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A CASE OF NEST STACKING IN THE GREAT REED WARBLER *ACROCEPHALUS ARUNDINACEUS*

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Nest stacking is a rarely observed nesting behaviour in which the birds build a new on top of an old nest. Here we report a case of nest stacking in the Great Reed Warbler. Previously, nest stacking has been reported in relation to a few species that mainly inhabit wetlands, indicating that vegetation structure might play an important role in such nesting behaviour. We encourage experts to publish their records and observations on rare nesting behaviour, in order to increase our knowledge and understanding of the nature of these phenomena.

Key words: reed habitat, nesting behaviour, nest predation, reed passerine

Mérő, Th. O., Žuljević, A., Šećerov, I. & Malbaša, D.: Slučaj slaganja gnijezda na gnijezdo kod velikog trstenjaka, *Acrocephalus arundinaceus*. Nat. Croat., Vol. 34, No. 1, 191-194, Zagreb, 2025.

Slaganje novog gnijezda na postojeće je rijetko zabilježeno ponašanje, pri čemu ptica gradi novo gnijezdo na već postojeće. U radu donosimo slučaj takvog slaganja gnijezda kod velikog trstenjaka. Dosad je slaganje novog na staro gnijezdo zabilježeno kod nekoliko vrsta koje uglavnom nastanjuju vlažna staništa, što ukazuje na to da bi struktura vegetacije mogla imati važnu ulogu u takvom ponašanju. Potičemo i stručnjake da objavljuju opažanja sličnih neobičnih ponašanja pri gniježđenju da bismo doznali više te bolje razumjeli takvih pojava.

Ključne riječi: trščak, ponašanje kod gniježđenja, preuzimanje gnijezda, trstenjaci

INTRODUCTION

Nest construction is a common behaviour in birds (Hansell, 2000, 2005). Nests provide safety for eggs and nestlings, nests may reduce predation risk, regulate the humidity and temperature of the contents, or act as a sexual or individual quality signal (Prokop & Trnka, 2011; Moreno, 2012). In rare instances, birds will create nests in unusual shapes (Tomkins *et al.*, 2015). Nest stacking in birds has been described as a rare phenomenon; intra- and interspecific nest stacking has been detected worldwide in several bird species (e.g., Fierro-Calderón & Martin, 2007; Lara *et al.*, 2011). Nest stacking is defined as the construction of a new nest exactly on top of or above an older, previously constructed nest (Gadek *et al.*, 2022). In this study, we report on a case of nest stacking in the Great Reed Warbler *Acrocephalus arundinaceus*. Great Reed

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Warblers breed in various habitats containing shallow to moderate deep water in the Western Palaearctic dominated by the reed *Phragmites australis* (Cramp, 1998; Mérő *et al.*, 2018). They typically construct nests among stronger reed stalks and rear one brood annually (Báldi & Kisbenedek, 2000). In the event of clutch failure, they construct replacement nests for the new clutch (Mérő *et al.*, 2014). Rarely, nest reuse and unusual nest construction have been observed (Hafstad *et al.*, 2005; Mérő & Žuljević, 2019; Mérő *et al.*, 2022).

MATERIAL AND METHODS

The study area is located in the county of Sombor (north-west Serbia), in an intensive agricultural area with a moderate continental climate. We have monitored Great Reed Warblers since 2008 in six different reed habitat types: mining ponds, marshes, and different types and sizes of canals (Mérő *et al.*, 2020). The present observation took place in the suburban section of the large Veliki Bački Canal in the town of Sombor (N 45.7403°, E 19.1118°). In winter 2019 approximately 15% of the area of the reed was burned in late winter by the local people. The field methodology is described in detail in Mérő *et al.* (2020, 2023).

RESULTS

In total we found and monitored 1607 Great Reed Warbler nests between 2008 and 2021. On June 28, 2019 we found a nest stacked above another nest. The nests were located immediately at the reed edge adjacent to the water, where fresh reed stems (48 reed stem per m^2) were interspersed with lesser bulrush (*Typha angustifolia*) leaves. Both nests were built on the same three reed stems. Mean water depth was 61 ± SD 13.9 cm. The lower nest was empty (ID: 24/2019), probably due to nest depredation in the egg stage. The stacked nest (ID: 25/2019) contained four Great Reed Warbler eggs, one cuckoo egg and a nestling. On July 8 we found only the cuckoo nestling, which had earlier evicted the four host eggs and the one Cuckoo egg. On July 13 we found the cuckoo chick dead in the nest. On average both parents gave loud alarm calls at a distance of between 1 and 3 m from the nest (average nest defence score = 2; for scaling of nest defence behaviour please see Mérő & Žuljević, 2017). We did not locate the parents, therefore, their identity remained unknown.

DISCUSSION

So far, intraspecific nest stacking behaviour has been described in four species, and interspecific nest stacking behaviour in three species. Out of 1761 Long-billed Marsh Wren *Cistothorus palustris* nests 39 were stacked on old nests (Verner & Engelsen, 1970). In the Violet-chested Hummingbird *Sternoclyta cyanopectus* two cases of nest stacking were reported (sample size was 67 nests) when birds stacked nests on old nests, probably from the previous breeding season (Fierro-Calderón & Martin, 2007). Similarly, two cases of nest stacking behaviour were observed in the Wren-like *Rushbird Phleocryptes melanops* (Gadek *et al.*, 2022). Although the papers do not refer to this as nest stacking, a few cases of such nesting behaviour were described in the reed warbler *A. scirpaceus* (Borowiec, 1992; Ritter & Ritter, 2002; Herschmann, 2003; Westwood, 2005). The first interspecific case of nest stacking behaviour was reported by Smith & O'Connor (1955) when a Silver Gull *Larus novaehollandiae* stacked its nest on a *Cygnus* sp. nest. The Wren-like Rushbird stacked a nest on a Many-coloured Rush

Tyrant *Tachuris rubrigastra* nest out of 42 sampled nests (Lara *et al.*, 2011). Later an opposite case was reported when the Many-coloured Rush Tyrant stacked its nest on a Wren-like Rushbird nest, which was already stacked on an earlier constructed Wren-like Rushbird nest; two folds nest stacking behaviour (Gadek *et al.*, 2022).

Nest stacking behaviour may appear due to habitat quality, structural challenges, predation risk, and/or energetic demands (Gadek *et al.*, 2022). Nest stacking may be employed for the purpose of energy saving and "easier" nest site selection(Smith & O'Connor, 1955; Fierro-Calderón & Martin, 2007). In some habitats the availability of nest sites is limited and the competition among individuals can result in nest stacking behaviour (Gadek *et al.*, 2022). The increased size of uninhabited stacked nests may act as decoy for predators, just like the availability of a large number of unoccupied or abandoned nests (Watts, 1987; Gadek *et al.*, 2022). Successful nesting can indicate lower predation risk in nesting sites and these cues may be signalled to other individuals or species making the nesting site highly attractive for nest stacking or nest reuse (Tolvanen *et al.*, 2018; Mérő *et al.*, 2022). On the other hand, nest stacking may appear aberrant or maladaptive behaviour (Gadek *et al.*, 2022), and because of their larger sizes may be more frequently a victim of predation than single nests which appear to be smaller (Lopéz-Iborra *et al.*, 2004).

Interestingly, the nest stacking cases documented, including our observation, originate mostly from wetland habitats; except in the case of the Violet-chested Hummingbird which inhabits humid forests. Gadek *et al.* (2022) suggested that seasonality of marsh resources may limit availability of nesting material and nesting sites because birds often construct nests from the remains of marsh vegetation such as bulrush, reed or marshland grasses (e.g., Dyrcz, 1981). On the other hand, we suggest that the structural appearance of vegetation in wetlands often allows the extension of nests or building of new nests in a vertical direction, such as nest stacking (building on top or above an earlier nest) or building a new nest below the old nest (Mérő & Žuljević, 2019). In order to broaden our knowledge of why nest stacking or other unusual nesting behaviour (e.g. nest reuse) appears, we believe that more data should be collected and published. Therefore, we encourage experts who already have records to publish their observations on rare cases of nest building behaviour.

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REFERENCES

Báldi, A. & Kisbenedek, T., 2000: Bird species numbers in an archipelago of reeds at Lake Velence, Hungary. Global Ecology and Biogeography **9**, 451-461.

Borowiec, M., 1992: Breeding ethology and ecology of the reed warbler *Acrocephalus scirpaceus* at Milicz, SW Poland. Acta Zoologica Cracoviensia **35**, 315-350.

Cramp, S. 1998: The birds of the Western Palaearctic. Oxford: Oxford University Press.

Dyrcz, A., 1981: Breeding ecology of Great Reed Warbler *Acrocephalus arundinaceus* and Reed Warbler *Acrocephalus scirpaceus* at fishponds in SW Poland and lakes in NW Switzerland. Acta Ornithologica **18**, 307-334.

Fierro-Calderón, K. & Martin, T.E., 2007: Reproductive biology of the violet-chested hummingbird in Venezuela and comparisons with other tropical and temperate hummingbirds. The Condor **109**, 680-685.

Gadek, C.R., Williamson, J.L. & Witt, C.C., 2022: Intra- and interspecific nest stacking in marsh-dwelling songbirds. Biotropica **54**, 1131-1136.

Hafstad, I., Stokke, B.G., Vikan, J.R., Rutila, J., Røskaft, E. & Moksnes, A., 2005: Within-year nest reuse in open-nesting, solitary breeding passerines. Ornis Norvegica **28**, 58-61.

Hansell, M.H., 2000: Bird nests and construction behaviour. Cambridge: Cambridge University Press.

Hansell, M.H., 2005: Animal architecture. Oxford: Oxford University Press.

Herschmann, W. 2003: Ein Doppelnest beim Teichrohrsänger. Der Falke **50**, 189. [In German]

Lara, J., Barrientes, C., Ardiles, K., Moreno, L., Figueroa, R.A. & González-Acuña, D., 2011: Breeding biology of the Wren-like Rushbird (*Phleocryptes melanops*) in south-central Chile. Ornitologica Neotropical **22**, 121-130. [In Spanish]

Lopéz-Iborra, G.M., Pinheiro, R.T., Sancho, C. & Martinez, A., 2004: Nest size influences nest predation risk in two coexisting *Acrocephalus* warblers. Ardea **92**, 85-91.

Mérő, T.O., Žuljević, A., Varga, K., Bocz, R. & Lengyel, S., 2014: Effect of reed burning and precipitation on the breeding success of Great Reed Warbler, *Acrocephalus arundinaceus*, on a mining pond. Turkish Journal of Zoology **38**, 622-630.

Mérő, T.O. & Žuljević, A., 2017: Nest position and reed density influence nest defence behaviour of Great Reed Warbler. Ethology, Ecology & Evolution **29**, 94-101.

Mérő, T.O. & Žuljević, A., 2019: Unusual nests in the Great Reed Warbler (*Acrocephalus arundinaceus*): reuse of nests in the same season and unusual forms of nest construction. Ardea **107**, 93-96.

Mérő, T.O., Žuljević, A., Varga, K. & Lengyel, S., 2018: Reed management influences philopatry to reed habitats in the Great Reed Warbler (*Acrocephalus arundinaceus*). The Condor **120**, 94-105.

Mérő, T.O., Žuljević, A., Varga, K. & Lengyel, S., 2020: Wing size-related habitat choice of Great Reed Warbler females: the role of habitat quality and management. Avian Conservation and Ecology **15**, 22.

Mérő, T.O., Žuljević, A., Kolykhanova, O. & Lengyel, S., 2022: Reuse of nests in the Great Reed Warbler *Acrocephalus arundinaceus*: A behavior to save time and energy and to deter nest parasites? Ecology and Evolution **12**, e9452.

Mérő, T.O., Žuljević, A. & Lengyel, S., 2023: The role of reed management and habitat quality on brood parasitism and chick survival of the brood parasitic Common Cuckoo. Ecology and Evolution **13**, e9705.

Moreno, J., 2012: Avian nests and nest-building as signals. Avian Biology Research **5**, 238-251.

Prokop, P. & Trnka, A., 2011: Why do grebes cover their nests? Laboratory and field tests of two alternative hypotheses. Journal of Ethology **29**, 17-22.

Ritter, H. & Ritter, A., 2002: Doppelnest beim Teichrohrsänger. Der Falke **49**, 119. [In German]

Smith, A. & O'Connor, L., 1955: Breeding of marsh terns on Coode Island. Emu **55**, 255-256.

Tolvanen, J., Seppänen, J.-T., Mönkkönen, M., Thomson, R.L., Ylönen, H. & Forsman, J.T., 2018: Interspecific information on predation risk affects nest site choice in a passerine bird. BMC Evolutionary Biology **18**, 181.

Tomkins, S., Moore, F. & Holtmann, B., 2015: Nest re-use by dunnocks (*Prunella modularis*) in New Zealand: an uncommon behaviour revealed through a long-term study. Notornis **62**, 96-98.

Verner, J. & Engelsen, G., 1970: Territories, multiple nest building, and polygyny in the long-billed marsh wren. The Auk **87**, 557-567.

Watts, B.D., 1987: Old nest accumulation as a possible protection mechanism against search-strategy predators. Animal Behaviour **35**, 1566-1568.

Westwood, N.J., 2005: Reed Warblers reusing nests. British Birds **98**, 101.