

**SOCIAL BEHAVIOR IN NESTING COLONY OF STREAK-THROATED SWALLOW
(HIRUNDO FLUVICOLA) AT NANDUR MADHYAMESHWAR, NASHIK DISTRICT
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ABSTRACT

Streak-throated Swallows or Indian Cliff Swallows (*Hirundo fluvicola*) are included as members of the Hirundinidae family. These birds are known for their beautiful flight and migratory regularity. Study of streak-throated swallow nesting behavior at Nandur Madhyameshwar Bird Sanctuary in Nashik District. Many observations have shown that Nandur Madhyameshwar Bird Sanctuary is considered as an important for bird researcher sighting destination and helps in updating the behavior and biological information of streak-throated swallows found in the study area. However, very little is known about the behaviour of swallow nests in the Nandur Madhyameshwar Bird Sanctuary. Therefore, the present study provides a behavioral study of comprehensive nesting of birds in Nandur Madhyameshwar Bird Sanctuary.

KEYWORDS: Nandur Madhyameshwar, Wetland, Hirundinidae, Nest, *Hirundo fluvicola*.**INTRODUCTION**

The bird is described as a 'feather biped'. This description is correct and accurate and cannot be applied to any other animal. Birds are warm-blooded animals, that is, they have a more or less constant temperature and are independent of the ambient temperature. This is in contrast to reptiles, amphibians, and fish that are cold-blooded, that is, the temperature that changes with the heat or cold around them.

Harmonious behavior among birds can be considered as a result of positive social responses. Such responses are usually, if not always, balanced by negative social responses. The social behavior displayed by the bird in any particular situation can thus be considered to reflect the balance of the two responses. Social and regional behavior of streak-throated Swallow or Indian Cliff swallow nesting. Indian cliff swallows were performed in all or almost all general activity groups, and positive social responses were most noticeable on loafing purchases, foraging sites, mud and grass collection sites, and nest colonies. Alarm call given by members of the colony when they come in contact with enemies or other disturbing elements in the colony or house.

The Streak-Throated Swallow or Indian Cliff Swallow (*Hirundo fluvicola*) is a member of the Hirundinidae family known for its beautiful flight and migration regularity and for those living in India. A highly

cohesive bird usually builds its nest in close proximity to the water along with other swallows, (Ali and Ripley, 2001). The Indian cliff swallow smaller than a sparrow, the upper part is blue, boldly streaked chest, throat and short tail. There is a reddish forehead, crown and pale brown rump that looks like flying. Their small triangular bill with wide gaps contains bristles that act as aerial fly scoops. They seem to have no difficulty in remembering the movement of vehicles as well as human presence, (Kumar et al., 2005). The close association of the streak-throated swallow with human habitation means that it is well-known to the people, and in some parts of the world having a streak-throated swallow's nest on one's property is considered a haven of fortune, (Turner, 1991).

The Streak-throated Swallow or Indian Cliff Swallow is not restricted to a small region of Nandur Madhyameshwar Bird Sanctuary. This smallest bird commonly in occupied village overhead tanks, school buildings, hospital. Even unusual residents and local immigrants. The Swallow species, especially those nests made from mud, its closely related and have similar nesting behaviors, (Winkler and Sheldon, 1993). All species recycle nests, which are well protected and can remain intact for several years and they commonly repair old nests before laying eggs, (Barclay, 1988; Brown and Brown, 1996). Birds usually prefer their nesting area within the foraging place so as to decrease the number of trips to the nest. Nearby feeding sites role in increased

vigilance of the nest and reduce the chances of predation of eggs and nestlings, (Ishtiaq et al., 2004).

The environmental value of Swallows, it provides us with environmental services as a pest controller. They mainly eat insects such as bees, wasps, flies, damselflies, moths, grasshoppers, crickets, and many more. It is common for people to build nests to these pest controllers.

METHOD AND METHODOLOGY

Aim of the study

To know the biodiversity of swallows in Nandur Madhyameshwar Bird Sanctuary and their behavior related to foraging, nest, breeding season, classification. The species selected for the study are given below.

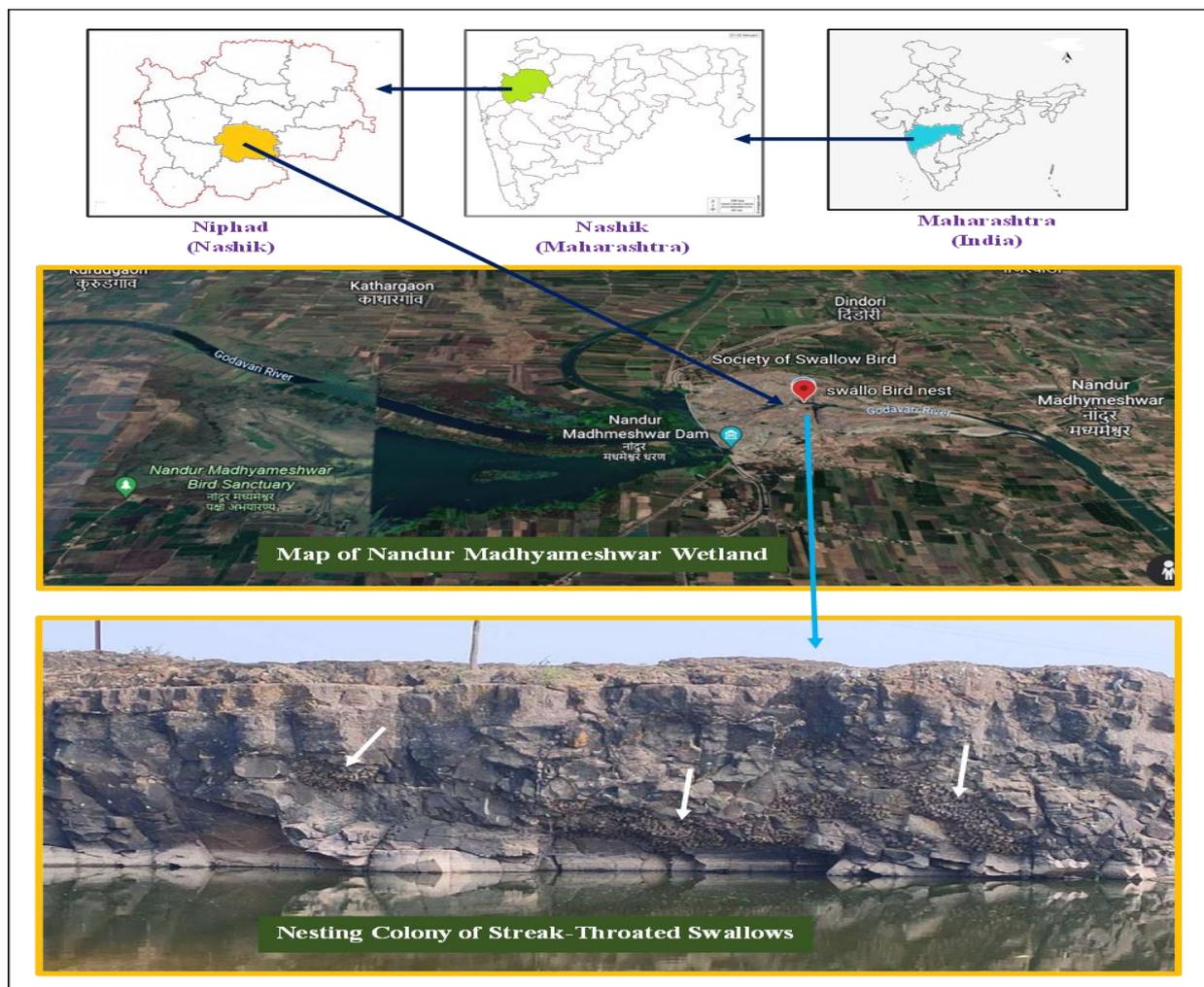
Streak-Throated Swallow or Indian Cliff Swallow (*Hirundo fluvicola*)

Field Site Description

Nandur Madhyameshwar Bird Sanctuary is in Niphad Tehsil of Nashik district in Western Maharashtra state lies between 20° 00'11. 82"N to 20° 01'35. 66"N and 74° 05'53. 08"E to 74° 07'56. 68"E. Nandur Madhyameshwar Bird Sanctuary is 40 km away from Nashik. The distance between Niphad-Nandur Madhyameshwar Bird

Sanctuary is 12 km. The distance between the Sinnar-Nandur Madhyameshwar sanctuary is 25 km. It is an important wetland with 23 lakes and small lakes. This sanctuary is known for its bird population and is also known as "Bharatpur of Maharashtra". It is a famous bird sanctuary established by Dr. Salim Ali. Nandur Madhyameshwar Wetland Site has been declared as Ramsar Wetland by the International Ramsar Convention on Wetlands. It is the first wetland in the state of Maharashtra and has been declared by the convention as one of the nine wetlands in India. A bird sanctuary has been developed around Nandur Madhyameshwar Dam, which is built at the confluence of Godavari and Kadwa rivers.

Identify the bird and nest communities of streak-throated swallows or Indian cliff swallows using the photographic capturing method. The points selected to record the data were visited by walk. 02 to 03 hours were spent on each point. Using the NIKON P900 digital auto-zoom camera 2000mm range, avian activities were digitally recorded via photos and videos. The Olympus binoculars in the 1.0 to 1.5 km range were used to observe birds and their activity. The observation hours were from 6.00 am to 11.00 am and from 3.00 pm to 6.00 pm.



Status and distribution

The Streak-Throated Swallow or Indian Cliff Swallow is a species of Swallow found native to South Asian countries like Afghanistan, Bangladesh, India, Nepal and Pakistan (breeder, year-round resident or winter visitor). Even unusual residents and local immigrants. Uncommon to rare in the Konkan. Records from Pune district: In Pune (Mahabal & Lamba, 1987; Ingalhalikar et al., 2000-01); Further Entries in Visapur Dam, Ahmednagar District (Pittie, 1998e); South of Chiplun, Ratnagiri district (Abdulali, 1942); Nandur Madhyameshwar, Nasik district, Thane district, specimens in BNHS collection (Abdulali, 1977); Virar & Panvel, Bombay, uncommon (Monga, 2001); Bombay (Aitken, 1900); Solapur and probably Satara districts, very common (Davidson & Wenden, 1878); Panjra river, Dhule district, in immense colonies (Davidson, 1882).

Morphology

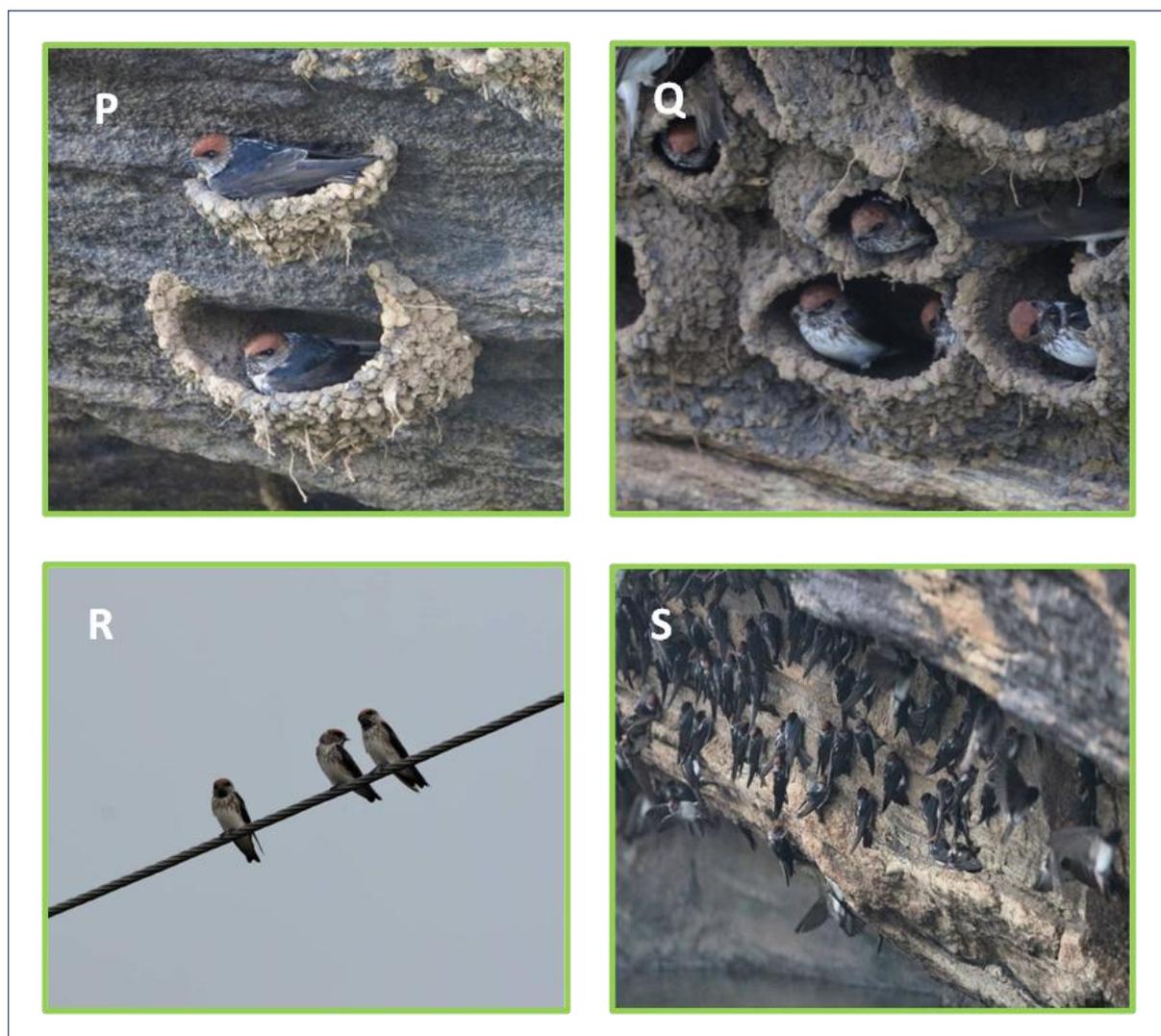
Streak-throated Swallows or Indian Cliff Swallows (*Hirundo fluvicola*) found in Nandur Madhyameshwar are known as 11 cm compact birds. It is a small swallow of shiny steel-blue color. The forehead, crown, and back of the neck is chestnut with faint dark streaks. Ventrally white with black and pale brown on the sides, and more pronounced during flight. The back is a bright deep blue with a few narrow white lines on the head. Underparts are buffy white with black-brown lines, especially on the chin, throat and upper breast. The wings are blackish-brown. The tail is dark-brown, slightly square, slightly prickly and short. And relatively weak flight, (Chaya H.C. et.al., 2014). Both sexes look alike. The juveniles look like wire tailed swallow juveniles and can be distinguished between their striped and non-striped neck, respectively. It is inhabited and partly migrated. These birds have been building nests here for some time now. It was fascinating to see their behavior, collecting wet soil from the creek and flying back to build nests. Some of them were seen soaking wet soil in the field water while flying.

Process of Nest construction and Nesting material:

Nesting is preferably done under gravel, under the surface of bridges, on the slopes of man-made structures, against gravity. Cliff Swallows are good architects and builders in nature. Nests built on rock overhangs do not get support from below when the mud bear's load is compressed and swallowed in rocks. The swallows wet mud carries for nest material into the mouth. They remove suitable mud from coastal areas as well as wet soil areas after rains. One by one a mud ball is formed in their beak and taken to their nest which is shaped like a gourd. (About 1.0 to 1.5 cm in diameter) and about 1500 to 1800 mud pellets. It takes a few hours to a few days to build a nest because both male and female build nests together, (Brown C. R. et.al., 1991). The number of nests builds depends on the availability of space, aqueducts (water bodies) and bridges. Sometimes there are buildings, bridges but no aquatic site so there are fewer nests.

Males and females work together to create magnificent structures of sand and clay, where they lay their eggs into fledglings. In a weak fluttering flight, the parents get sand, particle by particle, mixing it with saliva to shape a funnel like house carefully around the underside of river bridges, even ledges or eaves to protect it from the 'threats' from predators and beating of the weather. The base is fixed with a mixture of feathers and grass with clay and moist sand. The nest is a small round open gourd-shaped, spacious enough to accommodate 3-4 newborns and parents. The construction materials consisted mainly of sand, clay, slit, feathers, plastics, twigs, cotton threads, mixed saliva, etc., as well as dried grass, moss, pteridophyte roots and lichens were also used in structural layers, mostly in nests. Placed in tunnel / culvert sites. The amount of this material in the nests placed in buildings is very low, (P. Balakrishnan, 2010).





P = At that point the birds on the side of the nest start a new nest, **Q** = The swallow builder has to extend the tunnel entrance to the outside to allow access to the nest. **R** = The Light wires were the commonest perching sites for loafing swallows after seven o'clock in the morning. **S** = At the onset of sunrise, a large proportion of local adults gathered near the colonies for sun-bathing and preening for an hour or more in protected sunny conditions.

Nesting Habitat and Ecology

Indian Cliff Swallow are small insectivores that breed in fresh nests, (Peck & James, 1987). In these rocky regions, swallows make colonies of one to several thousand nests. Breeding is highly synchronized in the colonies and limited to the months of May to August, (Emlen & Demong, 1975). At the beginning of the breeding season, older, more experienced birds first enter the colony and then breed for the first year after 1-2 weeks. Females lay 3-4 eggs and assume most incubation, although males also participate. Eggs are incubated for 14 days (range: 12 - 16 days) before hatching. Once hatched, the initial two to three days of brooding is almost continuous and then gradually decreases before stopping after 7 to 10 days, (Petersen, 1955). The majority of brooding is done by women, although men and sometimes both sexes become young at the same time. Both males and females cater to the young, (Turner & Rose, 1989). Youngs are fed at the rate of 22.1-28.2 visits / h before fleeing after 18-22 days and

they are fed irregularly for one week thereafter, (Petersen, 1955; Emlen & Demong, 1975; Hickman, 1979; Peck & James, 1987). Fledged young may roost in nest burrows for up to one week after first leaving their nest. Overall, nesting success is high, with up to 70% of eggs 6 resulting in fledged young, (Asbirk, 1976; Sieber, 1980).

CONCLUSION

Behavioral characteristics of birds suggest that Indian cliff swallows traditionally build their nests on vertical ridges. They also liked the waterfront and the nearby area for eating. Birds usually prefer a place to feed their nest to reduce the number of trips. Closer feeding sites also help in increased vigilance of the nest and minimize chances of predation of eggs and nestlings.

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