cis-Urals and from Western Kazakhstan gather before migration to Sudan. They showed a decrease in numbers from 30,000-40,000 individuals in the late 1990s (Sotnikova et al, 1991, Bukreeva 2003) to 3,000-4,000 individuals currently (Abushin 2024), 10 times less.

In 2025, cold weather and rain in May and June, and abnormally hot weather in July, resulted in low breeding success: according to censuses at the staging area in August in Manych Lake Basin, the number of chicks in flocks was 8-10%, compared to an average of 13-15% in previous years. In June, of 23 pairs with chicks, five had downy chicks from repeat clutches (Fig. 7), the survival rate of which during the pre-migration and migration periods is very low. A mass hatch of black flies in June also impacted breeding success.



**Figure 7:** A pair of Demoiselle Cranes with chicks from repeated clutch in middle June 2025. Photo by E. Ilyashenko

The field survey in 2025 showed that most of the water bodies in the Volgograd and Saratov regions, where, according to tagging data, Demoiselle Cranes were registered in August 2019, disappeared as a result of drought and the cessation of filling artificial ponds with water. In Kalmykia, Lake Manych Basin still offers enough freshwater for the Demoiselle Cranes, along with roosting sites on large salt lakes and grain fields for feeding. However, a sharp overall decline in population due to illegal hunting along the migration route has resulted in Demoiselle Cranes remaining in only two water bodies near their roosting sites in 2024 and 2025 (Fig. 8, 9).



**Figure 8:** Demoiselle Cranes in an artesian flood along with sheep. Photo by E. Ilyashenko



**Figure 9:** Demoiselle Cranes in an artesian flood. Photo by M. Rodionov

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# TOWARDS CRANE-FRIENDLY AGRICULTURE: A PROPOSED PACKAGE FOR HABITAT MANAGEMENT IN MIGHAN WETLAND, IRAN



**Mahmood Kolnegari**

## **Introduction**

In recent years, the concept of “bird-friendly agriculture” has gained worldwide attention as a modern approach to the sustainable management of farmlands. Successful examples in Europe, especially in northern and central countries, have demonstrated that adjusting cropping patterns, maintaining open landscapes, and reducing chemical inputs can significantly affect the presence and survival of migratory birds. In India as well, initiatives centered on “crane-friendly agriculture” have succeeded in transforming the long-standing conflict between farmers and cranes into sustainable coexistence. This approach seeks to integrate the ecological needs of birds with the economic use of farmland so that farmers’ interests are preserved and habitat quality for birds is also improved. It should be noted that some well-known sustainable farming practices and integrated pest and disease management methods such as multi-cropping and planting natural hedgerows can actually reduce the suitability of habitats for cranes. Therefore, crane-friendly agriculture requires its own specific techniques, sometimes tailored to each geographic region.

Among farmland- and rangeland-dependent birds, the Eurasian Crane (*Grus grus*) holds a special place. During winter, this species relies heavily on agricultural fields and, to a lesser extent, rangelands. Its life cycle in many regions is deeply intertwined with agricultural activities. My field surveys in the Mighan Wetland near Arak revealed that this site, hosting about 8,000 individuals, is Iran’s most important wintering ground for the Eurasian Crane (Figure 1). Mighan Wetland is surrounded by agricultural lands and rangelands, where the enforced coexistence of cranes and farming highlights the need to develop a framework for crane-friendly agriculture in Iran, particularly in Markazi Province.

After two decades of research in Mighan, I presented a package of crane-friendly agriculture strategies to the Department of Environment. The strategy covers farming, horticulture, plant protection, and traditional livestock management. Because local farmers around Mighan do not view cranes negatively as crop pests, and even believe their droppings enrich the soil, the chances of successful implementation are high. In

this framework, the Department of Environment and the Ministry of Agriculture are the key authorities responsible for guiding and supervising crane-compatible cropping systems and reporting to the National Environmental Fund to ensure that participating farmers benefit from government incentives.

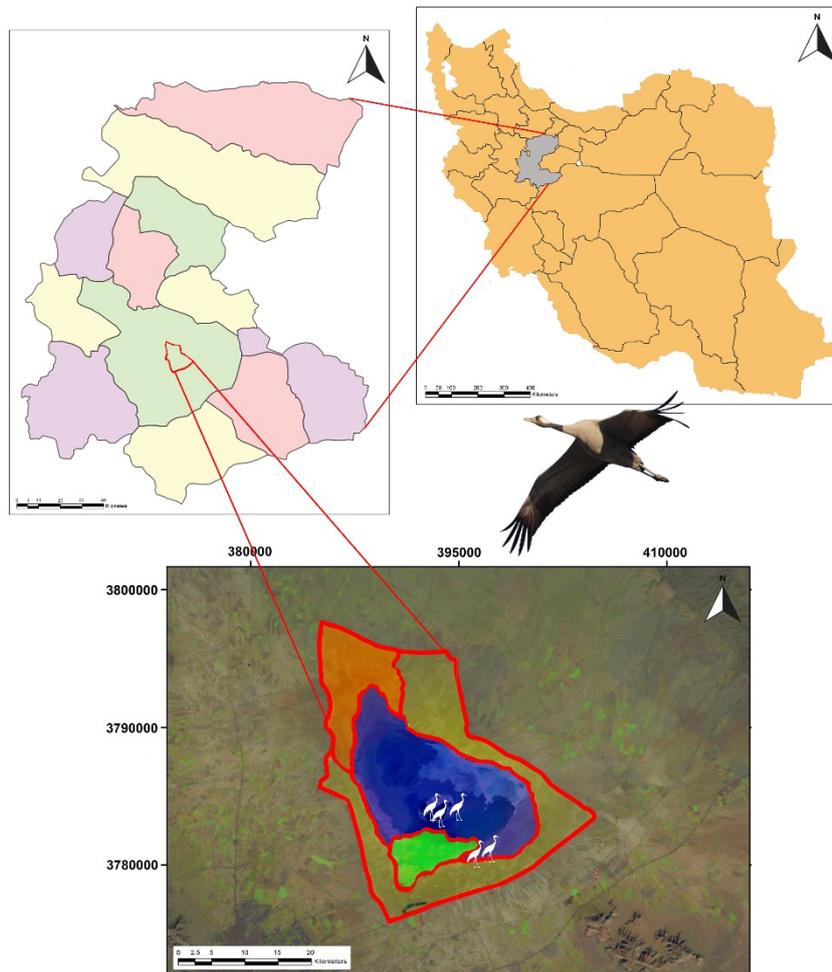
### **Mighan Wetland**

The Mighan Wetland, located in Markazi Province, is one of Iran's most important habitats for waterbirds and waders. It is recognized as the country's primary wintering ground for the Eurasian Crane (Figure 2). It is a saline desert wetland with unique ecological features. The immediate surroundings are bordered by desert areas that serve as the main source of dust storms. To combat wind erosion and dust generation, in recent decades the Natural Resources and Watershed Management Organization has planted desert and halophytic species such as *Atriplex* spp., *Haloxylon* sp. and *Nitraria schoberi*.

Further away from the wetland, extensive farmlands provide the main feeding grounds for cranes. The combination of the wetland, desert, and surrounding farmland makes Mighan a unique ecological system, where the linkage among wetland, desert belt, and agricultural areas creates both opportunities and challenges for crane habitat management.



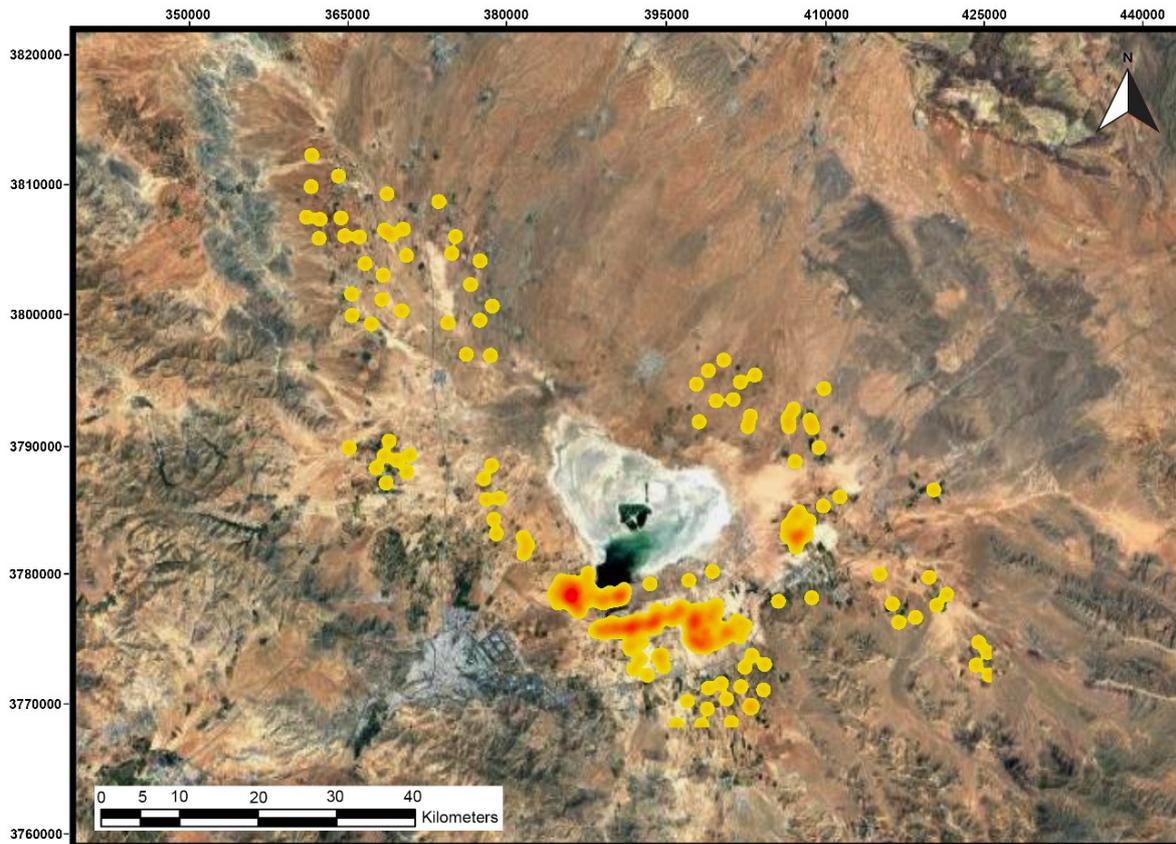
**Figure 1.** Eurasian Crane (*Grus grus*) in Mighan Wetland, Central Iran in winter 2020.



**Figure 2.** Location of the Mighan Wetland: maps show Iran, Markazi Province (in grey, upper right), and the Mighan Wetland in Arak County. Zoning of the area is based on ecosystem type: blue = saline lake zone; green = reedbed zone with freshwater (fed by the wastewater treatment plant outflow); light yellow = plain zone; orange = desert zone. The roosting sites of cranes, located in the lake zone and at the edge of the reedbed zone, are marked with crane symbols.

### Determining the distribution areas of cranes

Cranes roost at night in the Mighan Wetland vicinity (i.e. resting area) but during the day fly to surrounding farmlands and rangelands up to 60 kilometers away (Figure 3). My study of crane distribution within a 60-kilometer radius of the Mighan Wetland revealed that wheat fields, and to some extent barley fields, hosted the highest densities of cranes. These fields were especially favored when they lacked hedgerows or poplar (*Populus nigra* and *Populus alba*) shelterbelts, and when they were distant from villas, factories, or enclosed farmland. Lightly grazed rangelands also proved suitable feeding areas. In contrast, rangelands where desert shrubs such as *Nitraria schoberi* and *Atriplex* spp. had been planted in recent years were largely avoided by cranes.



**Figure 3.** Feeding area of Eurasian Crane (*Grus grus*) in Arak County, Markazi Province, Iran. Note the Mighan Wetland in the middle of the map.

## Main objectives of crane-friendly agriculture in Mighan

### 1. Maintaining open landscapes

Cranes require open habitats with wide visibility for feeding and daily resting. Barriers such as tree plantations, hedgerows, fencing, walls, villas, factories, and fragmented farmland reduce habitat suitability. Similar threats also affect night roosting areas: excessive growth of reeds (*Phragmites australis*) and cattails (*Typha latifolia*) due to nutrient enrichment (i.e. eutrophication) decreases visibility and limits safe roosting.

### 2. Conserving food resources

Conversion of croplands into orchards or non-agricultural land significantly reduces feeding habitat. Multi-cropping or mixed planting also lowers attractiveness by altering ground cover. Within crane-friendly agriculture, large continuous wheat fields are recommended, avoiding conversion to orchards. Overgrazing of rangelands also threatens food availability and requires careful management.

### 3. Ensuring food safety for cranes

Although the major period of pesticide application in wheat and barley fields does not generally coincide with the wintering season of cranes, fungicidal seed treatments still pose significant risks. Treated seeds may be directly consumed by cranes, exposing them to poisoning, and should therefore be avoided or replaced with low-toxicity alternatives (i.e. higher LD50 for birds). While insecticide use against wheat pests such as sunn pest (*Eurygaster integriceps*) and aphids is not common in autumn, whenever it occurs, the timing may overlap with the presence of cranes in the fields. Of particular concern is the use of banned chemicals such as diazinon, which is highly toxic to birds. The extended stay of cranes in some years until May further increases their risk of exposure.

### 4. Securing habitat safety

Cranes show no fear of livestock herds in rangelands, but livestock dogs often chase and disturb them. Free-ranging or feral dogs also pose risks, making dog population management a priority.

### Involved Institutions and Responsibilities

- *Department of Environment*: Coordinates government bodies and local communities, develops a national and provincial action plan, supervises implementation, and submits progress reports with corrective recommendations.
- *Ministry of Agriculture*
  - ◆ Land Affairs Office: Enforces the law against farmland conversion (1995 Act), prevents wall-building and subdivision of fields.
  - ◆ Crop Production Office: Promotes crane-compatible cropping (traditional wheat and barley), discourages multi-cropping and mixed orchards, and supports organic fertilizers.
  - ◆ Plant Protection Office: Restricts use of highly toxic chemicals (low LD50 for birds), particularly fungicidal seed treatments, insecticides, and herbicides.
  - ◆ Animal Husbandry Office: Encourages trained dogs that do not disturb cranes, and prevents shepherds from abandoning dogs, which may become feral.
- *Natural Resources and Watershed Management Organization*: Accounts for crane needs in rangeland capacity, prevents overgrazing, halts shrub planting in rangelands, and promotes rewilding with native grasses (e.g., *Stipa spp.*).
- *National Environmental Fund*: Provides incentive packages for farmers who adopt crane-friendly agriculture.

- *Ministry of Industry, Mine and Trade*: Avoids industrial development in farmlands and rangelands.

## **Discussion**

The conservation of Eurasian Cranes in Iran largely depends on the Mighan Wetland in Markazi Province, which hosts the largest wintering population in the country. The framework outlined here represents a strategic package for achieving crane-friendly agriculture in this habitat. Although still at the proposal stage, it is hoped that the national and international importance of Mighan will encourage adoption by the Department of Environment and other relevant bodies.

An important factor is that local farmers do not hold negative attitudes toward cranes. This social acceptance provides a strong foundation for successful implementation. If adopted, the package would not only strengthen crane conservation in Mighan but also serve as a model for coexistence between agriculture and birds in other parts of the Middle East.