

BEHAVIOURAL STUDY OF BIRDS IN SIKAR REGION

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ABSTRACT

The Red-naped Ibis, Pseudibispapillosa, is one of the waterbirds of the Indian subcontinent that has received the least amount of research. In the years 2021 and 2022, in the state of Rajasthan, we collected observations in and around two towns of contrasting sizes: the smaller city of Dhariawad (in the Pratapgarh district), and the bigger city of Sikar (in the Sikar district). Our goal was to get a deeper understanding of the behaviors of the birds. Ibises were found foraging and roosting in the crowded markets of both of these cities. Observations of eating patterns included several behaviors that are already well documented, such as feeding on earthworms and feeding on corpses. Novel eating behaviors included capturing fish, preying on the eggs of birds and adult Rock Pigeons Columba livia, scavenging on roadkill, particularly feasting on the bone marrow of recently slain cattle, and dining on rubbish (dead rats and left-over meals) that home owners disposed of on roadsides. These novel feeding behaviors were discovered in the wild. Despite the availability of a large number of trees in both cities, the majority of Red-naped Ibis chose to nest and roost on man-made structures instead of trees. These constructions included mobile phone towers, high-tension pillion towers, and light poles. Our investigations have revealed a variety of previously unknown behaviors exhibited by the Red-naped Ibis. Even though the evidence is largely anecdotal, the observations indicate to Red-naped Ibis displaying a significant amount of behavioral flexibility in urban settings when they are not being persecuted by people. The observation of little understood resident species such as the Red-naped Ibis provides possibilities to add information to the behaviors of such species and how they interact with varied levels of urbanization. This is especially true in smaller cities.

keyword: Behavioral, Sikar Region

INTRODUCTION

Pseudibispapillosa, often known as the Red-naped Ibis, is a species that can only be found in the Indian subcontinent. Very little study has been conducted on this species. It is commonly known as the Red-naped Ibis. This particular species can only be found in India. Anecdotal information is the only source upon which our understanding of the behavior of the species is derived, despite the fact that the species is distributed across the subcontinent in large populations. Especially for less well-researched species, it is beneficial to generate early conceptions about the requirements, traits, behaviors, and other associated ecological aspects of the species by making use of natural history data such as these. This is especially true when the species in question has not been studied very well. During the years 2021 and 2022, observations on the Red-naped Ibis were made in and around two towns of various sizes located in the state of Rajasthan in the northwestern part of India: the smaller city of Dhariawad (Pratapgarh district) and the bigger city of Sikar (Sikar district). In this note, we combine our findings

from both of these towns and their surrounding areas. My observations have shown that the climates of these two cities couldn't be much more different from one another: Sikar is located in one of the driest sections of the state, but Dhariawad is in the region of the state that has the most humidity. Personal observations indicate that red-naped ibises are among the most abundant bird species that can be seen in both of these towns. As a result, both cities have been overrun by these birds. While we do provide some findings on feeding and breeding, we don't go into a lot of depth regarding other ecological issues. Finally, we examine our findings in light of the information that is readily available in the current body of research, which includes the studies that have been published in this issue of SIS Conservation. This research includes the studies that were conducted by the researchers who were involved in the SIS Conservation project.

STUDY AREA

Due to the fact that there have not been any studies conducted before in the two focus cities (the locations of which can be seen in Figure 1), the majority of the descriptions that we provide are based on our own personal observations and on sources such as Wikipedia that cannot be explicitly cited. Dharia wad city is a tiny town that is located in Pratapgarh district, which is recognized as the greenest area in the state of Rajasthan. It is nestled within the Aravalli Mountains and is flanked by enormous desert scrublands and extensive rainfed farmlands. The most important agricultural products include maize (*Zea mays*), wheat (*Triticum aestivum*), soybeans (*Glycine max*), and opium (*Papaver somniferum*). The city is known as the "river city" of the Pratapgarh district since it is located between five rivers, which is how its name was derived in the native Rajasthani language ("dariya" means rivers, and "wad" means between; this information was gathered from the people who live in the surrounding villages). The Jakham Dam, which is the largest in the state, can be found 32 kilometers away from the city of Jakham, which also features one seasonal and two permanent rivers. According to the census completed in 2011, the population of the town is slightly more than 11,300 individuals.

The climatic variables were obtainable from Udaipur, which is the closest significant city to the study area, and their averages were recorded between the years 1981 and 2010. Temperatures reached a high of 32 degrees Celsius and dipped to 17.6 degrees Celsius, while the annual mean rainfall was 674 millimeters. In sharp contrast, the city of Sikar may be found in a region that is commonly referred to as the Thar desert. This is the region of the Indian subcontinent that has the lowest elevation and the highest rate of desertification. The region is home to a single significant body of water known as the Kot dam, which is located in the neighboring Jhunjhunu district and is around 30 kilometers from Sikar city. The Aravali hills completely enclose the dam, leaving it devoid of any potential irrigation uses. In an otherwise dry region, the area around the dam is covered by a sparse tree growth that is spread out across a broad area. These trees include Sheesham *Dalbergia sissoo*, Neem *Azadirachta indica*, Bargad *Ficus bengalensis*, and Peepal *Ficus religiosa*. Peepal *Ficus religiosa* is the most common of these species. Over 2,37,500 individuals called the city of Sikar their home at one point. Temperatures ranged from 44.9 degrees Celsius to 1 degree Celsius, and there was a mean annual precipitation of 358 millimeters. Both cities exhibited very pronounced manifestations of seasonality due to the patterns of temperature and precipitation. Contrasting habitats for Red-naped Ibises were created as a result of the severity of environmental factors such as temperature (Sikar had considerably hotter and longer summers) and precipitation (Dharia wad received significantly more of both).

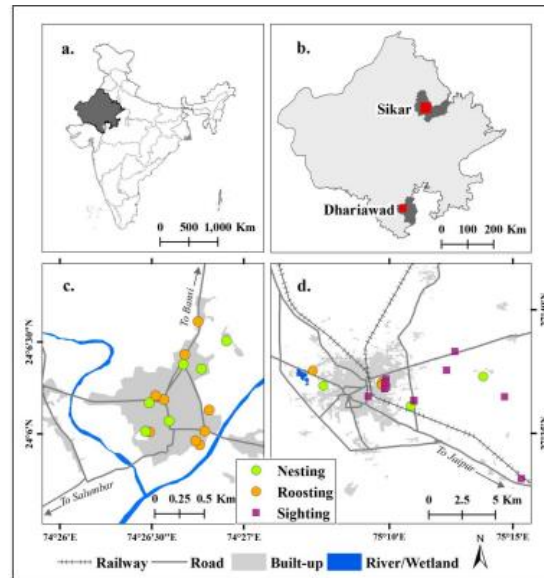


Figure 1. Sikar, the two main cities, and Rajasthan (a) map. The nest and roost places in Sikar city and Dharia wad are shown on detailed maps. City maps show just essentials.

OBJECTIVE OF THE STUDY

1. To conduct research on the behavioral aspects of studying birds in the Sikar region
2. To do research on the red-naped ibis, which is a species of bird that is only found in the Indian subcontinent (*Pseudibispapillosa*).

METHODS

Beginning in September 2021 and continuing through the end of October 2022, observations of the Red-naped Ibis were carried out. Throughout the entirety of the study, opportunistic observations were made, and interviews were conducted with farmers, other villagers, and business owners who were shown to be noticing the behavior of the ibises. The majority of observations made in Dharia wad city were made within the city itself, whereas the majority of observations made in Sikar city were made in and surrounding the city. (see Figure 1).

RESULTS

Use of the habitat and reproduction Red-naped Ibis were seen flying in small groups of three to five in the city of Dharia wad. These groupings were most likely families. During the entirety of the monitoring period, the city did not have any sightings of huge flocks. Ibises have been seen foraging in rivers, fallow agricultural fields, along the edges of wetland areas, and even occasionally in the marketplace. There were many roosting sites found, and all of them were on poles that had been constructed to give light in the market (see Figure 2 for more details). With the exception of one roost, which included six ibises, roosts solely contained pairs of birds. Ibises were seen perching atop 15 man-made buildings of three different kinds (mobile towers, light poles, and temple flagpoles), of which only five were being utilized for nesting. All of these structures were found within a radius of roughly 1

kilometer from the heart of the town (Figure 1). Over the course of two years' worth of successive breeding seasons, the ibises chose to nest in a total of two light poles and four mobile phone towers (see Figure 2).

Every season, two young birds fledged from each nest, and all of the nests were utilized for at least two breeding cycles before being abandoned. Two further nesting sites were established, but it appeared that no eggs were deposited at each one of them, therefore they were both abandoned. Although there is a significant amount of tree cover in and around the city (permanent observations), no nests were seen on any of the trees. In the city of Sikar, a total of 54 Red-naped Ibis, including 11 youngsters, were seen over 10 separate trips. In the vicinity of the city, a flock of 27 ibises was spotted eating on the remains of a cow or bull. A single flock of at least 200 ibises was counted in the outskirts of the city during the winter of 2021 spread out across a mobile phone tower next to the corpse dump. This flock was located in the vicinity of the city landfill. Red-naped Ibises were spotted feeding in wheat and vegetable fields, nurseries where plants and trees were grown for sale, rubbish dumps, and along roads.

They were also seen in couples and small groups of fewer than five birds. At least one young bird hatched from each of the three active nests that were found, and all of the nests were situated on man-made structures. Two of the nests were situated on powerline towers, while the third was situated on a mobile phone tower. In the town of Dharia wad, Red-naped Ibis were seen foraging on unidentified insects (including Coleoptera grubs), frogs, and unidentified worms (quite likely earthworms) in agricultural areas that had recently been tilled just prior to the onset of the monsoon season. It was commonly seen that red-naped Ibis were eating on the carcasses of animals as well as at a waste dump that was located next to a river. Nests of Rock Pigeons (*Columba livia*) were found to have been preyed upon by an adult Red-naped Ibis. The nests were situated on air conditioners that were outside of windows in a busy section of the city. Pigeon juveniles were murdered by using the beak as well as the feet, and then they were carried to a nest that was built on top of a light pole so that ibis nestlings could eat them. Residents whose rooftops had a near vantage point of the nest recounted the usual occurrence of residents shooting pigeons in this manner. It was seen that one Red-naped Ibis flew to its nest on a light pole with an unidentified snake measuring less than half a meter in length, which it then fed to its young.



Figure 2. Red-naped Ibis breeding on Dhariawad city light posts. The photos depict roofs where inhabitants observe ibises (below-left) and crowded marketplaces (above and below-right). (Prabdeep Sharma and Mahendra Singh photos)

Red-naped Ibises ate multiple animal corpses dumped by city employees at Sikar's major waste dump. A snake, unidentifiable birds, and rats were present. A corpse dump flock of 22 Red-naped Ibis includes five youngsters. Cattle corpses outnumbered dog carcasses. Ibises ate skin and meat scraps. Two ibises were seen probing the bones of highway-killed livestock. Ibises ate bone marrow. A Red-naped Ibis adult swallowed 28 earthworms in one minute at a plant nursery. Ibises caught fish in a reservoir's shallow waters. One of three Red-naped Ibises caught a fish in shallow water near a dam and tried to fly away. The ibis devoured the fish when it stopped moving. Red-naped Ibis ate a dead mouse thrown out of a home and leftover food from a social gathering in the city. Four young Red-naped Ibis fed on Grey-headed Swamphens *Porphyriopoliocephalus*, Lesser whistling Duck *Dendrocygnajavanica*, Redwattled Lapwing *Vanellus indicus*, and Blackwinged Stilt *Himantopus himantopus* at a municipal sewage outflow. Ibises were also seen hunting living birds of these species, although none were killed. One ibis ate an unidentified roadkill snake. Three mature ibises attacked Rock Pigeons nibbling on grains or soaring about the city's mobile phone towers. Two attacks killed birds, which ibises carried away. Red-naped Ibises eat white grubs, a major agricultural pest, according to farmers.

CONCLUSION

Our data support certain Red-naped Ibis feeding behavior but add significantly to its known feeding and breeding routines. The species eats insects, frogs, and reptiles, although capturing fish is new (Hancock et al. 1992; Ali and Ripley 2007). Predating Rock Pigeon nests, hunting adult pigeons, devouring bird corpses and roadkill, and consuming dead rats and leftover food from city dwellers were other interesting feeding behaviors.

Ibis have also been observed reaching into bone cavities for bone marrow, suggesting they have adapted to eating roadkills of large domestic animals. A comprehensive examination of Red-naped Ibis diets may reveal novel foods. Including ibis populations in cities can help determine their dependence on urban foods and how accustomed they are to people. In Churu, Rajasthan, Rednaped Ibis exclusively nest on trees. Nests in both cities were on manmade buildings, including temple flagpoles.

Red-naped Ibises appear to have switched to manmade buildings despite the fact that there were plenty natural nest trees in both focal cities (pers. obs.). Red-naped Ibis have built nests on artificial structures in other parts of the country, both when trees were scarce or absent and when they were not. A detailed study of Red-naped Ibis nesting ecology in various contexts and over numerous years will determine if the species is adjusting nesting behaviors and becoming more dependent on manmade structures. Red-naped Ibis have been documented roosting in manmade structures (Dodia and Parasharya 1986), but big roosts like ours are unusual. The corpse disposal location near Sikar city may draw birds to the big ibis roost. Such carcass dump sites are located near all Rajasthan cities, suggesting that more attentive monitoring in and around towns may help identify many additional roosting places with large Red-naped Ibis counts.

Our findings imply that Rednaped Ibis are acclimated to Rajasthan's various towns. Ibises are not persecuted in Rajasthan, and many appear to constantly monitor their behavior. Farmers were previously aware of ibises' eating patterns but our encounters with inhabitants of the two main cities revealed that many people are watching them. Ibis preying on pigeon nests, white grubs, and snake carcasses were known to these people but not in the literature. Long-term studies of common resident waterbirds like Red-naped Ibis may help explain how waterbirds interact with urban environments.

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