

Some observations, Habitat status and food resources use by Sarus crane (*Grus antigone*) in five tehsil under Balaghat District of Madhya Pradesh, Central India

1Anil Kumar Dashahre, 2Mukesh Bisen, 3Nishant Deshmukh
1Biologist, 2Gest Faculty Teacher, 3Wildlife Photographer
1National Tiger Conservation Authority, Regional office, Nagpur,
2Department of Botany JSTPG Collage Balaghat

Abstract - The present survey was carried out in June 2018 to January 2020 to assess the observations, habitat status and food resources use by Sarus crane (*Grus antigone*) in different tahsil (Lanji, Kirnapur, Balaghat, Waraseoni and Khairlaji) under Balaghat district, Madhya Pradesh. The survey method consisted of the collection of data from primary and secondary resources. The study results showed that Sarus cranes were seen more frequently in the paddy field in the rainy and winter season because of the availability of water, food and habitat summer whereas in another season very few Sarus were spotted in the area. In the pond and marshland, Sarus crane was seen probing the snails by their long bill and also feed on small toads, fishes, small snakes, earthworms and lizard in the pond, panicles of paddy and insects in the submerged water field. Sarus crane searches the food in agriculture field and feed on germinated seed in the mustard, lentil, ground nut, ear of wheat, and roots of Bermuda grass. The tubers of plants and corn of the aquatic plants also form the diet of Sarus crane.

keywords - Agriculture, food, *Grus antigone*, habitat, resources

Introduction

The Sarus Crane has been recorded to be presence everywhere throughout the northern and central area of the Indian sub-landmass truly, including the current day Bangladesh (Gole 1989, Archibald and Meine 1996, Birdlife International 2001). The sarus crane (*Grus antigone antigone*) is listed as “vulnerable” in the International Union for Conservation of Nature (IUCN 2007) Red List of Threatened Species and it occur mostly outside protected areas. They favor open development in all around watered nation, bogs, jheels, lakes and huge streams. The Sarus crane is progressively being constrained into agrarian fields in light of the crumbling and decimation of its regular wetland natural surroundings (Mukherjee 1999, Sundar et.al 2000). The Sarus cranes are thusly compromised by poaching and the destruction of their eggs and Juveniles. To protect the habitat and nests a community education and awareness campaign was carried out.

They forage on characteristic swamps and shallow wetlands for roots, tubers, corms of aquatic plants, grass shoots and rhizome just as seeds and grains from developed harvests, for example, groundnuts and furthermore visit wet oat crops like rice and wheat (Johnsgard, 1983), (Sundar, et al 2000), (Sundar and Choudhury, 2003, 2006). Sarus Cranes are known to be fewer vegans than different cranes and generally viewed as a fish-eater relying upon accessibility of fishes; they additionally forage on scavengers, frogs, reptiles, beetles, grasshoppers and other enormous creepy crawlies (Ali and Ripley, 1969). Sarus Cranes can likewise once in a while cause extensive harm to recently planted crop. Study done by Status of Sarus Crane in Madhya Pradesh (Ghosh et. al.2016) a total of 347 individual birds were recorded through direct sighting and 51 birds recorded in Balaghat District Madhya Pradesh.

The present study was undertaken to find out to assess the current observation, habitat status and food resources use by Sarus crane (*Grus antigone*) in five tahsil under Balaghat District of Madhya Pradesh.

Material and Method

Study Area – Balaghat district is situated in the southern part of Jabalpur division of Madhya Pradesh and involves the south eastern locale of the Satpura and upper Wainganga valley. The region ranges over degree from 21° 19' to 22° 24' North and 79° 31' to 81° 3' east. It is limited by Mandla area of Madhya Pradesh toward the North, Dindhori locale toward the Northwest, Rajanandgaon region of Chhattisgarh condition of the east, Gondia and Bhandara district of Maharashtra territory of South and Seoni district of Madhya Pradesh toward the West. The Balaghat district is divided in two division's viz. North Balaghat and South Balaghat the area is rich in plants diversity and animal's diversities.

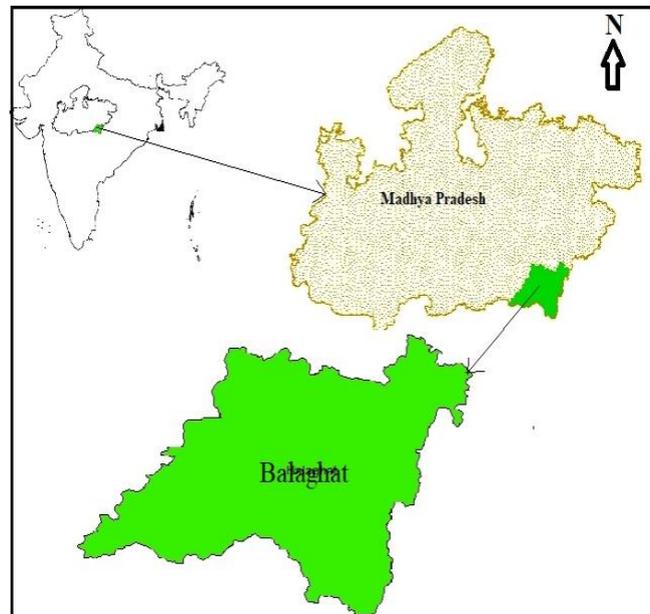


Figure- 1 Showing map of Balaghat District, Madhya Pradesh, India.

Field work

The work was held in June 2018 to January 2020 in five tehsil under Balaghat District of Madhya Pradesh. During the study, locations were selected from the villages of different Tehsil where Sarus crane inhabits the whole year. The study method consisted of the collection of data from primary and secondary resources. Primary data were collected by direct field visits, site inspection (Singh and Sharma, 2011). Multistage random sampling was used to selected survey villages. Five tehsil is composed of 21 villages. During the present study, a total of 21 villages of five tehsil were extensively surveyed for the presence of Sarus Cranes. Out of these 10 villages selected for the forage and habitat and food resources use by Sarus Crane. The survey was done to assess the current status of habitat and food resources use by Sarus crane (*Grus antigone*) in the areas.

Field observations were carried out with cover the agricultural fields, wetlands, river side and ponds. Several visits were done in the early morning and late evening near the Sarus Crane inhabits in the selected villages. During the study, to know the information's on various aspects of bird feeding habit. Focal sampling method (Nikon MONARCH 7 8X42mm) was used to the food habits of Sarus crane were observed and recorded.

Table-1- Presence of Sarus Crane, Village, Area and GPS coordinate of five tehsil under Balaghat District.

Sr. No	Village	Area (Hac.)	Latitude	Longitude
Balaghat	Naitra	497.23	21°46'19.56"	80° 13'05.60"
	Linga	624.00	21°46'42.13"	80° 15'11.00"
	Padaswada	211.09	21°47'07.60"	80° 14'46.43"
	Khursodi	498.31	21°45'14.14"	80°12'45.43"
	Bagdara	468.26	21°47'59.16"	80°14'15.78"
Kirnapur	Chikhala	509.59	21°43'07.60"	80°12'45.63"
	Saleteka	489.10	21° 42'08.41"	80°13'45.84"
	Kandri khurd	227.21	21°31'46.40"	80° 24'07.52"
	Pardi	348.42	21°32'27.23"	80° 23'47.12"
	Digoda	250.85	21°41'28.71"	80°14'46.45"
	Dongergaon	1404.86	21°42'41.71"	80°05'43.59"
	Piperzari	620.02	21°42'09.88"	80°11'34.71"
	Seoti	874.51	21°33'51.81"	80°23'25.96"
Khairlanji	Khairlanji Kinhi	872.50	21°35'17.29"	79°57'09.47"
	Khairi	1136.58	21°34'01.50"	79°58'42.38"
Lanji	Bapdi	513.47	21°25'14.6"	80°24'57.75"
	Parsodi	359.65	21°24'19.98"	80°24'27.71"
Waraseoni	Pipariya	803.24	21°39'18.39"	80°02'22.36"
	Medki	900.00	21°41'50.61"	80° 06'15.40"
	Ladsada	702.08	21°40'27.57"	80° 06'54.66"
	Dongermali	434.57	21°37'45.88"	80° 06'03.66"

The secondary data information was collected from the published literature such as management plan, government document, official statistics, and previous studies on the Sarus crane, technical report, scholarly journals, review articles, books, the computerized database, the world wide database magazines and newspaper were recorded (Ghosh et.al 2016), (Kour and Nair 2008).

Results and Discussion

Habitat use and feeding habit- Habitat use pattern Sarus cranes preferred the habitat near water bodies and were seen inhabiting in agricultural fields, rivers, village ponds and the marshland. They were seen more frequently feeding and resting in the paddy, wheat, udad (vigna mungo), lentil, and ground nut fields. During the study, Sarus cranes were seen more frequently in the paddy field in the rainy and winter season because of the availability of water. During evening time they sit on the bunds of paddy filed. The paddy and sugarcane crop fields provide the bird roosting and nesting cover for hiding the nests, fledglings and the young birds. The birds spend the whole day in some marshland and search for food. During winter the birds spend a lot of time in sunlight, perhaps taking the sun bath. During summer season many water resources get dry and under such conditions, the Sarus cranes move in another area in search of food. (Table.2).

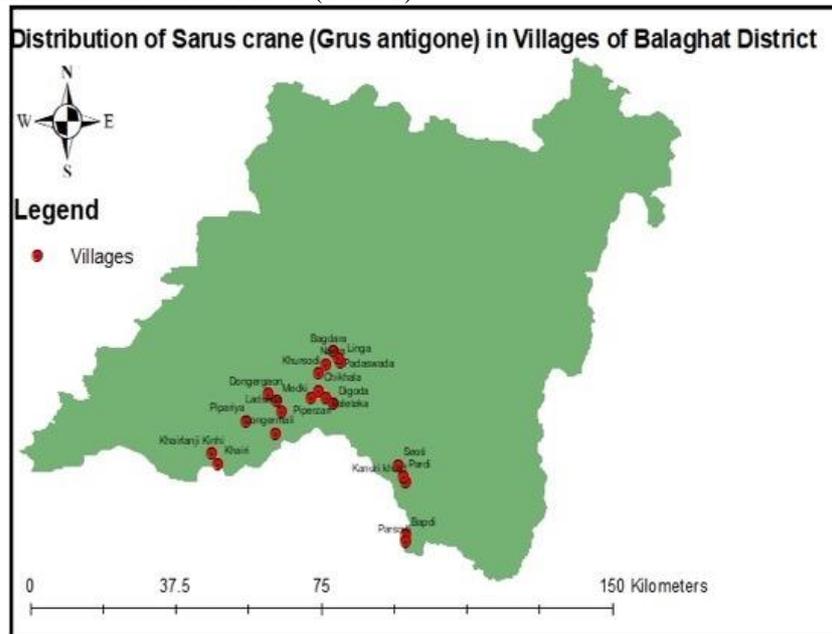


Figure-2- Showing Sarus Crane distribution map of Balaghat District.

Table 2: Habitat use pattern by Sarus crane (*Grus antigone*) in different villages.

Sr No.	Village Name	Habitat
1	Chikhla	Paddy field, Vigna Mungo field.
2	Kandri Khurd	Paddy field, pond,
3	Paraswada	Paddy filed, Vigna Mungo field, Marshland
4	Naitra	Paddy field,
5	Kinhi	Paddy field
6	Kairi	Paddy field riverbed,
7	Dongermali	Riverbed, paddy field, marshland
8	Pipariya	Pond, Paddy field, Riverbed
9	Bapdi	Paddy field,
10	Parsodi	Paddy field, riverbed, Sugarcane field

Feeding ecology of Sarus crane -Sarus cranes are omnivorous and largely spend their time in search of food and walking in the field. They feed near the pond, river and marshland, agricultural and non-agricultural field. In the pond and marshland they were seen probing the food by their long bill. They probe the snails in it. Sarus cranes break down the big snails by their bill and eat up the content. They also feed on small toads, fishes in the pond and submerged water filed. In the paddy field they feed on the panicles of paddy and insects. They search the food in the wheat field, potato field. Sarus crane feeds the germinated seed in the mustered and lentil fields. They like the ground nut in their diet. Ear of the wheat was feed by the Sarus crane in wheat field. In the non-agricultural area, they feed the roots of Bermuda grass. The tubers of plants and corn of the aquatic plants also form the diet of Sarus crane (Table. 3).

Table 3: Common food items in Sarus crane (*Grus antigone*) diet in five tehsil.

Sr. No.	Common Name	Scientific Name
1	Germinoid paddy	<i>Oryza sativa</i>
2	Mungo	<i>Faciollus mungo</i>
3	Wheat	<i>Triticum astivum</i>
4	Root of Dhubghas	<i>Cynodon dactylon</i>
5	Tubers of Acuatic plant (karoda)	
6	Pea	<i>Pisum sativum</i>
7	Fishes	
8	Indian bull frog	<i>Rana tigrina</i>
9	Earthworms	

10	<i>Crustaceans and insects</i>	
11	<i>Apple snail</i>	<i>Pila globosa</i>
12	<i>Small Snaks</i>	
13	<i>Lizard</i>	

Captured photographs during field survey-



1. Sarus crane uses natural wetland for habitat and food.



2. A eggs of Sarus crane.



3. A pair of Sarus crane using agriculture land



4. A pair of Sarus crane feeding in paddy field and Showing aggressive behavior.



5. Two adult and one young using the Marshland.



6. A pair of Sarus crane protected egg



7. Sarus crane feeding in the aquatic plant and insects nearby pond.



Discussion

The Indian Sarus crane, *Grus antigone* (Linnaeus, 1758) is the world's tallest and greatest flying water winged animal. It is the main occupant breeding crane in India and is proclaimed as State Bird by the Government of Uttar Pradesh for its conservation. It is notable as an interminable image of unrestricted love, commitment and great fortune and its event in plenitude speaks to a sound wetland environment. The Indian Sarus crane has been recorded as universally compromised for example vulnerable avian species (Bird Life Global 2012) in light of its declining numbers. Fundamental purposes for this decrease are decay of regular natural surroundings and expanded anthropogenic exercises for urbanization just as for mechanical development. Sarus crane is now threatened due to post-independence rise of human population and associated developmental activities that served to spell doom for the Sarus cranes and several other birds' species associated with Indian wetlands (kaur and Nair 2008). The present study observed distribution and habitat status, forage use by Sarus crane in five tehsil (Kiranapur, Lanji, Waraseoni, Khairlanji and Balaghat respectively) under Balaghat district Madhya Pradesh. These observations must be helpfully by their conservation in this landscape, recent and past presence observations data from other villages in five tehsil of Balaghat district. This information was collected from villagers.

Conclusion

It was concluded that Sarus cranes were seen more frequently in the paddy field in the rainy and winter season because of the availability of water, food, habitat in summer whereas in another season very few Sarus were spotted in the area. Sarus crane feeds on snails earthworm and grasshopper on agriculture field. Hence there is need for development of Sarus mitra network of farmers, village communities' especially State biodiversity board, school and college students which enabled improved conservation of the species.

Acknowledgement

We would like to extend our heartfelt gratitude to the Villagers and friends for their active information, participation and help during all our field surveys.

Reference

- [1] Ali S, Ripley SD (1980). Handbook of the birds of India and Pakistan. (2nd ed.). New Delhi: Oxford University Press; 2:141-144.
- [2] Archibald, G.W. & Meine, C.D (1996). Family Gruidae (Cranes). in del Hoyo, J., Elliott, A. & Saragatal, J. (Eds.). Handbook of the Birds of the World. Vol 3. Hoatzin to Auks. Lynx Edicions, Barcelona. 60-89pp.
- [3] BirdLife International, (2016). (<http://www.birdlife.org> ; <http://www.birdlife.orgon>).
- [4] Birdlife International. Threatened birds of Asia (2001): The bird Life International Red Data Book. Cambridge, UK: BirdLife International.. 1118-1150pp.
- [5] Ghosh S, Chatterjea NN, Moohherjee K, Poddar A, Ghosh AK (2016). Status of saras crane (*Grus antigone*, Lin) in Madhya Pradesh, india. zool. Surv. India : 116 (Part-3) : 201-215.
- [6] Gole, P (1989). The Status and Ecological Requirements of Sarus Crane. Phase I. Ecological Society, Pune, India. 45pp.
- [7] IUCN (2007). IUCN Red List of Threatened Species. IUCN, Gland, Switzerland 2007.
- [8] Johnsgard PA (1983). Cranes of the world. Indiana University Press, Bloomington,
- [9] Kaur J, Nair A (2008). Community Involvement in Conservation of Sarus Crane Breeding Habitat in three districts of Semi-arid tract of Rajasthan, India. Report submitted to The Rufford Maurice Laing Foundation Landon
- [10] Linnaeus Carolus (1758) Systema naturæ per regna tria naturæ, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis 1 (10th ed.). Stockholm: Laurentius Salvius. pp. [1–4], 1–824.
- [11] Mukherjee, A. (1999). Ecological study on the Indian Sarus Crane (*Grus antigone*) in the central Gujarat. Ph.D. Dissertation, Saurashtra University, Rajkot, Gujarat. 281pp.
- [12] Singh R, Sharma AK (2011). Statistical Methods and Experimental Designs, 1st Edn. Aman Publishing House, Meerut, 13-19.
- [13] Sundar KSG, Choudhury BC (2003). Nest sanitation in Sarus Cranes (*Grus antigone*) in Uttar Pradesh, India. Forktail, 19:144-146.
- [14] Sundar KSG., Kaur, J, Choudhury BC. (2000). Distribution, demography and conservation status of the Indian Sarus Crane (*Grus antigone antigone*) in India. J. Bombay Natl. Hist. Soc. 97(3): 39-39pp.
- [15] Sundar, KSG. and Choudhury, BC. (2006). Conservation of the Sarus Crane (*Grus antigone*) in Uttar Pradesh, India. J. Bombay nat. Hist. Soc., 103(2–3): 182–190.

