

VOLUME 8 ISSUE 1 2022

ISSN 2454-3055



**INTERNATIONAL
JOURNAL OF
ZOOLOGICAL
INVESTIGATIONS**

***Forum for Biological and
Environmental Sciences***

Published by Saran Publications, India



International Journal of Zoological Investigations

Contents available at Journals Home Page: www.ijzi.net

Editor-in-Chief: Prof. Ajai Kumar Srivastav

Published by: Saran Publications, Gorakhpur, India



ISSN: 2454-3055

Status, Distribution and Food Availability for Sarus Crane (*Grus antigone*) in Hassanganj and Bangarmau Tehsil under Unnao District, Uttar Pradesh, India

Rani Varsha*, Sinha Ankit and Kanaujia Amita

Biodiversity and Wildlife Conservation Lab, Department of Zoology, University of Lucknow, Lucknow, India

*Corresponding Author

Received: 19th April, 2022; Accepted: 25th May, 2022; Published online: 13th June, 2022

<https://doi.org/10.33745/ijzi.2022.v08i01.066>

Abstract: Almost all crane species rely on wetlands at some time during their annual life cycle, primarily for nesting but also for foraging and protective cover. Many species also have close affiliation with agricultural fields. The sarus cranes have coexisted with wetlands for thousands of years. The sarus crane is the tallest flying bird as categorized as Vulnerable species in the IUCN Red List of Threatened Species. Sarus crane (*Grus antigone*) is a large non-migratory bird. Their primary habitat included wetlands, marshes and water bodies. But now these sarus cranes species have adapted to using agricultural lands and crops in some way – consuming waste grains or other crops, feeding in rice paddies, or foraging in pastures. The regular observation was done from July 2020 to September 2021 in Hassanganj and Bangarmau tehsil under Unnao district of Uttar Pradesh, India. Total number of individuals was counted by using point count method. Total number of 526 sarus crane were observed --Adults (384) and Juvenile (142). Most of the sarus were observed in agricultural fields and water bodies. Present study concluded that there are moderate number of sarus crane in Unnao district but they are under threat due to encroachment of wetlands and expanding agriculture. They play important role in maintaining ecological balance. Crop fields provide abundant, predictable, and often high-energy foods that can be particularly valuable during flight and mating dance behaviour and have literally fueled their growing populations. They are eternal symbol of unconditional love, devotion and good fortune with high degree of marital fidelity.

Keywords: Distribution, Food, Sarus, Unnao, Threatened

Citation: Rani Varsha, Sinha Ankit and Kanaujia Amita: Status, distribution and food availability for sarus crane (*Grus antigone*) in Hassanganj and Bangarmau Tehsil under Unnao District, Uttar Pradesh, India. Intern. J. Zool. Invest. 8(1): 592-598, 2022.

<https://doi.org/10.33745/ijzi.2022.v08i01.066>

Introduction

The sarus crane *Grus antigone* (order Gruiformes and family Gruidae) is the tallest flying bird in the world with a large wing span about 2.5 meters (8 feet). It is widely distributed along the Gangetic plain in northern India. It is listed in Schedule IV of Wildlife Protection Act 1972 and as Vulnerable in

IUCN Red List. Sarus crane are non-migratory birds mostly found in pairs of 2 or 4. They are often seen in areas close to human habitations. Their most preferred habitats are marsh areas filled with water during rainy season, the abundantly irrigated paddy rice fields, river banks

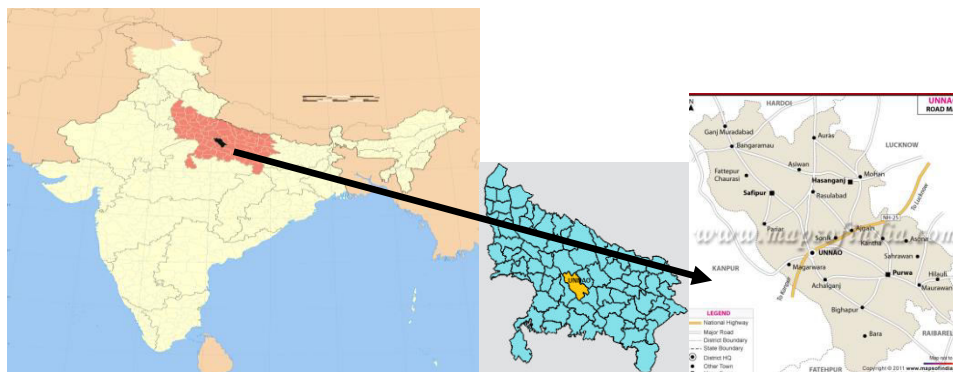


Fig. 1: Map of India showing Unnao district.

and large rain puddles. They show a very defensive and protective behaviour towards their province.

The sarus cranes are found in Uttar Pradesh, Bihar and the Terai belt of India and is attractive and friendly with human beings. They sometimes even attack strangers who enter their associated fields or water bodies. They are mostly observed in pairs, one male and one female throughout the year but in large groups of hundreds during congregation period to chose their mates. They display beautiful mating dance during breeding season so as to attract their partner. Roosting, preening and vocalization are few of their behavioral pattern throughout the day. The bird is state bird of Uttar Pradesh, India.

In the present study the status, distribution and food availability for sarus crane in Hassanganj and Bangarmau tehsil under Unnao district of Uttar Pradesh, India have been discussed.

Materials and Methods

Unnao (Fig. 1) comes under Kanpur district where the study was conducted from Feburary 2020 to September 2021 in selected villages of Hassanganj and Bangarmau tehsils. This district lies between 26°.33'0" N and 80°.28'48" E. The district has 6 Tehsils and 16 blocks. Unnao, Hassanganj, Safipur, Purwa, Bighapur and Bangarmau are the six tehsils of Unnao city. The maximum temperature recorded was 45.5 C and minimum was 2.5 C. The rainfall in the study area often showed irregular nature and at many times the area experienced nil rainfall also. The average annual rainfall of the

district is 83.8 mm. Almost 90% of annual precipitation occurs during the period mid-June to September. There are 156 villages in Hassanganj and 82 villages in Bangarmau tehsil at present (Fig. 2). The details are given in Table1.

The method used was Line transcit and point count method along the highway on a vehicle using binoculars and cameras. The study was conducted during early morning hours (6 am to 8 am) and in evening time (4.00 to 6. 00 pm) near the sarus crane inhabits in the selected villages (Table 2). The sarus cranes were counted directly from their roosting, foraging and breeding sites which covers the agricultural fields, wetlands, river side and ponds through direct observations. .The survey was done with help of local people and forest staff. Maps were created using ArcGIS software and statistical analysis were done.

The secondary data information was gathered from the published literature such as management plan, previous studies on the sarus crane, technical report, research journals, review articles, books, the world wide database magazines and newspaper.

Results and Discussion

The most preferred habitat of sarus cranes were near water bodies, in agricultural fields, near canals, village ponds and the swamps. They were seen more frequently feeding and resting in the paddy, wheat, mustard, lentil and potato fields. During the study, the availability of water was a cause of sarus crane to be seen easily in paddy crop fields in breeding season. In evening hours

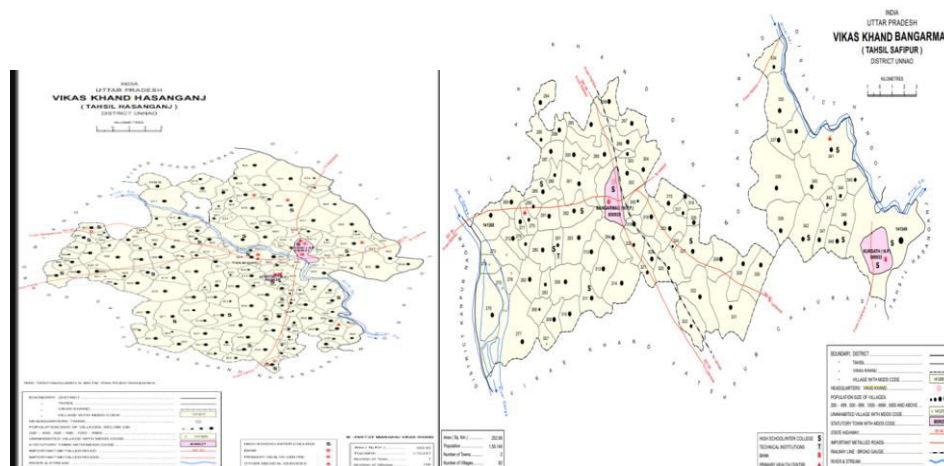


Fig. 2: Map of Bangarmau and Hassanganj tehsils of Unnao district showing different villages.

Table 1: Total area of Bangarmau and Hassanganj tehsil under Unnao district

S. No.	Tehsil	Block	Area in km ²	Headquarter of Tehsil	No. of villages
1.	Hassanganj	Hassanganj	1.117 km ²	Hassanganj	156
		Nawabganj	1.62 km ²	Hassanganj	
2.	Bangarmau	Bangarmau	579 km ²	Bangarmau	82
	Total area	-	581.737km ²	-	

Table 2 : GPS locations of villages where sarus crane were seen in Bangarmau and Hassanganj tehsils

S. No.	Tehsil	Village	Latitude	Longitude
1	Bangarmau	Kudina	26.81	80.334528
2	Bangarmau	Khadrai	26.810278	80.354694
3	Bangarmau	Murtzapur	26.815278	80.324944
4	Bangarmau	Kunda	26.810278	80.355833
5	Bangarmau	Aamiyaa	26.779722	80.348333
6	Bangarmau	Matlabpur	26.815833	80.324444
7	Purva	Samanarpur	26.468861	80.759167
8	Hasanganj	Jagdishpur	26.748056	80.580833
9	Hasanganj	Govindpur	26.932778	80.540833
10	Hasanganj	Dhaora	26.764167	80.5825
11	Hasanganj	Bhatpura	26.690278	80.489722
12	Hasanganj	KoyaliyaKhera	26.895556	80.543056
13	Nawabganj	Makur	26.720639	80.591972
14	Nawabganj	Nawae	26.688056	80.646389

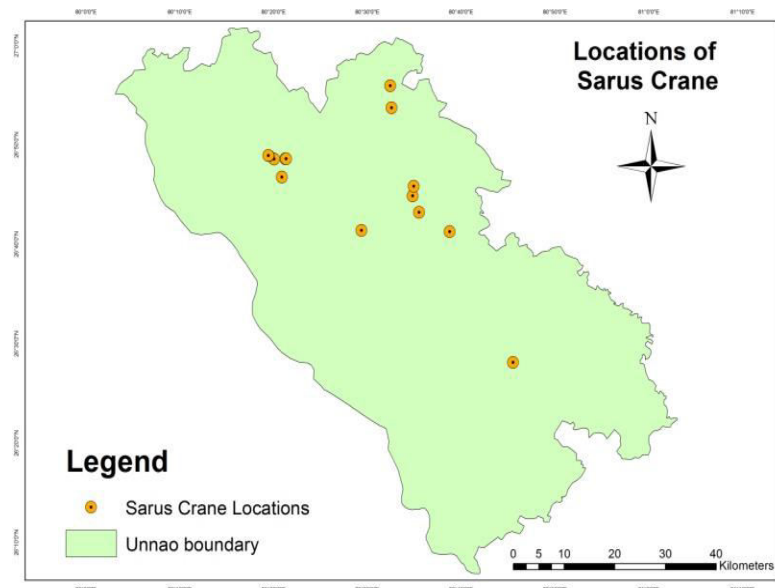


Fig. 3: Map of Unnao showing major Sarus crane areas.

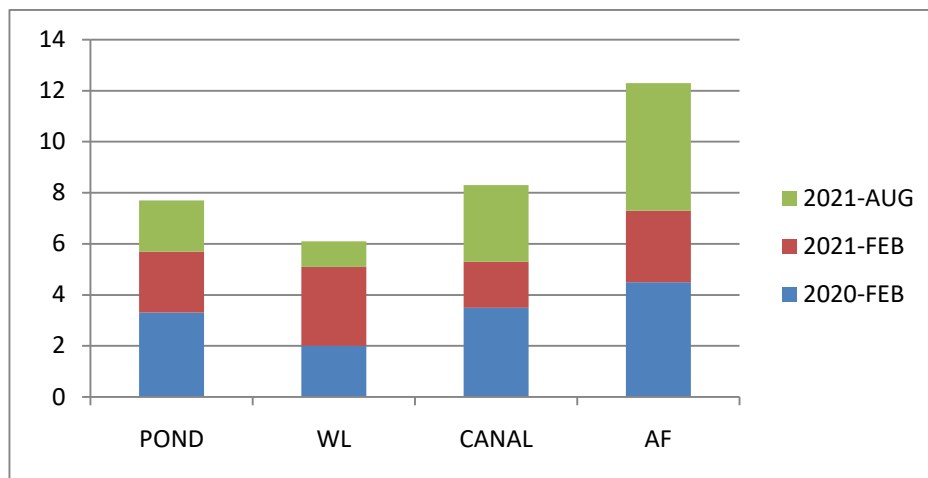


Fig. 4: Crane in different habitats --Pond, Wetlands (WL), Canal, Agricultural Fields (AF).

they sit nearby the heaps of paddy field. The paddy and mustard fields provide the bird roosting and foraging areas for adults, fledglings and the juveniles. The birds spend full day in some marshland and search for food. During non-breeding season they spend a lot of time in sunlight taking the sun bath. During summer season due to drying up of water bodies, the sarus cranes move to the other areas in search of food. In Kudina village the number of sarus cranes in and around Sharda canal was gradually increased up to 80-100 in summer whereas in other season very few sarus were spotted in the area (Figs. 3, 4). It was noticed in this study that sarus cranes are very much fond of potato tubers and spend

long hours feeding on potato in the field (Table 3).

Feeding preference of sarus crane :

Sarus cranes are omnivorous and largely spend their time in search of food and walking in the field. The pond, river and marshland, agricultural and non-agricultural fields are the areas where they are found feeding. In the water bodies they were seen probing the food by their long bill for search of snails, small toads, fishes in the pond and submerged water reservoirs. In the agricultural fields such as paddy, they feed on the panicles of paddy, potato tubers and insects, germinated seed in the mustard and lentils , ear of the wheat in wheat field. The tubers of plants and corn of the

Table 3: Habitat pattern used by sarus crane in different villages

S. No.	Name of Village	Types of Habitat used
1	Jagdishpur	Paddy, potatoes field
2	Govindpur	Paddy fields
3	Dhaora	Paddy fields
4	Bhatpura	Paddy fields, potato fields
5	KoyaliyaKhera	Potato, paddy fields
6	Makur	Agricultural fields of paddy
7	Nawae	Marshy land, wetlands
8	Kudina	Sharda Canal
9	Khadrai	Sharda canal
10	Murtzapur	Agricultural fields nearby canal
11.	Kunda	Pond, agricultural fields
12.	Aamiyaa	Canal, agricultural fields
13.	Matlabpur	Sharda canal

Table 4: Preferred food items by sarus crane in Hassanganj and Bangarmau tehsils

S. No.	Food items	Scientific name
1.	Particle of paddy	<i>Oryza sativa</i>
2.	Ear of wheat	<i>Triticum spp.</i>
3.	Apple snail	<i>Pila globosa</i>
4	Potato tuber	<i>Solanum tuberosum</i>
5.	Tubers of aquatic plants	-
6.	Fish	
7.	Annelids(earthworms)	<i>Pheretima posthuma</i>
8.	Crustaceans Insects	-
9.	Mustard field	<i>Brassica rappa</i>
10.	Fish fingerlings	-

aquatic plants also form the diet of sarus crane (Table 4).

Sarus cranes were present in the marshland, ponds and in the agricultural field (Fig. 5). The existence of sarus crane indicated the existence of hale and hearty environment in the region. They were present with the human society. The findings are in accordance with Ali and Ripley (1980) who reported the presence of sarus cranes in open, cultivated, well-watered plains, marshland and jheels. Sarus cranes inhabit in wetland areas in close association with human beings. Gole (1989) also described the ability of sarus cranes to live in association with humans. Sarus cranes were commonly reported in the paddy field in the rainy season and also in the marshland. In the summer season, they move to different areas where water

resources were present or seen in the cultivated agricultural fields. Sundar (2009) stated that sarus cranes preferentially use wetlands or uncultivated patches amid flooded rice paddies for nesting in India. Sundar and Kittur (2013) reported that in south-western Uttar Pradesh, sarus crane number increased with wetland size, though they were found in wetlands of all sizes despite extensive use of wetlands by humans. Kumar and Kanaujia (2017) reported that the density of sarus crane in agriculture habitat is greater than wetlands. Kaur (2008) acknowledged that over their entire distribution range, sarus cranes utilize wetlands, both natural and man-made, and are well-known for their ability to live in association with habitation. Kumar and Kanaujia (2017) documented that the habitat is being degraded



Fig. 5: Sarus cranes in various types of habitats.

rapidly due to increasing human population, industrialization, loss of habitat (rapid declining of wetlands) and other developmental activities. Sarus cranes were reported in the ponds, marshlands and agricultural areas for the feeding. They feed on the insects, aquatic plants, and fish, small frogs etc. in the pond and the marshland areas. They probe the snails in the marshland. In the agricultural field, sarus cranes feed on the paddy, potato, wheat, lentil, mastered, pea and the

insects. They are omnivorous, eating insects (especially grasshoppers), aquatic plants, fish (perhaps only in captivity), frogs, crustaceans and seeds. In this modern scenario, it is necessary to re-establishment, management and education towards the existing wetlands in the area are required in order to provide healthy habitat for sarus cranes. Education should be must in educational institutions to give the traditional association between the sarus crane and

community. Education should also be about the modern ecological and habitat aspects such as rural agricultural land and wetlands use with the focused role of agricultural land and wetlands use for the conservation of sarus crane and wildlife .

Acknowledgements

Authors are thankful to the Head, Department of Zoology, University of Lucknow, Lucknow, India for providing necessary facilities. We acknowledge all farmers and local people and forest people of Unnao region for their help.

References

- Ali S and Ripley SD. (1980) Handbook of the birds of India and Pakistan. Oxford University Press, Delhi.
- Borad CK, Mukherjee A and Parasharya BM. (2001) Nest site selection by the Indian sarus crane in the paddy crop agro-ecosystem. Biol Conserv. 98: 89-96.
- Gole P. (1989) The status and ecological requirements of sarus crane. Phase I. Ecol Soc, Pune, India, p.45.
- Kumar A and Kanaujia A. (2017) Habitat preference and social composition of sarus cranes in Unnao district, Uttar Pradesh, India. Biol Forum 9(2): 10-16.
- Remote Sensing Application Centre (RSAC) (2009) Wetlands of Uttar Pradesh. Scientific Report of Remote Sensing Application Centre, Lucknow, Uttar Pradesh.
- Sundar KSG. (2009) Are rice paddies sub-optimal breeding habitat for Sarus Cranes in Uttar Pradesh, India. The Condor 111(4): 611-623.
- Sundar KSG. (2010) Sarus cranes in Uttar Pradesh. Kat's Eye 2: 2-4.
- Sundar KSG and Kittur S. (2013) Can wetlands maintained for human use also help conserve biodiversity? Land scape scale patterns of bird use of wetlands in an agriculture landscape in north India. Biol Conserv. 168(1): 49-56.
- Tomar VS, Rout S and Chouksey S. (2017) Current status of habitat and food resources use by Sarus crane (*Grus antigone*) in Faridpur tehsil under Bareilly district of Uttar Pradesh. J Entomol Zool Stud. 5(6): 2018-2023.