

NEST GUARDIANS OF THE CHAMBAL



Community based nest protection of riverine birds in National Chambal Sanctuary, Uttar Pradesh

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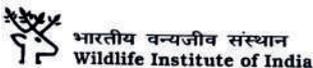
Community based nest protection of riverine birds
in National Chambal Sanctuary, Uttar Pradesh



Project report by Rohit R. S. Jha

2019-2020

An Occasional Report on threatened riverine birds nesting-island protection programme involving members of the local community, state forest department and other resource persons working in the National Chambal Sanctuary, Uttar Pradesh



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PREFACE

The Chambal is an evocative landscape of ravines and low hills that is formed by the mighty river of the same name. The Chambal River, a tributary of the Ganga, is also famed as being one of the least polluted riverine systems in the country. This coupled with its unique topography makes it home to a stunning array of wildlife. From the unique crocodilian, the gharial to the large populations of nesting Skimmers and terns, the Chambal is a bountiful life-source to the fauna and flora of the region.

This small but effective Rapid Action Project that involves community to protect the nesting sites of terns and skimmers is a fascinating rendering of how threatened species can be protected locally. In the Middle-East it is usual for royal families to protect bustards or other focal species by employing watchers over every occupied nest. This level of individual watch and guard is not common in India but of late is being tried out for bustards and floricans as well. In this case an intrepid band of local youth have protected 42 nests and have an enviable conservation impact. Whereas in the preceding year only 6 chicks had fledged from the same nesting sites, the current year saw 54 fledglings survive. A remarkable story of what determination at ground zero can do for conservation.

This intensive yet short term action shows the way for ground nesting bird protection in India as it is low-cost, involve local youth and thereby motivates them to proactively do something for the conservation of nature and has an absolutely direct and quantifiable impact on threatened species populations.

Vivek Menon
Executive Director

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EXECUTIVE SUMMARY

The National Chambal Sanctuary (NCS) is India's only tri-state riverine Sanctuary. It houses some of the largest populations of endangered animals like the gharial (*Gavialis gangeticus*) and Gangetic dolphin (*Platanista gangetica*). Alongside these flagship species, sandbars and sandy river-islands formed during the summer season also allows Threatened ground-nesting birds such as Indian Skimmer (*Rynchops albicollis*) and Black-bellied Tern (*Sterna acuticauda*), among few others, completely dependent on such habitats for nesting to complete their breeding activities.

Several large and small-scale water projects in upstream areas of the river, rainfall scarcity and a lack of an environmental flow regime in the river results in significantly low water flow conditions in the summer months. As WII's ongoing project in Uttar Pradesh's NCS limits, investigation of two nesting seasons (2018 and 2019) reported low water flow conditions in the river resulted in the joining of river islands and sandbars – many with nests of the above mentioned threatened species – with the riverbank as the dry season progressed. This facilitated access to predators such as dogs and jackals, along with increased cattle and human movement, thereby resulting in egg/chick predation and unintentional trampling, in turn resulting in low to zero nest survival.

Recognizing that effective protection of nests and chicks required constant presence monitoring in addition to the daily patrolling practices followed by the state forest department. A proposal was drawn for a pilot nesting-island protection programme involving members of the local community, state forest department and other knowledgeable persons working in the area, to apply for WTI's Rapid Action Project. After a river-wide survey along UP's NCS stretch, in April 2020 two nesting locations were identified with relatively large number of nests to set up and help operate round-the-clock camps manned by three trained persons from nearby villages for a period of two months (May-June). This period recorded threats to be most pronounced due to falling water levels in the river. Nest protectors' primary responsibility was to repel all unnatural predators and cattle away from nesting islands and persuade

villagers/visitors to avoid the islands. The team set up one such camp at Nadgawan/Ater and 24X7 protection and monitoring resulted in 54 successful Indian Skimmer fledglings from 42 nests active during the camp's operation.

In the previous nesting season, only 6 Indian Skimmer fledglings had survived under similar ecological conditions and comparable disturbance/threat despite higher number of nests. Natural predators such as birds of prey primarily preyed on several chicks, and natural egg predation/abandonment events occurred as usual, but all non-natural predation was avoided, resulting in a nine-fold year-to-year increase in successful fledglings. Late in the nesting season, at three nesting locations with few nests, we also experimented the efficacy of relatively simple interventions such as constructing a fence using tree logs/dead wood and bushes at the junction where river-islands get joined with the riverbank. Depending on the fence strength and whether a complementary protective measure was present or not (in the form of a trench), we demonstrated that fences could be effective in giving protection to birds' nests by thwarting predator entry at nesting locations where establishing round-the-clock presence was difficult and where lower number of nests were present.

INTRODUCTION

The National Chambal Sanctuary (NCS) houses some of the largest populations of certain endangered and flagship animals like the gharial (*Gavialis gangeticus*) and Gangetic dolphin (*Platanista gangetica*), primarily for whom the sanctuary was established. NCS also harbours significant breeding/resident populations of threatened birds such as the Black-bellied Tern (*Sterna acuticauda*) and Indian Skimmer (*Rynchops albicollis*). It has been designated as an 'Important Bird and Biodiversity Area' (IN122) by BirdLife International¹ and is a proposed Ramsar Site. In Uttar Pradesh, the Sanctuary (established in 1979) lies in the Agra and Etawah districts, with an area of 63,500 ha within which the Chambal river flows through an approximately 175 river-km length.

The NCS, especially within Uttar Pradesh, harbours one of the largest breeding population of the Indian Skimmer (IUCN – Endangered), a bird endemic to the Indian subcontinent (BirdLife International 2020). It also harbours significant breeding population of Black-bellied Tern (IUCN – Endangered), another species with similar nesting habitat (on riverine islands and sandbars) restricted to south and south-east Asia (BirdLife International 2017b). Significant number of nests of other species such as River Lapwing (*Vanellus duvaucelii*) (IUCN – Near Threatened), River Tern (*Sterna aurantia*) (IUCN – Near Threatened) and Great Thick-knee (*Esacus recurvirostris*) (IUCN – Near Threatened) (BirdLife International 2016a, 2016b, 2017c) are also regularly observed sharing the same nesting island. A large number of Little Terns (*Sternula albifrons*) (IUCN – Least Concern), another riverine-island nesting species, too breed in the NCS (BirdLife International 2019).

NCS is thus one of the few sites in India where a substantial number of such threatened and habitat specialist birds have been documented breeding for a long period of time (Sundar 2004, Das 2015, Singh and Sharma 2018). The river and its inhabiting riverine fauna are under huge anthropogenic pressures emanating from reduced flow conditions,

¹([http://datazone.birdlife.org/site/factsheet/national-chambal-wildlife-sanctuary-\(agra-etawah\)-iba-india](http://datazone.birdlife.org/site/factsheet/national-chambal-wildlife-sanctuary-(agra-etawah)-iba-india))

disturbance events (cattle, human and unfamiliar land-based predators' movement on islands where birds nest) and habitat-alteration due to unchecked and unregulated sand mining activities (Hussain 2009, Agarwal 2019). Indian Skimmer and Black-bellied Tern are threatened species and have been experiencing declining population at the global level. Despite being one of the best habitats for these riverine island-specific nesting species, anthropogenic pressures mediated chiefly by low-flow conditions in the river has been resulting in significantly low nest survival of these species. Low nest survival, in turn, affects recruitment and adult population and perpetuates a cycle where the overall species population continues to decline.

This necessitated the conception of the current project with an overarching objective to improve and enhance nest survival of threatened and obligatory riverine island-nesting species, especially those of the Indian Skimmer and Black-bellied Tern.

PROJECT OBJECTIVE

Improve and Enhance Nest Survival of threatened Riverine Birds

The overarching objective of the project was to improve and enhance nest survival of threatened riverine island-nesting species, especially the Indian Skimmer and Black-bellied Tern, at two selected nesting locations within the NCS by community participation on a trial basis, with potential to replicate such efforts on a larger scale in subsequent years.

Direct payments to communities or individuals have gained traction as a tool for species conservation (Claassen et al. 2017). This was thought to be especially relevant in an area such as the NCS where poverty is widespread and natural resource governance is limited. A potential solution was to engage members of a local community from villages closest to the nesting sites with incentives to guard nesting islands round-the-clock from within safe and secure camps/hideouts at reasonable distances (so as to not disturb nesting activities) in order to reduce anthropogenic pressures and thwart unfamiliar predators, cattle and people from accessing the nesting islands. For this, the team selected two nesting locations from the larger study area with a higher proportion of Indian Skimmer and Black-bellied Tern nests and where large number of nests had suffered from predation by feral dogs in the recent past (derived from the team's past and ongoing work in the study area).

An unfortunate event at one of these locations (Piprolī Gadhiya, detailed below) meant that the team could not set up their camp there, despite all preparatory efforts. However, the team set up a nest protection camp at Nadgawan after training selected local collaborators/nest protectors in several one-to-one interactions about relevant do's and don'ts and drawing up a detailed instruction guide/undertaking. The team also enrolled the local forest department support in the initiative and made sure that their regular patrolling activity complemented and were in sync with the objectives of this project.

PROJECT IMPLEMENTATION

A nationwide strict lockdown in view of the COVID-19 pandemic was imposed by the Government of India from 24th March, 2020, and the first phase of lockdown lasted till 20th April. During this period, our movement was totally restricted, thus putting us behind the planned schedule, both in our larger project and in the RAP site specific nest-protection program. Nevertheless, the team resumed limited field duties (due to movement restrictions) from April 21st and began visiting probable nesting sites based on previous years' work and based on a river-wide survey conducted earlier in. The plan and methodology were revised, based on best on-ground judgement and consistent with covid-prevention guidelines in force.

a. Setting up island protection camp at Piparoli Gadhiya nesting colony



Fig.1: Nesting/Breeding Indian Skimmer flock at the Piparoli Gadhiya site/colony

Within the first week upon resuming work, the team identified five nesting island clusters/sites in the study area. Of these, the nesting site/river-island (coordinates: N 26.52964°, E 79.16529°) near, or most easily accessible from, a village called Piproli Gadhiya (on Chambal's right bank: N 26.51343°, E 79.15126°), about 2.5 km away, with more than 60 breeding pairs of Indian Skimmers (Figure 1), were identified for setting up the first of the two planned round-the-clock nest-protection camp. The plan was conveyed to both, Deputy Conservator of Forests and the Wildlife Warden (equivalent to the Sub-Divisional Forest Officer) of the NCS.

During a telephonic conversation with forest officials, the need to seek a written permission to setup a camp was highlighted. Meanwhile, with physical distancing norms in place and prevalent anxiety due to Covid-19, organising focus group discussions proved challenging. Nevertheless, the team organised a meeting with the elected Village Head (or Pradhaan) of Piproli Gadhiya village on April 29, which was also attended by a few prospective nest/island guards from the same village (Figure 2).



Fig. 2: Meeting with the Piproli Gadhiya Village Head, Smt. Uma Devi Dubey and prospective nest/island watchers on April 29, 2020

The second meeting was held at the Village Head's residence on May 1st, with the same set of individuals. On the same day, through local contacts, the proponent met up with interested individuals from two other villages on the other side of the river opposite the nesting colony, namely Palighar and Chhibroli. During all these meetings, the team emphasized on the need to protect the Indian Skimmer nesting colony. Further, to illustrate the threats and problems the birds faced a set of multimedia files was shared showcasing our experiences in the field. All members were briefed on how the population of these birds had plummeted worldwide, and that only Chambal River remained the only stronghold, and the declining population of these species here too did not bode well for the riverine ecosystem as well.

The species' declining population did not align with our cultural principles of "*Athithi Devo Bhava*" (since birds visited their village place/ Chambal river only for about six months of the year) and "*Vasudhaiva Kutumbakam*" (since the fate of the birds' species was intricately tied to that of our own in this world).

The linking of cultural analogies with the status of the species helped the community relate to the issue and the need of the hour. The multimedia files/presentation and stated rationale seemed to have an impact and the team managed to identify individuals from all three villages who took an oath to "not let a single chick die under their watch".

The aim was to employ four island-guards overall for the protection of the Piproli Gadhiya colony, two from Piproli Gadhiya village, and one each from Palighar and Chhibroli villages, thus ensuring maximum participation from all the three closest settlements to the Piproli Gadhiya nesting site, NCS.

The peculiarity of the NCS is that it is an "open" sanctuary with no check on entry or exit for all practical purposes. By virtue of settlements being very close to the river, most people are engaged in deemed illegal activities such as fishing (even if purely for one's own household needs) while a few are also engaged in illegal sand mining (both at small and large scales). Since the team wanted to ensure that none of



Fig. 3: Meeting with interested persons and a prospective nest/island watcher at Palighar village on May 01, 2020



Fig. 4: Meeting with an identified prospective nest/island watcher at his residence in Chhibroli village, May 01, 2020

the four appointed island-protectors in this programme were associated with such illegal activities, selecting personnel from a pool of about ten interested and trained individuals took a few days and local forest department personnel were consulted for the same. Once the final shortlisting was done, along with the consultation of forest officials, certain rules of duty/engagement governing personnel's conduct, duties, responsibilities, dos and don'ts were drawn for smooth running of monitoring work. (Appendix I).

By May 5, the team completed collating personal details of the appointed four persons and prepared all required documents. Same morning, monitoring visit at the Piproli Gadhiya nesting location was organised to check on nests and chicks (Figure 5) and location for island-protection camp/tent were selected on a slightly elevated area on the right bank. While everything seemed to be going smooth, we had a setback.



Fig. 5: A camera-trap image of an Indian Skimmer nesting bird and its chicks on the morning of May 05, 2020 at Piproli Gadhiya nesting island/colony



Fig. 6: A group of youth rush back at the site where the first deceased body was found

A couple of boys from Piproli Gadhiya village had drowned, while having a bath in the river, just a km upstream from the nesting island/colony on the morning of May 5. And a large group of locals were assisting in locating the deceased bodies in the river (<https://www.amarujala.com/uttar-pradesh/etawah/4-rural-flows-in-to-the-river-etawha-news-knp5586169126>). A section of the search party came towards the nesting island and at this point of time, the team intercepted and advised them not to disturb the nesting birds. They were advised to walk along the island edge, and return as quickly as possible. When the team were having this interaction, the first body was fished out, and the youths rushed back towards the main group (Figure 6) and started to look for the other missing body in the same area. After this the team headed back hoping that no further disturbance will be caused around the nesting site. The Village Head and the local forest department beat guard were informed to keep a vigil, considering these extraordinary circumstances.

On May 8, the team was to set up the island-protection camp and had received formal permission for the same (Appendix II). But to their dismay, the team found that the entire nesting island was completely desolate and abandoned with not a single egg or chick in sight. There were human and canid prints all over with broken eggshells strewn all around (Figure 7). An entire nesting island thriving with parents and chicks was destroyed. This was a very difficult and sombre moment in the project. The DCF was informed about this unfortunate incident.

b. Island protection camp at Nadgawan

The challenges posed at Piproli Gadhiya helped the team sense the



Fig. 7: Egg-shells strewn around at Piproli Gadhiya nesting island.

first signs of danger at another important nesting site - Nadgawan. The team immediately liaised with local Forest Department staff, trained three men – Bhole, Chandrabhan and Kallu (from the nearest village on the UP side) – as recommended by the local staff for the program, to begin a 24X7 vigil from May 16. The camp (location coordinates: N26.76589°, E78.66600°) was gradually set up in a few days (Figures 10 and 11) with the assistance of the three appointed collaborators/ nest protectors and two other villagers. The camp was provisioned with a first-aid kit (including glucose and electrolyte powders), hand-sanitisers, mosquito-repellent creams, powerful torches (three nos.),

and a tin box (to keep clothes and other daily items non-soiled and dry), along with ID cards. To develop camaraderie and a positive relationship with members of the local community as also to complement protection activities, the proponent stayed overnight at the camp with the nest-watchers/protectors on May 16, 20 (Figure 12), 24, 28, June 1, 5 and 23 while he visited the Nadgawan-Ater island cluster every three to four days (including dates mentioned above) for nest data collection.

Apart from monitoring and guarding the two nesting islands, the nest protectors also tried their best to extend their gaze to three nesting islands formed near the under-construction Ater bridge (Figure 14) by patrolling the site daily.

The camp ensured protection from all land-based predators as well as intentional and unintentional disturbances caused by humans and cattle.

Once the river water level rose in the last week of June inundating major portions of all targeted nesting islands, where chicks have turned into fledglings, the team wrapped up the camp on June 28, 2020.



Fig. 8: Nesting-island protection camp set at Nadgawan directly overlooking two nesting islands, being set up on May 16, 2020



Fig. 9: Nesting-island protection camp, complete with a fence and a platform to watch over birds in the night, set at Nadgawan directly overlooking two nesting islands as on May 20, 2020



Fig.10 The Nadgawan nest-protection camp manned round-the-clock by nest/ island protectors (from right to left) Chandrabhan, Kallu and Bhole, May 24, 2020

c. Protective fences to deter land based predators at Kenjra, Bhindwa Kalan and Kheda Ajab Singh

At three other nesting sites, where there were either too few nesting birds or the sites themselves were far away from habitation and small in size, we set up fence-walls made out of thorny *Prosopis* tree logs/branches (mostly dry ones already fallen in the ravines) with the help of villagers. These were nesting 'islands' that had already connected with the riverbank, due to rapidly decreasing water levels, and had active nests at the pre-hatching stage. The team hoped to provide protection from land- based predators by setting up the fence on the riverbank side. In this way the project team intervened positively at four sites in the study landscape within Uttar Pradesh's NCS to enhance nest survival of threatened ground and river-island nesting birds (Figure 11). The primary aim in doing this was to evaluate the efficacy of this low-cost intervention in ensuring egg-stage survival, and perhaps employ these earlier in the season next breeding cycle onward, along with any associated learnings from this attempt.

The team set up a fence at the Kenjra river-island on June 2nd (fence midpoint coordinates: N26.78088°, E78.52284°) (Figures 13, 14) and at the Bhindwa river- island on June 4th (fence midpoint coordinates: N26.59899°, E79.01536°) (Figures 15, 16). At Bhindwa, as an added level of protection, we also dug a channel for the hitherto connected nesting "island" to restore its original character. We also set up a similar fence at Kheda Ajab Singh on June 10 (fence midpoint coordinates: N26.66474°, E78.94412°) (Figures 17).

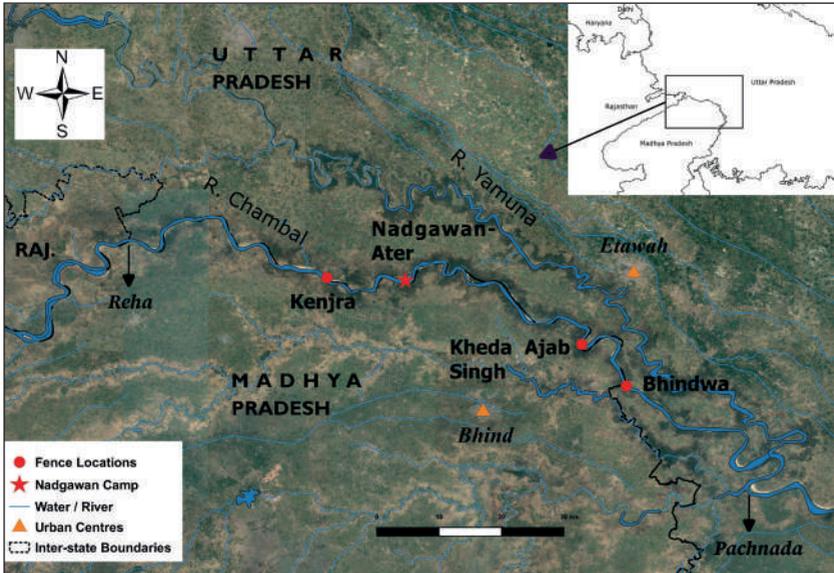


Fig.11: Map depicting four nesting sites/locations where this project was carried out.

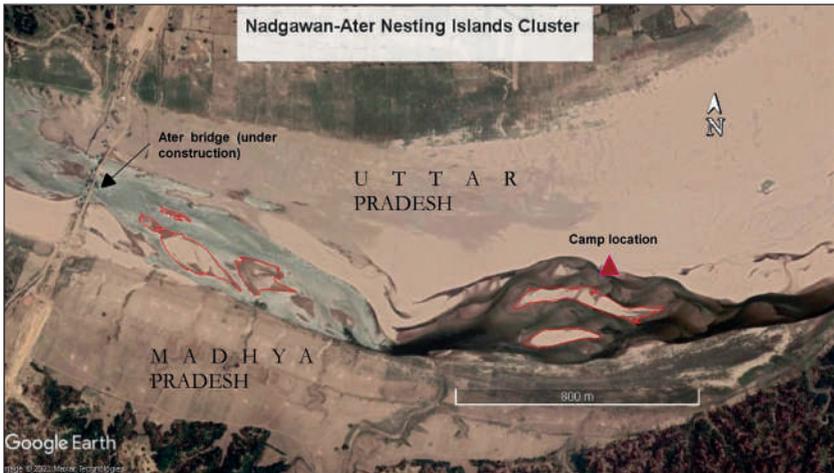


Fig.12: Nadgawan-Ater Island-cluster Nest protection camp



Fig. 13: Fenced nesting island at Kenjra



Fig.14: Kenjra nesting island with the Prosopis fence erected on the riverbank side to deter predators



Fig.15: Fencing at Bhindwa Kalan (Bhindwa) nesting site/'island' at Kenjra



Fig.16: Nesting site at Bhindwa along with erecting a Prosopis fence, a narrow channel dug to maintain water flow and disconnect it from the riverbank to provided an added level of protection from land-based predators.



Fig.17: Fenced nesting site at Kheda Ajab Singh



Indian Skimmer Colony

RESULTS

The Table below presents the results of the five river-islands that formed the Nadgawan-Ater island cluster as fledglings frequently flew from one to the other as they gained flying confidence (mid-June onward) and could not be accurately determined to be belonging to any one island. Details of the number of nests made (species-wise), nests abandoned, nests predated/destroyed, eggs laid, and chicks that fledged, cumulatively, during the protection period (44 days from May 16 – June 28, 2020,) is depicted in Table 1. Similarly, Table 2 provides cumulative relevant data for the three sites where the team provided protection on an experimental basis by way of fences and trenches.

The 44-day round-the-clock operational camp was a great success as the team recorded a nine-fold year-on-year increase in Indian Skimmer

Table 1: Summary of focal species' nests at the Nadgawan-Ater island cluster given full to partial protection by our appointed nest-protectors

Species	Nests (cum.)	Nests ab.	Nests dest.	Eggs laid (cum.)	Chicks on first day of camp	Fledglings	Prop. fledged	Nests w/>=1 hatching event	Hatching success
Indian Skimmer	42	5	6	79	59	54	0.39	31	73.81
Black-bellied Tern	3	0	1	6	0	NA	NA	2	66.67
River Tern	5	1	0	13	0	7	0.54	4	80.00

Table 2: Summary of focal species' nests at the three nesting sites where nests were given protection by fence and/or by digging a trench; 14 chicks attained sizes greater than 10 cm but could not fledge as the river waters rose and nesting sites submerged; for both tables, cum. = cumulative, ab. = abandoned, dest. = destroyed/predated, prop. = proportion, NA = not available since Black-bellied Tern fledglings are hard to find once they attain sizes > 15 cm

Species	Nests (cum.)	Nests ab.	Nests dest.	Eggs laid (cum.)	Chicks on first day of camp	Fledglings	Prop. fledged	Nests w/≥1 hatching event	Hatching success
Indian Skimmer	16	0	6	47	0	0	0.00	10	62.50

chicks that fledged in the nesting season when compared to a mere six chicks that had successfully fledged in 2019 in similar ecological conditions within similar disturbance regime. Since nest protectors operated within specified guidelines of ethical behaviour and conduct, birds weren't disturbed and after a couple of days got accustomed to the camp and activities therein (Figures 18, 19). Although the proportion of fledglings might seem low (0.39, Table 1), this is comparable to other colonial ground nesting birds where natural predation (Figure 20) and nest abandonment events are high. Nest protectors themselves meticulously recorded 155 disturbance events in a notebook over the course of 44 days of protection. These events included keeping away dogs, cattle, jackals and hyenas (in the night) and diverting people away from nesting islands.

At Nadgawan, two sets of islands were formed, one directly overlooking our camp (with two nesting islands) and the other (with three nesting



Fig.18: A River Tern parent returning to its nest with hatchlings; our nest-protection camp is seen in the background



Fig.19: An Indian Skimmer chick rests comfortably on the nesting island (Nadgawan group, towards MP) overlooking our nest-protection camp (background)



Fig.20: Persistent attempts by birds of prey – natural predators of ground-nesting birds' chicks in the landscape – results in several predation events, although most are foiled by alert parent birds who group together and drive them away



Fig. 21: Two Indian Skimmer chicks at Bhindwa Kalan (foreground) shielded from predators by our fence and trench setup (background)

islands) situated near the under-construction Ater bridge more than a kilometre away. The latter group was under severe disturbance due to its proximity with both banks (thereby facilitating cattle and people movement, Figure 22) and activity of construction personnel around. Since there were more nests at the former island group (two islands directly overlooking our camp), the team was unable to give complete protection to nests here. Nevertheless, a protocol was devised where any one of the appointed nest protectors daily stood guard (from UP side) and repel disturbance for three morning and three evening hours every day when disturbances (cattle entry, dog visits, people and/or camel crossing etc.) were found to peak.

Since the team was already running behind schedule, setting up another camp (two more nest- protection camps were part of the proposal) while also conducting our regular nest monitoring surveys was difficult. Excluding Nadgawan and Piproli Gadhiya sites, the focal species had nested in relatively low numbers on other river-islands in the study area in 2020. Hence, the team used this constraint as an opportunity to try some low-cost positive interventions in the form of fences and even a trench in providing protection to birds' nests, at least until the egg stage,



Figure 22: An Indian Skimmer chick in a sand pit on a nesting-island of the Ater group, while visible are several cattle trails criss-crossing the area – a sign of high disturbance

to derive reliable inferences on the efficacy of these interventions. This proved successful at two sites where the team implemented lessons from an early failure at Kenjra. It was eventually sad to see chicks that hatched under the protective shelter of our fences to ultimately being swallowed by a rising river tide (as monsoon crept in) before they could fledge/learn to fly. Although the team had predicted this eventuality, but was under-prepared.

Team developed good relationships with local community members and further strengthened our partnership with the forest department, through the course of this project. The constant and regular presence at the four nesting sites where the project was implemented showed commitment, and was respected by other stakeholders. On some nights, the nest-protectors encountered people engaged in illegal fishing who acted in an unruly manner. Our Forest Department- authorised ID cards that we provided to the appointed nest-protectors helped in calming tensions. This short project amply demonstrated that it was possible to enhance nest and fledgling survival of birds through simple planning and low-cost interventions. There is a need to continue with these interventions at carefully chosen nesting sites, especially at sites with large number of nests and high disturbance with round-the-clock protection camps manned by trained and dedicated nest protectors from the local community. The team has already drawn up and listed a detailed nest-protectors' guideline. At nesting sites with relatively low number of nests, a combination of regular forest staff patrolling along with interventions such as constructing a strong fence could help in protecting these riverine birds.

WAY FORWARD

From the project learnings (failure at Kenjra, successes at Bhindwa and Kheda Ajab Singh), below is a guideline on fence and trench construction:

1. Placing wooden poles/logs at regular intervals on which shrubs/smaller bushes are placed and tied to create a tight mesh. This must be strong with a larger girth, primarily to withstand frequent sand-storm in the landscape during May-June.
2. The fence must be at least three to four feet tall as a thick mesh of thorny and preferably drier *Prosopis* bushes, and strongly intertwined/tied with wooden poles so that they do not possibly fly away into birds' nests and cause unintentional damage.
3. Fences must be regularly visited to evaluate their strength and patch up any breaches.
4. Ends of every fence must be at least two to three feet into water, as required, to account for decrease in water flow conditions and to further decrease probability of predator entry.
5. Fence construction should follow a contour that enables adequate visibility for parent birds of the nearest nest and makes it most difficult for land-based predators to gain entry; any fence should also be at least twenty feet away from the nearest nest and be constructed during cooler durations of the day.
6. A trench – basically a longitudinal narrow channel of water in this context – basically provides an added level of protection (along with a fence) and restores the 'island' character of the nesting island. It must be considered creating in cases where the nesting island has physically connected with the riverbank. For best results, the channel thus created must be at least 4-6 inches in depth, 3-4 feet wide and create a water flow. It must be on the inward side of the fence, towards the nesting island.

There is also a need to conduct more sensitization programmes with visual media aid and posters (example, see Figure 25) to convince

river users in the landscape to shift usage for a period of eight to ten weeks during the summer/nesting months away from nesting islands as this simple act of theirs will create a safer nesting space for the focal threatened birds.



Fig.23: Our nest protectors – Bhole, Chandrabhan and Kallu at Nadgawan nesting site

APPENDIX - I

Forest Department permission to set up the nesting island-protection camp at Piproli Gadhiya, dated May 08, 2020

कार्यालय उप वन संरक्षक, राष्ट्रीय चम्बल सेंचुरी प्रोजेक्ट, उ०प्र०, आगरा।
पत्रांक 2361/23-1 दिनांक, आगरा, मई 08, 2020

सेवा में,

श्री रोहित झा,
वरिष्ठ शोधकर्ता,
भारतीय वन्यजीव संस्थान, देहरादून।

विषय :-

इण्डियन स्कीमर के पिपरोली गढ़िया प्रजनन स्थल/टापू की रक्षा हेतु।

सन्दर्भ:-

आपका पत्र दिनांक 08-05-2020

आपके उपरोक्त सन्दर्भित पत्र के क्रम में निम्नलिखित कार्य करने की अनुमति दी जाती है-

- 1- प्रस्तावित प्रजनन स्थल पर 4 नेस्ट रक्षकों को रखने की अनुमति दी जाती है, जिसका भुगतान आपके द्वारा वहन किया जायेगा। रखे गये रक्षक वन अपराध में लिप्त न हो तथा उनका अपराधिक इतिहास न हो। उक्त वन रक्षकों का पहचान-पत्र सम्बन्धित क्षेत्रीय वन अधिकारी को प्रस्तुत करना होगा। सुनिश्चित करें कि रक्षकों द्वारा किसी वन सम्पदा/वन्यजीव को क्षति नहीं पहुँचाई जायेगी।
- 2- प्रस्तावित प्रजनन स्थल पर नेस्ट रक्षकों के रकने हेतु लकड़ी/छप्पर की अस्थाई मढ़ैया/झोपड़ी बांधने की कार्यवाही वनकर्मी की उपस्थिति में करनी होगी, नेस्ट की सुरक्षा कार्य पूर्ण होते ही स्थल से हटा दिया जायेगा।
- 3- प्रस्तावित स्थल पर मढ़ैया के पास फ्लैक्सी बोर्ड जिसमें वन विभाग का भी चिन्ह प्रदर्शित हो, को लगाया/बनवाया जाये।
- 4- प्रस्तावित स्थल पर शोधकर्ता टीम आवश्यकतानुसार वन विभाग के स्टाफ के संज्ञान में निरीक्षण कर सकती है।
- 5- अनुमति धारक शोधकर्ता को समस्त शोध कार्य वनकर्मी के संज्ञान में करना होगा।
- 6- अनुमति धारक शोधकर्ता टीम को भारतीय वन अधिनियम 1929 तथा वन्यजीव (संरक्षण) अधिनियम 1972 के प्राविधानों का पालन करना होगा।
- 7- अनुमति धारक के जोखिम भरे कार्य के लिए वन विभाग उत्तरदायी नहीं होगा।
- 8- अनुमति धारक को शोध कार्य की रिपोर्ट सम्बन्धित रेंज अधिकारी/प्रभागीय वनाधिकारी को प्रस्तुत करनी होगी।
- 9- अनुमति धारक शोधकर्ता को प्रधान मुख्य वन संरक्षक, वन्यजीव, उ०प्र०, लखनऊ के पत्रांक 3403/23-2-12(जी) दिनांक 11-04-2018 के द्वारा दी गई अनुमति में निहित शर्तों का अक्षरशः अनुपालन करना होगा।

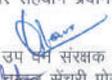
अतः उपरोक्तानुसार दी गई शर्तों का अनुपालन करें।


उप वन संरक्षक
राष्ट्रीय चम्बल सेंचुरी प्रोजेक्ट,
उ०प्र०, आगरा।

पत्रांक 2361/23-1 उक्तदिनांकित।

प्रतिलिपि- वन्यजीव प्रतिपालक, इटावा को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

प्रतिलिपि- क्षेत्रीय वन अधिकारी, रा०च०से०इटावा को इस आदेश के साथ प्रेषित कि उपरोक्तानुसार दिये गये निर्देशों व शर्तों का कड़ाई से अनुपालन सुनिश्चित कराते हुए आवश्यकतानुसार सहयोग प्रदान करें।


उप वन संरक्षक
राष्ट्रीय चम्बल सेंचुरी प्रोजेक्ट,
उ०प्र०, आगरा।

APPENDIX - II

List of dos and don'ts as part of an undertaking prepared for the island-protectors to sign on and formally enlist for the program; this was submitted to the DCF permission letter

संलग्न # 2 : नेस्ट रक्षकों के लिए संभावित नियमावली

1. नेस्ट रक्षक झुली/शिफ्ट के वक्त अपना संपूर्ण एवं अनिश्चित ध्यान पूरी निष्ठापूर्वक प्रजनन/नेस्टिंग टैले पर रखेंगे ताकि वहाँ कोई भी अनजानित बाधा (जैसे मैसो का टैल पर या उनके करीब आ जाना, तथा अन्य भ्रूषी-आधारित जानवर जैसे कुत्ते, लडैया, भीडिय, लकड़बग्घा भी शामिल हैं) होने नहीं पाए।
2. कुल चार (04) नेस्ट रक्षक 24 घंटे दो शिफ्टों में (दो व्यक्ति प्रति शिफ्ट) नेस्टिंग टैले की पहरेदारी करेंगे। शिफ्ट का समय सुबह 6:30 से संध्या 6:30 तथा संध्या 6:30 से सुबह 6:30 होगा। शिफ्टों का कार्यक्रम कार्य सभन्वयन/निदेशक तय करेंगे, जिसकी हर दिन कॉपी में दर्ज किया जाएगा।
3. रात की शिफ्ट में दो रक्षकों में से कम-से-कम एक रक्षक (अपनी सहमति और बारी से) जाग रहेगा और मंड़ैया से ही पहरा देते रहेंगे, एच टर्नोवार्ड से समय-समय पर टैले के आसपास (लेकिन टैले पर नहीं) निरीक्षण करते रहेंगे।
4. झुली/रक्षा के लिए बांधी गई मंड़ैया में सिर्फ नेस्ट रक्षक और अन्य अधिकृत व्यक्ति ही रह सकते हैं, अन्य किसी और का आना बिना कार्य-निदेशक की सूचित किष्ट वर्जित होगा।
5. नेस्टिंग टैले के करीब आई हर बाधा की जानकारी व्यवस्थित तरीके से कॉपी में दर्ज की जाएगी; टैले के करीब जाते लोगों को पैग से सरल भाषा में समझाया जाएगा और उपरोक्त जानवरों को उचित तरीके से भगाया जाएगा।
6. बाघ, गीदघ, बघना, टिटहरी, कौआ, सायस आदि पक्षी-उड़ें एवं चूजों के प्राकृतिक शिकारी हैं, इसलिये इन्हें ना ही भगाया जा सकता है ना ही भगाने की जरूरत है। नेस्ट रक्षकों को भी स्वयं टैले पर जाने की जरूरत नहीं है, वे आसपास बिना विडियो को बाधित किष्ट गश्त जरूर लगा सकते हैं।
7. कार्यक्रम निदेशक तथा अन्य वनाधिकारी एवं वनकर्मी किसी भी समय मंड़ैया पर निरीक्षण करने आ सकते हैं, और दिन या रात भर रह भी सकते हैं।
8. झुली करते वक्त किसी भी नशीले पदार्थ (जैसे मद्यिरा, भांग, गांजा) का सेवन नहीं करेंगे; यह नियम नेस्ट रक्षक, वनाधिकारी, प्रोजेक्ट टीम के सारे सदस्यो तथा वनवासियों पर भी लागू होगा।
9. नेस्ट रक्षक के द्वारा अभियोग्य के किसी भी नियम (जैसे मकनी का बिकार न करना, बाल न उठाना, शोरखूल न करना आदि) को स्वयं या किसी और को तोड़ने हेतु सुरक्षा देने से वन्यजीव (संरक्षण) अधिनियम, 1972 के तहत उचित कार्यवाही की जाएगी।
10. प्रत्येक नेस्ट रक्षक को 30 दिन की झुली पर रु. 7,000 वेतन दी जाएगी।

(रोहित झा, वरिष्ठ अधिकाारी एवं कार्य निदेशक) पृष्ठ 8

APPENDIX - III

Nest protector candidates- ID Cards:

River-island Nesting Birds' Protection Program (2020)

Envisioned by: Supported by: Funded by:

Name: **CHANDRABHAN SINGH**
 Designation: **Nest Protector (Nadgawan)**
 Issued on: **16 May 2020**
 Expiry: **15 July 2020**

Wildlife Institute of India is an autonomous institution of the Ministry of Environment, Forest and Climate Change, Government of India. Post Box No. 18, Chandrabhan, Deoband - 208001, Uttar Pradesh, India. +91-510-2600111-115. Fax: 2600117. Email: wii@wii.gov.in; wii@wii-wii.gov.in

Residential Address: **S/O Hinachal Singh, Village Nadgawan, District Agra, Uttar Pradesh 203114**
 Mobile: **+91-9306271676**
 Date of Birth: **05 May 1988**
 ID number: **9648-2051-9243 (Aadhaar)**

INSPECTOR AUTHORITY
 Rakesh K.S. Jha
 District Project Officer,
 Wildlife Institute of India

This card is the property of the Wildlife Institute of India. It has to be reported immediately to the issuing authority (post: +91-510-2600117, email: wii@wii.gov.in) and/or the Deputy Conservator of Forest, National Chambal Sanctuary Project, Agra (post: +91-562-2100974). This card must be handed back to the issuing authority upon its expiry or when demanded. All government officials and members of the public are requested to appropriately advise the appropriate local authorities in following these duties, thereby ensuring the conservation of threatened bird species such as the Indian Swamphen, Black-bellied Tern, River Tern etc.

River-island Nesting Birds' Protection Program (2020)

Envisioned by: Supported by: Funded by:

Name: **SHOBHA RAM**
 Designation: **Nest Protector (Nadgawan)**
 Issued on: **16 May 2020**
 Expiry: **15 July 2020**

Wildlife Institute of India is an autonomous institution of the Ministry of Environment, Forest and Climate Change, Government of India. Post Box No. 18, Chandrabhan, Deoband - 208001, Uttar Pradesh, India. +91-510-2600111-115. Fax: 2600117. Email: wii@wii.gov.in; wii@wii-wii.gov.in

Residential Address: **S/O Suresh Singh, Village Nadgawan, District Agra, Uttar Pradesh 203114**
 Mobile: **+91-9927104982**
 Date of Birth: **01 August 1970**
 ID number: **49501091-0089 (Aadhaar)**

INSPECTOR AUTHORITY
 Rakesh K.S. Jha
 District Project Officer,
 Wildlife Institute of India

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River-island Nesting Birds' Protection Program (2020)

Envisioned by: Supported by: Funded by:

Name: **KALLU**
 Designation: **Nest Protector (Nadgawan)**
 Issued on: **16 May 2020**
 Expiry: **15 July 2020**

Wildlife Institute of India is an autonomous institution of the Ministry of Environment, Forest and Climate Change, Government of India. Post Box No. 18, Chandrabhan, Deoband - 208001, Uttar Pradesh, India. +91-510-2600111-115. Fax: 2600117. Email: wii@wii.gov.in; wii@wii-wii.gov.in

Residential Address: **S/O Ramswami, Village Nadgawan, District Agra, Uttar Pradesh 203114**
 Mobile: **+91-8079425460**
 Date of Birth: **NA**
 ID number: **DPK20041543 (Voter card)**

INSPECTOR AUTHORITY
 Rakesh K.S. Jha
 District Project Officer,
 Wildlife Institute of India

This card is the property of the Wildlife Institute of India. It has to be reported immediately to the issuing authority (post: +91-510-2600117, email: wii@wii.gov.in) and/or the Deputy Conservator of Forest, National Chambal Sanctuary Project, Agra (post: +91-562-2100974). This card must be handed back to the issuing authority upon its expiry or when demanded. All government officials and members of the public are requested to appropriately advise the appropriate local authorities in following these duties, thereby ensuring the conservation of threatened bird species such as the Indian Swamphen, Black-bellied Tern, River Tern etc.

APPENDIX - IV

A banner put up in the Nadgawan Village

राष्ट्रीय चंबल अभयारण्य में नदी द्वीपों पर प्रजनन निर्भर पक्षियों की सुरक्षा योजना



द्वारा समर्थित,
मान्यता-प्राप्त



पक्षियों के प्रजनन द्वीपों पर या उसके आसपास के क्षेत्रों में निम्न गतिविधियाँ प्रतिबंधित हैं, दंडनीय हैं:

1. पालतू जानवर, कुत्ते, इंसान या किसी का भी आवागमन
2. मछली या किसी भी वन्य प्रजाति का शिकार, शोर मचाना या किसी भी प्रकार का बाधा करना
3. अंतिम संस्कार करना
4. नियुक्त घासला रक्षकों को उनकी ड्यूटी करने से रोकना

चलिए मिलकर इन खतरों से झूझती प्रजातियों को जीने का मौका दें



किसी भी अन्य जानकारी के लिए योजना निदेशक रोहित झा (भारतीय वन्यजीव संस्थान, मो. +91-9833490579) अथवा उप वन संरक्षक, राष्ट्रीय चंबल अभयारण्य परियोजना, आगरा (कार्यालय: +91-562-2530091) से संपर्क करें

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Tribal Territories:

Impact assessment around the Jarawa tribal reserve, middle and south Andaman Islands

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A scientific approach to understanding and mitigating elephant mortality due to train accidents in Rajaji National Park.

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Elephant in Exile:

A rapid assessment of the human-elephant conflict in Chhattisgarh

Ganesha to Bin Laden:

Human-elephant conflict in Sonitpur district of Assam

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Otters in the river Cauvery, Karnataka

Making Way

Securing the Chilla-Motichur Corridor to protect elephants of Rajaji National Park

Silent Stranglers:

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Rapid survey for the endangered Ladakh urial (*Ovis vignei vignei*) in Leh district of Ladakh Trans-Himalaya

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Status and distribution of Greater adjutant storks (*Leptoptilos dubius*) in the Ganga and Kosi river floodplains near Bhagalpur, Bihar

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National Elephant Conservation Action Plans 2023 (Vol. 1)

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The National Chambal Sanctuary (NCS) is India's only tri-state riverine Sanctuary and is the breeding ground of endangered Indian Skimmers (*Rynchops albicollis*). Past scientific projects reported that low water flow conditions in the river made way for predators like dogs and jackals resulting in egg/chick predation, as well as unintentional trampling by cattle and human movement. Recognizing that effective protection of nests and chicks required constant monitoring, a WTI Rapid Action Project was implemented to pilot a nesting-island protection programme involving members of the local community, State Forest Department and conservationists. This Occasional Report covers the project activities which resulted in two Indian Skimmer nesting sites being protected, where 42 nests were active with 54 Indian Skimmer fledglings.

