

# Interspecific territorial behaviour exhibited by Bronze-winged Jacana (*Metopidius indicus*) during its nesting season

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Photo:

Figure 1

## Abstract

The Bronze-winged Jacana, *Metopidius indicus* inhabits a variety of habitats such as floating and emergent dense vegetation in freshwater lakes, swamps, tanks, ponds, wet grasslands, and overgrown paddy fields. Although, polyandrous, the males vigorously defend territories against other males and females defend their mates' territories against other females. However, in this paper, we report some interspecific territorial behaviour by BWJ during its nesting season. Out of 57 instances, in the majority of the instances (53) only male was involved while in only four instances both male and female were involved. In these instances Lesser Whistling Duck (42.10%) was the major intruder and Pheasant-tailed Jacana (5.26%) and Indian Jungle Crow (5.26%) were the least. Moreover, it has been observed that the male BWJ first gives an alarm call to the intruder then it starts chasing and in extreme cases, it fights with the intruder.

## Introduction

The Bronze-winged Jacana (BWJ), *Metopidius indicus*, a common, widespread, resident species found throughout the

Indian Subcontinent (Grimmett *et al.*, 2011; Rasmussen & Anderton, 2012; BirdLife International, 2016) is a common to uncommon resident breeding species in different parts of Gujarat (Parasharya *et al.*, 2004; Ganpule, 2016). Its breeding season coincides with the onset of the Indian South-West Monsoon i.e. from June to September. Mostly males defend their territory against other males while females defend their mates' territory against other females (Jenni and Kirwan, 2020). Though polyandrous (Ali & Ripley, 1978), both the male and the female of species are reported to protect their territory aggressively from all types of intruders (Butchart, 1999; Butchart *et al.*, 1999). However, there are only three reports available stating their behaviour towards some species of birds entering their territory (Mathew, 1964; Chattopadhyay, 1981; Ramachandran, 1998). Here we record the interesting defensive behaviour of BWJ against intruders of five different species of birds in their breeding territory.

## Observation

We observed these aggressive behaviours of BWJ at different wetlands (Savli pond, Harni pond, Timbi Irrigation Reservoir and Mahi River) in and around Vadodara from June 2018 to

## Bronze-winged Jacana....

July 2019. On 24 June 2018, at 13.30 h we observed a male BWJ chasing away a Pheasant-tailed Jacana (PTJ) *Hydrophasianus chirurgus* at Mahi River (22.35° N, 73.04° E), near Kotna Village, Vadodara district, Gujarat. Later, on August 10, 2018, while birding at Savli Pond (22.56° N, 73.22° E), again in Vadodara district, one Grey-headed Swamphen *Porphyrio poliocephalus* was observed entering the territory of BWJ at 16.08 h. The male BWJ straight away chased the Swamphen. In both cases, the male was incubating and protecting the eggs.

During the next breeding season, on 18 May 2019, again while birding at Mahi River near Kotna Village, we observed similar behaviour by male BJW twice but this time it was chasing away Lesser Whistling Duck *Dendrocygna javanica* at 08.53 h (Figure 1) while it just gave an alarm call to one Indian Spot-billed Duck *Anas poeocilo rhynga* at 09.20 h (Figure 2). The male BWJ was incubating its egg. The next day one Indian Jungle Crow *Corvus macrorhynchos* was chased away by the same male BWJ at the same location.

On two other occasions, we observed both the male and the female BWJ defending their territory from the intruders. Firstly, on 20 May 2019 at 08.17 h while foraging on the bank of Mahi River near Kotna Village, when a Grey-headed Swamphen came closer to them, both started calling rapidly and then chased away the Grey-headed Swamphen (Figure 3). One of these BWJ even pecked on the tail of the Grey-headed Swamphen (Figure 4). Secondly, on 20 June 2019 at 08.14 h, at the same place we observed combat between a pair of BJW and a pair of PTJ. On this occasion both the pairs started chasing and pecking each other alternately: i.e. first one individual of BJW flew and pecked one PTJ. In turn, another individual of PTJ flew and pecked the second BWJ (Figure 5). This territorial fight continued for about 16 minutes. Through our observations and literature survey, we learned that a male and female of the BWJ protected their territory.

Overall, out of 57 observations (Figure 6), the BWJ showed territorial behaviour on 24 occasions (42.10%) against Lesser Whistling Duck, on seven occasions (12.28%) against Indian Spot-billed Duck, on 20 occasions (35.08%) against Grey-headed Swamphen, on three occasions (5.26%) against PTJ, and three occasions against Indian Jungle Crow (5.26%). From these observations, it can be said that in this polyandrous species, the male is mainly involved in defense of the nest. In conclusion, in the majority of the attacks the involvement of male is more (53 instances) than the male and female combine (four instances) and no involvement of female separately.

Some behavioural responses by the males of BWJ may be divided into three different patterns.

**Alarm call:** While incubating and foraging, if the male finds any threat in its territory, it stands up, starts calling “seek-seek-seek” and doesn’t stop until the threat has gone away. Also, it sometimes opens the wings and starts flapping to warn the intruders. The interesting observation was that whenever villagers came with their cattle near its territory, it started calling but did not try to chase or peck them.

**Chasing:** When the alarm call doesn’t work, it moves closer to the invader while continuously calling. In the end, it starts chasing the invader and forces it to leave its territory. The species that were chased away are Lesser Whistling duck, Grey-headed Swamphen, PTJ, and House Crow. We also observed that chasing sometimes depended on the size of the intruder. When the intruders were comparatively smaller, then only the male tried to chase them away but when the intruder was bigger in size it just gave an alarm call. For example, when a pair of Lesser Whistling Ducks came closer to its territory; the male BWJ chased and pecked them until they left the territory (Figure 1) while in the case of the Indian Spot-billed Duck entering its territory it just gave a high pitched alarm call. When it did not work it started foraging normally in its territory.

**Fights:** When the first two strategies did not work and the intruder did not leave, then the BWJ would attempt to fight with the intruder. The male BWJ aggressively started attacking the intruder with the help of its beak and feet until the intruder left the territory. We observed such type of aggressive fights with Lesser Whistling Duck (Figure 1), Grey-headed Swamphen (Figure 4) and PTJ (Figure 5), and sometime with other BWJ as well. On one occasion, the male was observed plucking the wing and tail feathers of the Lesser Whistling Duck and Grey-headed Swamphen. Sometimes such fights became aggressive causing injury to one of them. On 24 June 2018, we saw one severe fight between a male BWJ and one PTJ. In this fight BWJ aggressively approached the PTJ, pecking its beak in the neck of PTJ and ultimately hurting it.

## Discussion

The male BWJ is known to have a territory of about 0.2 hectares (approx.) defended strongly from any bird other than his mate (Mathew, 1964) while the territory of female overlaps with one to four male territories (Butchart, 2000). In the present study, we try to measure the territory of 2-3 males around 0.23 to 0.27 hectares overlapping each others territory. While defending offspring from the predators, females assist males and both aggressively attack the possible predators of their eggs and chicks (Stephens, 1984b). Behavioural observation on interspecific aggression by males and females



Figure 2



Figure 3

Bronze-winged Jacana....



Figure 4



Figure 5

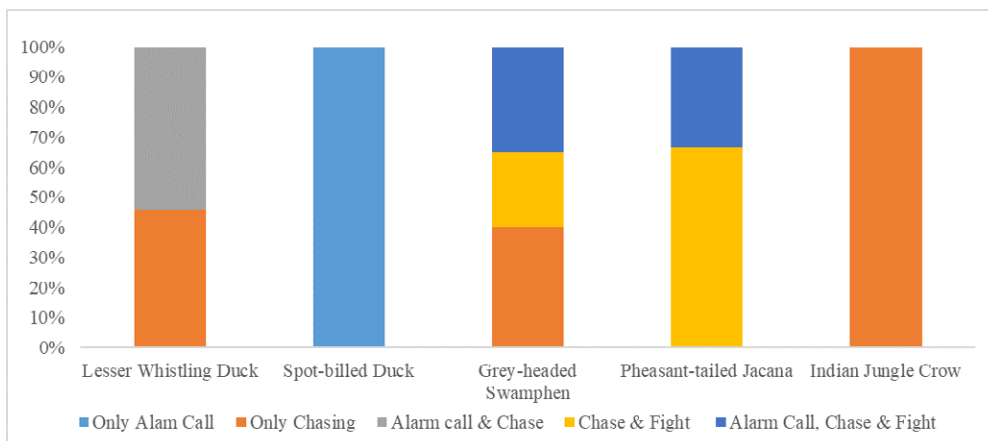


Figure 6

and the time spent by them in attacking predators to their offspring is reported in detail by Jenni and Betts, (1978). Mathew, (1964) has described the defensive displays of both the sexes of BWJ. He states that during such displays the male shows threat postures, stands with stretched neck, open wings, and does furious pecking while the female produces a wheezy piping call and restlessly flies about. Sometimes, the male fakes injury poses during such fights. Stephens (1984b) had described such behaviour as “swoop” and “threats”.

In the present study, we have divided territorial defence into three types: giving alarm calls, chasing, and fighting. From the studies on the competition for territories by BWJ, it has been noted that the territorial males spend more time defending their territory and sometimes display hovering flights towards predators during the breeding season. Nevertheless, it has been reported that territorial male considerably responds more towards other male intruders while female responds more towards other female intruders (Butchart, 1999; Butchart *et al.*, 1999).

Though, territorial male and female BWJ protect their territory from others of the same species (Butchart, 2000), there are only a few reports of their behaviour against other species. Mathew, (1964) reports that the female protects her territory by chasing away other birds such as White-breasted Waterhen *Amaurornis phoenicurus*, Indian Pond Heron *Ardeola grayii* and Lesser Whistling Duck. On one occasion it has been observed to safeguard an injured chick from species like Cotton Teal *Nettapus coromandelianus*, Lesser Whistling Duck, PTJ, White-throated Kingfisher *Halcyon smyrnensis* and Little Grebe *Tachybaptus ruficollis* (Chattopadhyay, 1981). Ramachandran, (1998) reported that during one occasion in defence of its chick, the BWJ actually assaulted a Western Marsh Harrier *Circus aeruginosus* and on another occasion, they were found chasing away the Common Moorhen *Gallinula chloropus*. Such type of antipredator behaviour has also been reported in Northern Jacana *Jacana spinosa* against the American Purple Gallinule *Gallinula martinica*, which is a predator of its eggs (Stephens, 1984a, 1984b). Here, we report interspecific territorial behaviour of BWJ against Lesser Whistling Duck, Indian Spot-billed Duck, Grey-headed Swamphen, PTJ and Indian Jungle Crow.

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