

Arboreal Nesting in the Black-faced Spoonbill (*Platalea minor*)

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ABSTRACT

Populations of the Black-faced spoonbill (*Platalea minor*) declined importantly until the 1990's, before a slow but consistent increase in population size in response to successful conservation efforts. Specific sites have been specifically designed to be adequate breeding areas for the species, and these land-based locations are successfully used. Here we report on the arboreal nesting of *P. minor*, a behaviour that is only rarely reported and is not generally present in the scientific literature for the species. A literature search however revealed that all other *Platalea* species are opportunistic arboreal breeders, and this little observed behaviour in *P. minor* may be prevalent in specific contexts. Several pairs of *P. minor* were observed nesting on trees on Yu Islet (37.775°N, 126.534°E), in May 2020 and this behaviour may have consequences for the conservation of the species as it implies that nesting individuals can avoid competition with other ground breeding species, and avoid flooding, a stochastic event having a significant impact on nesting *P. minor*.

Key words : Nesting, Arboreal, *Platalea minor*, Republic of Korea, Conservation implication

Introduction

The Black-faced spoonbill (*Platalea minor*) is one of the few species that managed to recover after a major population crash, despite still qualifying as Endangered on the IUCN Red List (Bird Life International, 2017). The species was restricted to a few hundred individuals in the 1990's, and the slow and consistent recovery is a likely response to the conservation efforts deployed (Yu and Wong, 2006; Chesser *et al.*, 2010). One of such efforts is the creation of artificial breeding grounds in the Republic of Korea and habitat protection including both breeding and over wintering grounds (Kang *et al.*,

2016). This dual strategy also resulted in the conservation of a significant genetic diversity in the species (Lee *et al.*, 2017).

The number of breeding individuals in Gyeonggi bay in the Republic of Korea significantly increased, and it is now one of the areas where most of the known breeding *P. minor* pairs are located. Breeding sites are generally rocky outcrops, sometimes terraformed to match the known and expected breeding requirements of the species (Son *et al.*, 2021). Habitat protection and management was successful and there were as many as 163 breeding pairs in the Chilsan Archipelago in 2018 (Son *et al.*, 2021). Survival of eggs and chicks is however not

guaranteed because of competition with other species taking advantage of the protected habitat, and stochastic rises in water levels that may drown some of the nests. Here we provide information on a little known nesting behaviour of the species, on trees, which may stem from the avoidance of ground dwelling predators and the risk of flooding. This observation is in line with the call for more information on the breeding activity of the species (Kang *et al.*, 2016; Son *et al.*, 2020).

We conducted field surveys to identify avian species along the Gimpo Peninsula for a study on the ecological value of the Korean inner-border area (Choi *et al.*, 2020). Here, our observations focus on *Platalea minor* on the Yu Islet (37.775°N, 126.534°E), which was observed with binoculars and a field scope from the Gimpo Peninsula, c. 500 m away across the estuary of the Imjin River. The islet is within the Demilitarized Zone between the Republic of Korea and the Democratic People’s Republic of Korea and it is not accessible. On the day of the survey, the weather was adequate for field observations, with very little cloud cover and thus good visibility.

In addition, we surveyed the scientific and popular literature for other instances of the species nesting in trees or other habitat than on the ground. We then enlarged this search to other species within the *Platalea* genus to understand if the birds observed were more likely to have built the nests, or if they may have re-used nests of *Phalacrocorax carbo*, which are present in very large numbers on the islet. Finally, we determined the origin of the arboreal nesting in the genus, and related this behaviour to the conservation of the species.

We observed three pairs of *Platalea minors* individuals sitting on nests, and likely incubating eggs on 27 May 2020 in Yu Islet (37.775°N, 126.534°E), Republic of Korea (Fig. 1). The nests were structurally similar to that of *Phalacrocorax carbo* present in the vicinity. On each nest, one individual was sitting and the other one was standing. The species is known to be present and breeding on the islet with up to 60 individuals observed during a single breeding season (Kim, 2003).

There are six described species of spoonbills in the *Platalea* genus (Chesser *et al.*, 2010), and all species can breed arboreally: *P. leucorodia* (Dayananda and Hosetti, 2009), *P. alba* (van der Westhuizen *et al.* 2014), *P. ajaja* (Hodgson and Paul 2013), *P. flavipes* (Cooney *et al.*, 2006) and *P. regia* (Collias and Collias



Fig. 1. Photographs of arboreal nesting in *Platalea minor*. Observed on 27 May 2020 on Yu Islet (37.775°N, 126.534°E), Republic of Korea. This observation is important for the conservation of the species as conservation programs currently focus on ground nesting exclusively. The nesting site is c. 500 m from the closest observation point.

2014; Fig. 2). The report of the *P. minor* being able to breed on trees highlights that this trait is phylogenetically conserved. In addition, the species was observed breeding on trees at the same site in Yu islet in the past (news report: Kim, 2007), although the species is also known to breed on the ground in other parts of its breeding range, such as Dokdo island (Chong *et al.*, 1996) and in Liaoning (Wei *et al.*, 2005).

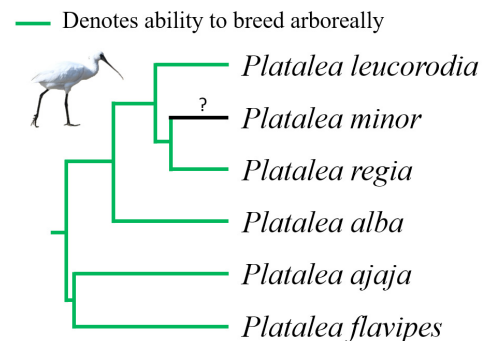


Fig. 2. Phylogenetic tree of the *Platalea* genus extracted from (Chesser *et al.*, 2010) annotated with the ability of the clade to breed arboreally. Note that all species are able to display this behaviour, including *P. minor*.

The ability of *Platalea minor* to nest arboreally on Yu Islet (37.775°N, 126.534°E) may be important for the conservation of the species as all nesting areas currently protected for the species are ground-based. By nesting on trees, *P. minor* could benefit from decreased competition with other ground breeding species such as gulls and egrets, but also, arboreal nests could provide safety against preda-

tion by ground dwelling species such Raccoon-dogs (*Nyctereutes procyonoides*). In addition, arboreal nesting could help avoiding floods as a single flooding event may drown all the chicks of a year.

As *Platalea* species are generally able to re-use nests from other species, for instance *P. leucorodia* can re-use egret nests (Dayananda and Hosetti, 2009) and *P. minor* here was likely reusing nests of *Phalacrocorax carbo*, we recommend considering the installation and trial of arboreal platforms in areas designated for the protection of *P. minor* breeding grounds. Despite the conservation success of the species seen through the bouncing population size, ground nesting may still be a coping behaviour linked to the absence of other breeding opportunities, and restoring the full range of behaviour, or providing the opportunity to do so, is another step towards the long term protection of the species. This is important as the number of breeding nests on Yu islet fluctuates greatly, with 10 nests in 1994 (Won 1994), between 70 and 104 nests in 2006 (Cultural Heritage Administration, 2006; Kim, 2006) and 30 nests in 2007 (UNDP/GEF Korea Wetlands Project 2008).

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