Some breeding parameters of whiskered tern (*Chlidonias hybridus*) at Ancharlake, Kashmir

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Abstract: Studies on some breeding parameters of Indian whiskered tern were carried out in Anchar lake Kashmir during the breeding season of 2014 and 2015. Nest building began in early May with middle of May to middle of June as peak nesting period. June was the peak egg laying month. Average clutch size of 2.72±0.64 (n=60) was recorded. Mean incubation period was 21.08±0.5 days (n=60). Nest success and hatching success were 68% and 60% respectively.

Key words: Breeding, Nest, Hatching Success, Nest Success.

Introduction

Lakes and wetlands of Kashmir harbour a great floral and faunal diversity. Aquatic avifauna of the valley includes the world famous winter visiting waterfowl, various resident birds and many summer visitors. Many resident birds and summer visitors use these wetlands and lakes as breeding grounds.

Whiskered tern locally known as "Krew" or "Krind" is a summer visitor to the wetlands and lakes of Kashmir, arrives in spring, breeds here and leaves back to the plains of India in autumn. It belongs to the order Charadriformes and family Laridae. It is found in almost all lakes and wetlands of Kashmir during summer and also makes trips to the paddy fields. It breeds in the areas of these water bodies where there are reed beds and sufficient floating vegetation. In order to know its various breeding parameters viz., nest building, egg laying, clutch size, incubation, hatching and nest success the present study was carried out.

Study area

The present study was carried out at Anchar lake Kashmir. Anchar Lake, though neither a Ramsar site nor an IBA is, nevertheless, an extremely important bird habitat as several species of waterbirds breed in the lake in summer, besides forming a staging point for many avian winter visitors. The lake is rich in dense and tall beds of macrophytic vegetation, open water areas, areas with floating vegetation and peripheral willows. Anchar Lake is located at a distance of 14kms north-west of Srinagar at an altitude of 1583m above sea level with an area of about 4.26 Km^2 and a maximum depth of 2.6 meters.

Methods

The present study was carried out during two breeding seasons (April to September) of 2014 and 2015 in Anchar lake Kashmir. Whiskered tern nests on floating vegetation and among the reed beds in colonies. Nests were detected by visiting the colonies during breeding season every third day. Any residing place of the bird with one or more eggs was considered as a nest. Studies on nest building, egg laying, clutch size and incubation were conducted. 10x50 field binoculars were used to watch the activity of the birds. Nests that produced at least one young were considered successful. For the determination of nest success and hatching success the nests were followed till the hatching or the period till nest was live. A nest in which at least one duckling hatched was

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considered as successful. Nest success and hatching success was calculated as per Mayfield (1961).

Results and discussion

A total of 146 nests were located during the two year study period 77 in 2014 and 69 in 2015. Nest building started in early May with middle of May upto middle of June as the peak nesting period. Nests were built in colonies close to each other in the floating vegetation areas and reed beds of the lake. The nesting sites occurred in the macrophytic vegetation consisting of the species *Phragmites communis, Sparganum ramosum, Typha angustata, and Scirpus palustris* which provided concealment and floating vegetation providing the base for the nest included the *Nymphea* sp., *Nymphoides* sp. *Potomogeton* sp. and *Trapa natans*.

Nests were also built in areas with only floating vegetation. Nests were simple platforms raised slightly above the water level. Ali and Ripley (1983) reported Indian whiskered tern nest to be a floating pad of water lily stems and decaying rushes on *Trapa*. Bates and Lowther (1952) also reported the nest to be a simple platform of water reeds and lily stems on floating vegetation with the centre or middle sufficiently large enough to hold eggs. Both sexes took part in nest building. Similar observations were made by Bates and Lowther (1952). Hunt (1980) has also reported that in sea birds including terns monogamy was predominant and both sexes play active role throughout the breeding season. After completion of the nest egg laying started. Egg laying began in middle of May in early nests and continued till the first week of July with June as peak laying month. Fatiha et al (2002) also reported June to be the main laying month. Bates and Lowther (1952) and Ali and Ripley (1983) have also reported breeding season to be May to August in Kashmir. Cramp (1985) and Snow and Perrins (1998) reported that in European areas egg laying starts in middle of May and June. A clutch size of 1 to 4 was observed with 3 being the most common clutch. The average clutch size was 2.72±0.64 (n=60). Bates and Lowther (1952) have reported 3 as the common clutch size while Ali and Ripley (1983) have noted 2 or 3 eggs per clutch. Whiskered terns are known to lay two- and three-egg clutches, the latter being more common (Cramp 1985; Bakaria et al. 2002). In 18.33% of the nests the eggs were laid on daily basis while in 81.67% nests (n=60) eggs were laid alternately. Paillisson et al (2006) reported that an interval of at least 1 day is necessary between the laying of successive eggs. Incubation started after laying of the first egg. Both sexes took part in the incubation. But female spent more time in incubation than male. Incubation by both the sexes is a common feature among terns as reported by Bates and Lowther (1952), Ali and Ripley (1983), Buckley and Buckley (1972), Bollinger (1994) and Karwowski el al. (1995). Eggs were periodically turned during incubation.

Incubation period ranged from 20 to 22 days with an average of 21.08±0.5 days (n=60). However Fatiha et al (2002) reported an incubation period of 19.7±0.80 days. After completion of incubation hatching took place. Hatching was asynchronous and took place in the order in which eggs were laid. Asynchronous hatching in terns has earlier been reported by Nisbet (1973). Hatching of a clutch was completed within two days. Nest success rate was found to be 68% (n=60) while a hatching success of 60% was reported. Fatiha et al (2002) reported a hatching success of 85% to 86% in whiskered tern. The high nest success and hatching success can be attributed to the parental care of the bird which actively defends its nest during laying and incubation.

Number of nests	Nests failed	Exposure days	Daily nest survival	Nest success
60	16	1080	0.985	0.68
Number of Eggs	**Eggs failed**	**Exposure days**	**Daily survival**	**Hatching success**
163	51	2119	0.976	0.60

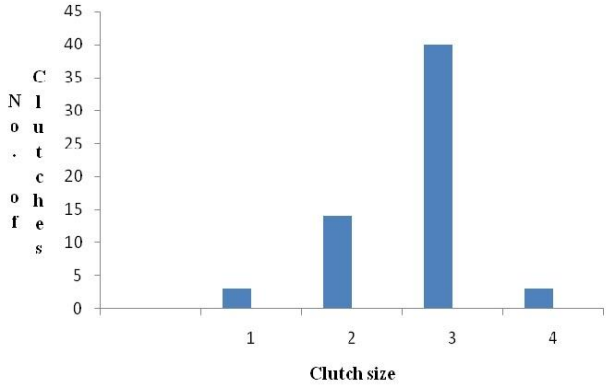

Figure 2: A group of Indian whiskered tern

Figure 3: Nest of whiskered tern with egg

Figure 4: A young one of whiskered tern

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