

Interannual nest reuse by Redshank *Tringa totanus*

Albert Bertolero

Interannual reuse of nests by the Redshank *Tringa totanus* is described for the first time. The state of eight nests was studied in successive years. It was verified that the eggs of four nests hatched successfully, these nests being reused the following year. The eggs of one of the non-reused nests did not hatch successfully, whereas the results of the other three nests are unknown. Since the adults were not marked, it is not possible to affirm that the pairs that reused the nests were the same in consecutive years. However, the reuse of the nests appears to be linked to successful hatching. The possibility that this could be a source of information about the quality of nesting sites for the Redshank at the Ebro Delta is discussed.

Key words: Redshank, *Tringa totanus*, nest reuse, Ebro Delta, Spain.

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Most wader nests are a simple depression on the ground covered with just a little material (Piersma 1996), and their construction in soft terrain is relatively effortless (Amat *et al.* 1999). As a consequence, the nests are of short duration and must be rebuilt every year. In spite of this, cases of interannual reutilization of nests have been recorded for some wader species (i.e. White-rumped Sandpiper *Calidris fuscicollis*, Parmelee 1992; Kentish Plover *Charadrius alexandrinus*, Page *et al.* 1995; American Oystercatcher *Haematopus bachmani*, Andres & Falxa 1995 and the Wandering Tattler *Heteroscelus incanus*, Gill *et al.* 2002), but there are no references of this behaviour in the Redshank *Tringa totanus*. The nests of this wader are either a small hole in the ground covered by plant material or a structure also built of plant material but which is not dug into the ground. In this paper, data are provided about the behaviour of nest reutilization, and its implications are discussed.

Methods

The nests that were followed up were in the area known as El Canalot, in the Punta de la Banyà (Ebro Delta, 40°37'N, 00°35'E) with an approximate surface area of 2 km². This area is formed by a cluster of islets of smooth undulation, where salt-tolerant annual plants and chenopod shrubs dominate (Curcó *et al.* 1995/1996). For most of the year, the islets are surrounded by the sea, usually less than 20 cm deep in high tide. The substrate is mainly clay, though in the highest points it is sandy.

From 1996 to 1999, surveys during April to July were carried out, attempting to locate as many Redshank nests as possible. The position of the nests in the more visited areas were discretely signalled, placing natural objects found nearby, such as small branches or canes 15 cm long, at approximately 1 m from each nest. When possible, each nest was visited several times in order to determine whether or not the clutch was completed

and the chicks were hatching. It was considered that a nest had been successful during incubation if pulli were found or if the adults were observed performing distraction behaviour around the nest. Also, nests were visited the following year to check if they were being reused.

In 1999 there were 66 breeding pairs of Redshank in the area (for further details about reproduction and habitat selection, see Bertolero 2002).

Results

Of the 35 Redshank nests localized between 1996 and 1999, it was found that four nest cups (11.4%) were reused in the following years. One of these nests was not reused during the third year but another nest was found less than 1 m away; in this case, the clutches hatched successfully during the three consecutive years (Table 1). The other three nests were also successful during the first year they were found while in the second year one was successful, another failed, and the outcome of the third one was unknown (Table 1). Of these four nests, the one that failed during the second year was not used again during the next breeding season. Since the survey finished in 1999, it is unknown if the other three nests were reused for a third year.

Of the other 26 nests found, 4 were confirmed as not having been reused in the next year. Of those, one failed during its first breeding season, while the outcome of the other three could not be determined (Table 1). It could not be confirmed whether the rest of the nests were reused or not. Thus, of all the nests that could be checked, it was found that 50% (n=8) were reused. As the adults were not marked, it could not be verified whether the nest were used by the same adults.

Discussion

In such a large area as El Canalot, it seems unlikely that the availability of suitable breeding habitat is a limiting factor for Redshanks, particularly if we consider that the population is small and has a low density (Bertolero 2002). This area holds an important number of Common Tern *Sterna hirundo* nests (500-1000 pairs, depending on the year), but no agonistic behaviour was detected between these two species, and nests of the two species were found less than 1 m apart. Furthermore, terns often build their nests in open areas or above halophilous vegetation, whereas Redshanks choose mainly the spots that are more secluded within *Sarcocornia perennis* and *Arthrocnemum* sp. stands (Bertolero 2002).

The reutilization of nests by the Redshank does not seem to be conditioned by inter- or intraspecific competition for breeding sites. Positive experiences, such as the successful hatching of a clutch, could favour the selection of places considered secure and with good possibilities of future success. It could not be determined if the reutilization of nests was related to the selection of sites that were safe from unforeseen flooding (observed during the breeding season), safe from potential predators (for example, from the large nearby breeding population of Yellow-legged Gulls *Larus cachinnans*), or affected by both factors. In any case, successful hatching have been suggested as a key information about habitat quality used by birds when deciding where to breed (Osorio-Beristain & Drummond 1993).

Unfortunately, since the birds were not marked it was not possible to confirm that the same pairs reused the same nests. In two previous studies of this species, no relationship be-

Table 1. Summary of the reused nests and non-reused nests according to results: hatching success (S), hatching failure (F); unknow result (?).
Resum de la situació dels nius reutilitzats i no reutilitzats segons el destí del niu: èxit en l'eclosió (S), fracàs en l'eclosió (F); resultat desconegut (?).

	First season			Second season			Third season		
	S	F	?	S	F	?	S	F	?
Reused	4	0	0	2	1	1	—	—	3
Non- reused	—	1	3	—	—	—	—	—	—

tween fidelity to breeding territories and reproductive success was found (Thompson & Hale 1989, Jackson 1994). Both studies were carried out in Britain involving much larger populations, and the habitat conditions may not have been comparable with those of this Mediterranean population. Only by means of the marking of adults will we be able to check if the population of Redshanks at the Ebro Delta shows fidelity to the breeding grounds, and if this is related to the reproductive success of the previous year.

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Resum

Reutilització interanual de nius en la Gamba Roja *Tringa totanus*

Es descriu per primera vegada la reutilització interanual de nius en la Gamba Roja. Dels vuit nius dels quals es va poder comprovar la situació en anys successius, en quatre es va constatar que van ecllosionar amb èxit i que van ser reutilitzats l'any següent. Dels nius no reutilitzats, un no va ecllosionar amb èxit, mentre que es desconeix el resultat dels altres tres. Com que els adults no es van marcar, no es pot assegurar si són les mateixes parelles les que reutilitzen els nius en anys consecutius. Malgrat això, es relaciona la reutilització dels nius amb l'èxit d'ecllosió i es discuteix si aquest fet constitueix una font d'informació sobre la qualitat dels llocs de nidificació per a la Gamba Roja al delta de l'Ebre.

Resumen

Reutilización interanual de nidos en el Archibebe Común *Tringa totanus*

Se describe por primera vez la reutilización interanual de nidos en el Archibebe Común. De los ocho nidos

cuya situación pudo ser comprobada en años sucesivos, se pudo constatar que cuatro ecllosionaron con éxito y que fueron reutilizados al año siguiente. De los nidos no reutilizados, uno no ecllosionó con éxito, mientras que se desconoce el resultado de los otros tres. Como los adultos no se anillaron, no se puede asegurar si son las mismas parejas las que reutilizan los nidos en años consecutivos. A pesar de ello, la reutilización de los nidos se relaciona con el éxito de ecllosión y se discute si ésta constituye una fuente de información sobre la calidad de los lugares de nidificación para el Archibebe Común en el Delta del Ebro.

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