SIBERIAN CRANE - STATUS REPORT AND INDIAN SITUATION

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Introduction

Among the 13 crane species of the subfamily Gruinae the Siberian Crane (*Grus leucogeranus*) has the distinction of being the most genetically distinct as evidence by the structure of the its DNA, its physical features and unusual behaviour. The enormous beak out distances all other cranes to give it a more stork like visage. Where as most other cranes have a trumpet like voice, that carries for great distances, the voice of Siberian Crane is soft and flute like, a character which, when combined with gleaming white plumage, bright red face and salmon legs endears the species to many as the "lily of birds". Unfortunately, although outranked in rarity by Whooping Crane and the Red crowned Crane, the Siberian Crane is perhaps the most endangered of all the cranes as a consequence of its inflexible dependence on wet lands along three migration corridors that span the Asian continent.

The Siberian Crane uses its enormous beak to dig in wet mud, where it predominantly forages on tubers of sedges and fleshy roots of other aquatic plants. If the mud is dry it is difficult for the Siberian Crane to penetrate the substrate. Consequently, these cranes require wide expanses of shallow water, where tubers and roots are plenty. With the explosion of human population in Southern Asia and associated conversion of wet land to crop land, the number of Siberian cranes have declined in the current century from what once may have been thousands of birds to only few birds in the western and central flock. The eastern population however, is still holding about 3,000 birds, but that is also not free from threat.

The main breeding ground of the Siberian Cranes are Tundra and Taiga region in the Eastern Siberia and Taiga wet land just east of the Ob river in Western Siberia. The Eastern group migrates to China. It is perhaps the Ob river group that forms the western flock, a part of which come to India.

Out of the 3 recognised western populations of Siberian Crane, the population visiting Pakistan is reported to be extinct about 30 years back. The population visiting Iran has remained more or less fixed between 8 - 11 in number over the last 10 years. The population of Siberian Crane wintering in India dwindled at a very fast rate over years. As against reported 200 birds which used to visit Bharatpur about 30 years back the population declined to 63 in the year 1974, 41 in the year 1984, 6 in the year 1992, and 5 in the year 1993.

Though specific causes of the decline are yet to be ascertained, but it is apprehended that the reasons could be the following :

(a) Shrinkage of breeding ground of this specific population in Siberia.

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(b) Shrinkage/quality deterioration of the wintering grounds.

(c) Hunting/poaching in the migration route and staging places.

Materials and Methods

As a safeguard against extinction of species Russian, American and German scientists collaborated in creating 3 captive flocks of Siberian Cranes - one at Okha Nature Reserve in Russian Federation, other at International Crane Foundation in the United States and the third at Vogel Park, Wallsrode in Germany. The successful captive breeding was obtained by using artificial light to simulate the condition to which wild cranes are exposed to in their breeding grounds. Today there are approximately 60 birds in captivity in these three areas. The rearing techniques of such birds are rather unusual in the sense that cage chicks are reared in visual and vocal isolation from humans. They are taught to feed with the use of puppets that resemble the head and neck of adult crane. The crane costumed human leads the juveniles into wilds where they exercise and learn to forage on natural items. Sandhill cranes experimentally reared in the matter are reported to have joined the wild cranes and have migrated with them and when matured have paired and reproduced with wild cranes.

The first such experiment on Siberian Crane was taken up in the year 1991 when isolation reared Siberian Cranes were released in the breeding ground of Siberia. Three birds reared in 1991 failed to join the wild cranes because of inadequate time for the development of social bondage between the released birds and the wild birds.

In 1992 a detailed programme for conservation of western flock of Siberian Crane was taken up in collaboration with (USA), USSR and Japan. Two approaches were followed :

(i) Releasing isolation reared Siberian Crane chicks in the Kunovat river basin of Siberia to see if they socialise and migrate with the wild Siberian Crane to the wintering ground in India.

(ii) Releasing of 2 hand reared Siberian Crane juveniles in the wintering ground of Keoladeo National Park of Bharatpur to study if they combine with the wild cranes and return to the breeding ground in Siberia.

The objectives of both the experiments were the same. It was meant to identify the specific flock which visits India from Siberia in order that conservation measures for preservation of the migration route and the staging grounds can be taken and if necessary, the wild population increased by artificial supplementation through release of isolation reared Siberian Crane in captivity into the wild habitat.

In the first experiment, two isolation reared three months old Siberian Crane chicks were released in Kunovat site of Siberia in the first week of August, one of which was fitted with PTT transmitter, along with a common crane. The birds got mixed with the wild flock after 15 days and took off from Siberia in the end of August. The satellite telemetry information indicated their migration upto early October whey they had reached Iran-Afghanistan border, and thereafter the contact was lost.

In the second experiment, two hand reared Siberian Cranes juveniles were

brought to India in the second week of February and were released in the field site at Bharatpur in the end of February where the wild flock numbering five, which arrived in the second week of Jan. 1993 was wintering. Unfortunately, the wild flock took off from the wintering ground of Bharatpur in the first week of March before the released bird got chance to mix with the wild flock, and the released birds were left behind. These birds are now kept in Jaipur Zoo in the State of Rajasthan. Three common cranes which were found to winter in Bharatpur close to Siberian Crane area were, however, fixed with PTT transmitter, and they took off from Bharatpur in the month of April 1993.

These three Euro-Asian common cranes movement on migration was monitored and for the first time revealed the exact migration route at least with respect to some of the cranes that winter in India. Some important stop-over points were also known that had not been documented previously. The migration route of these common cranes from India to Siberia is shown in the map (Figure 1). These three Euro-Asian common cranes are currently staying on their breeding area in Southern Siberia near the headwaters of Ob river. As the population of Siberian Crane wintering in India is on the verge of extinction, it may become necessary to use the Euro-Asian cranes as guide birds for the juvenile Siberian cranes to be released in Siberia in this year since migration in crane is a learnt behaviour. Similarly, the Euro-Asian cranes wintering in Kaladeo Ghana National Park will also be fitted with satellite transmitter this year for coverage of more areas, for a more comprehensive picture about the migration of cranes visiting India.

If the three common cranes fitted with PTT transmitters return back to India this winter and if the Siberian Cranes also visit India this year, experiment with releasing of hand reared Siberian Cranes in Bharatpur will be repeated this year also taking care that the released hand reared Siberian Cranes get adequate time to mix up with the wild Siberian cranes facilitating their return to the breeding ground of Siberia. If this programme succeeds, it is expected that specific conservation programme for the western flock of Siberian Crane visiting India will be possible to be formulated in collaboration with Russia, ICF (USA), Japan and other countries involved in the migration route and staging areas of the species.

Action plan for Individual countries

In the Central Migratory Species convention at Bonn (Germany) held in May 1993 a draft memorandum of understanding for conservation of Siberian Crane has been developed for the concerned range countries and the collaborators. The draft Memorandum of Understanding which identifies basic causes for depletion of Siberian Crane population specially belonging to the western flock and suggests action plan for individual countries are mainly the following :

(a) Provide strict protection for Siberian cranes in their respective countries;

(b) Implement the provisions of the Action Plan for the Siberian Crane, as detailed for each as a basis for the conservation of the species;

(c) Facilitate the expeditious exchange of relevant scientific, technical and legal information in order to co-ordinate conservation measures;

Figure 1

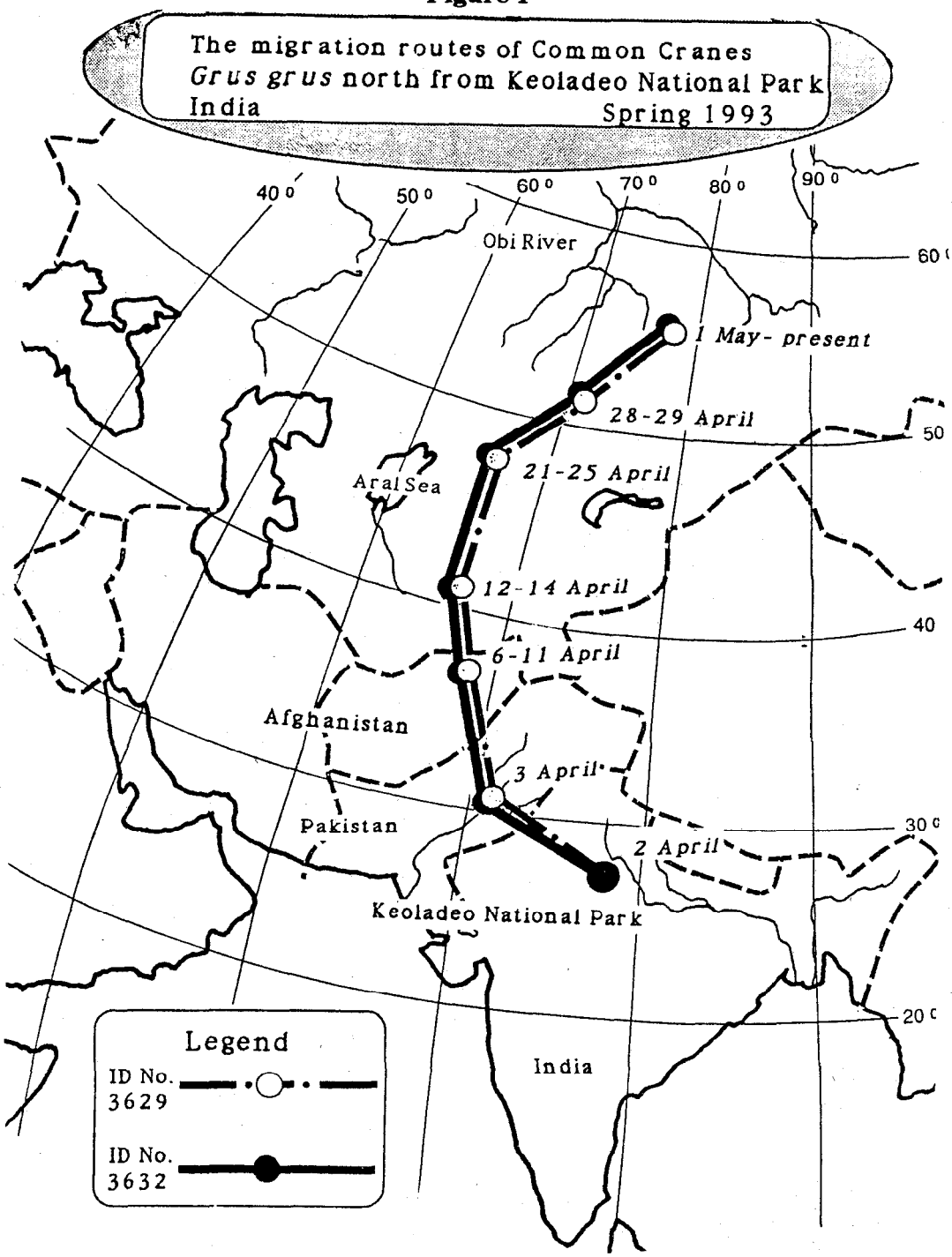

The migration routes of Common Cranes
Grus grus north from Keoladeo National Park
India Spring 1993
40°
50°
60°
70°
80°
90°
60°
50
40
30°
20°
Obi River
1 May- present
28-29 April
21-25 April
Aral Sea
12-14 April
6-11 April
Afghanistan
3 April
Pakistan
2 April
Keoladeo National Park
India
Legend
ID No. 3629
ID No. 3632

Plate 1

Wild Siberian Crane in Siberia

Plate 2

Wild Siberian Crane in Bharatpur

Plate 3

Transport Cage of Bird

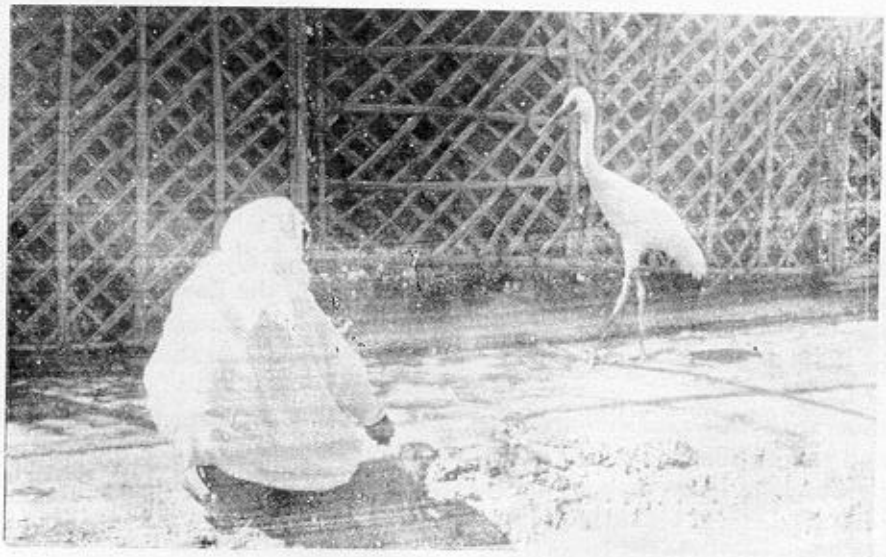
Plate 4

Reared Crane with hood before mounting PTT

Plate 5

PTT being mounted in hand-reared Siberian Crane

Plate 6



Hard-reared Siberian Crane in Jaipur Zoo

(d) Develop, within one year a longer-term Species Conservation Plan for the species for eventual inclusion in the Asian/ Australasian Waterfowl Agreement being developed under the auspices of the Bonn Convention. This Species Conservation Plan shall include inter alia;

(i) Actions to protect the traditional breeding, stop-over and wintering areas of the Siberian Crane;

(ii) Priorities for the identification of key sites for breeding, migration and wintering Siberian cranes and the preparation of national action plans;

(iii) Detailed proposals for monitoring and research;

(iv) Proposals for the establishment of a funding mechanism for conservation measures.

The specific action plans for individual countries are given below :

Action Plan for India

1. Carry out extensive surveys of wetlands within the historic wintering range of Siberian cranes and, if any birds are located in new sites, document them and arrange for their protection;

2. Continue with the experimental release of hand-reared Siberian cranes in the wintering grounds of India with a view to enriching the wild stock, and attach Platform Terminal Transmitters (PTTs) on them to study their migration routes in collaboration with the International Crane Foundation (ICF) and Japan Wildlife Research Centre (JWRC).

3. If more than four Siberian cranes visit India annually, from 1998-1999, consideration should be given to fitting a wild pair in the wintering grounds of India with two Japanese-made PTTs in order to identify their migration routes, staging areas and breeding grounds in the Russian Federation. Such action may be taken only after extensive testing on common cranes and hand-reared Siberian cranes has demonstrated the technique to be effective and unlikely to be detrimental to wild Siberian cranes.

Action Plan for Pakistan

1. Prohibit the shooting of all cranes.

2. Create awareness about the urgency of conserving Siberian cranes.

3. Encourage research aimed at finding the migration routes and staging areas of Siberian cranes in Pakistan and identify the threats, if any, to the cranes;

4. Assist in satellite tracking of Siberian cranes on their migration routes.

Action Plan for Iran

1. Conduct an annual aerial survey of wetlands of the East Caspian lowlands to determine the numbers and the distribution of Siberian cranes;

2. At each confirmed wintering area, post game guards to ensure that the spring "shoot-out" occurs after the Siberian cranes have migrated;

3. Invite crane specialists from ICF to capture and attach PTTs to one or two Siberian cranes, employing techniques proven effective with common cranes, and

use satellite telemetry to determine the migration routes, staging areas and breeding grounds of the western flock.

Action Plan for Russian Federation

1. Continue releasing isolation-reared Siberian Crane chicks and juveniles near wild Siberian cranes and monitor their movement using conventional radio transmitters.

2. Continue to release in the wild, using isolation-rearing techniques, Siberian Crane chicks hatched from captive-produced eggs, and fit these birds with PTTs with a view to determining the migration route of the central flock to India.

3. Search for the nesting grounds of cranes of the western flock fitted with PTTs in India and Iran and, when they are discovered, take appropriate measures to protect the sites without delay.

Action Plan for International Crane Foundation

1. Furnish each Range State with data obtained so far regarding resting places of Siberian cranes occurring in the migration route along with the names of the places and duration of stay in each place.

2. Communicate to each of the Range States as soon as possible, weekly satellite data received during the migration of Siberian cranes.

3. Continue with the experimental release of hand-reared Siberian Crane chicks and juveniles in both breeding and wintering grounds of the Range States and study their movement on route with PTT transmitters.

4. Furnish to the Range States data on migration and the final destination of three PTT fitted common cranes from India, which departed in early 1993, with a view to facilitating further action by the parties concerned.

It has also been decided to address the concerned Ministers of individual countries by the Chairman of the CMS Standing Committee for preparation of a rescue plan for Siberian Cranes, till a formal agreement is developed after completion of the ratification of the memorandum of understanding.

Indian concern for conservation in earlier era was restricted primarily to major wild animals like Tiger, Lion, Elephant and Rhino which are considered as flagship species with respect to certain habitats. The results obtained with respect to these four major species have been encouraging in the sense that the population of these species have been brought from critical or endangered status to some reasonable number and stability.

This is for the first time that a serious effort has been made with respect to conservation of a bird species which has reached a highly critical stage by bringing in India the leading developed countries of the world like USA, Japan and Russia to carry out the advanced type of experiment. The support of Germany to this effort is also there. If as a result of this experiment we can save the species of Siberian cranes from total extinction in India it would be an achievement on the part of the custodians, the scientists and non-government organisations having concern on conservation, and would also be an illustration of international cooperation for the purpose of species conservation and protection of bio-diversity in general.

SUMMARY

The number of Siberian Crane (*Grus leucogeranus*) has declined in the current century. As against the figure of 200 birds which used to visit Bharatpur, only five were reported in the year 1993. Experiments were conducted to identify the specific flock which visits India from Siberia and whether the population increased by artificial supplementation through release of isolation seared Siberian Crane in captivity into the wild habitat. The exact migration route of common cranes from India to Siberia has been noticed. Specific action plan for individual countries has been given.

शिविरियाई क्रौंच - इसकी स्थिति तथा भारतीय परिस्थितियाँ

एस० सी० दे

सारांश

वर्तमान शती में शिविरियाई क्रौंचों (*ग्रस ल्यूकोगेरानुस*) की संख्या घटी है। भरतपुर आने वाले क्रौंचों की संख्या पहले 200 हुआ करती थी, वह अब 1993 में केवल 5 बताई गई है। शिविरिया (साईबेरिया) से भारत में आने वाले विशिष्ट झुंड की पहचान करने तथा यह जानने के लिए कि क्या बंदी बनाकर पृथक किए शिविरियाई क्रौंच उनमें छोड़कर वन्य प्राकृतावास में उनकी संख्या में कृत्रिम वृद्धि की जा सकती है या नहीं कुछ संपरीक्षण किए गये हैं। भारत से शिविरिया जाने वाले सामान्य क्रौंचों के वास्तविक प्रव्रजन पथ की जाँच की गई है। पृथक-पृथक देशों के लिए विशिष्ट कार्य योजनाएं भी बताई गई हैं।