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Brevi note - *Short communications*

A new case of interspecific brood parasitism in the common moorhen *Gallinula chloropus*

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Riassunto – *Un nuovo caso di parassitismo interspecifico di cova nella gallinella d'acqua* Gallinula chloropus. Con questo lavoro segnaliamo il quarto caso di parassitismo interspecifico di cova nella gallinella d'acqua, rilevato nello stagno di Campenesti (Cluj County, Romania) nel 2004, in un nido di tarabusino *Ixobrychus minutus*. L'osservazione costituisce anche il secondo caso in cui la specie parassitata appartiene al genere *Ixobrychus*.

The common moorhen *Gallinula chloropus* is a territorial species and a very adaptable member of the Rallidae family, which inhabits in reedbeds and rushes along slow moving rivers or still water bodies across the world, except for Australia (Cramp and Simmons 1980). This adaptability is partly due to its behavioural flexibility, as well as the reproductive particularities of the species.

The breeding biology and ecology of the common moorhen were extensively studied during the last 30 years (Relton 1972, Wood 1974, Huxley and Wood 1976, Forman 2001). The studies carried out since the 80s have evidenced diversity and complexity of the social and breeding behaviour of the common moorhen (Petrie 1984, Gibbons 1987, Eden 1987, Eden *et al.* 1988, Leonard *et al.* 1988, Forman 2004). Although predominantly monogamous, the common moorhen displays the whole range of reproductive strategies found in birds. Cases of cooperative breeding, polyandry or polygyny, and also cases of intraspecific brood parasitism as an additional strategy have been described (Gibbons 1986, McRae 1995, 1996, Post and Seals 2000, Forman 2001, 2004). Only 3 cases of interspecific brood parasitism have been identified until now in common moorhen (Post and Seals 1989, Ueda 1993, Forman 2003).

During the year 2004, we carried out studies on the ecology and breeding biology of the little bittern *Ixobrychus minutus* at the Campenesti fish ponds. The study area is situated in the Transylvanian Plain, on Feiurdeni Valley, 15 km NE of Cluj-Napoca (N: 46°50'19"; E: 23°43'05") and comprises 5 fish ponds that spread on a total surface of 120 ha. The reedbeds *Phragmites australis* and rushes *Typha angustifolia* cover three of these ponds on 40 to 60 % of the surface. The common moorhen population is estimated to 23 breeding pairs (unpublished data).

On the 27th of May, we found a little bittern nest that had been preyed upon which still contained the remains of three egg shells. The nest had been built at a height of 53 cm above water in an area covered by both reed and rush (4 – 4.5 m tall) and had a diameter of 19 cm. Four days later, on the 31st of May, we found three common moorhen eggs in this little bittern's nest. The nest was revisited again on the 3rd of June, when it was found preyed and abandoned. On the same date, at a distance of 9 m from this nest, a little bittern female laid its first egg in a nest situated at 45 cm above water and having a diameter of 21 cm. On the 5th of June, this nest was holding 3 little bittern eggs and 1 common moorhen egg (39 x 24 mm, 24 g), and on the 7th of June, the little bittern clutch has been complete, reaching 5 eggs (Fig. 1).

This is the second case in which the common moorhen parasitize a species of the genus *Ixobrychus* and the first case in which the parasitized species is the little bittern.

The first little bittern egg hatched on the 23rd of June, and the last on the 24th of June. During the brood-

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Figure 1. The common moorhen egg in the little bittern nest found the 7th of June 2004 in the Campenesti (Cluj County, Romania). – *Covata di tarabusino parassitata dalla gallinella d'acqua trovata il 7 giugno 2004 nello stagno di Campenesti (Cluj County, Romania).*

ing period, we visited the nest at intervals of 3 or 4 days. The common moorhen egg was incubated same as the little bittern eggs. On the 28th of June, the little bittern young's were capable of leaving the nest, while the adults initiated the second nesting cycle. This second clutch was also formed of 5 eggs and was completed until the 2nd of July. On the 3rd of July, at 10.20 AM, in the little bittern's nest, there was only one young, along with 5 other little bittern eggs, and the common moorhen egg. On the same date the nest had been preyed upon, but two of the little bittern eggs and the common moorhen egg remained intact. After the nest had been preyed the common moorhen egg was collected and artificially incubated for 5 days, after which we discovered that it was infertile. Supposing that the common moorhen had laid this egg on the 4th of June, the time that passed until the moment of preying was of 29 days, which was longer than the normal incubation period of 21 days that is described in literature (Cramp and Simmons 1980).

A comparison of the shape, size and colour between the first three common moorhen eggs with the egg laid in the little bittern's nest suggested that that they had been laid by the same female. We consider that initially, this female had used the preyed little bittern nest to lay her own clutch. We based this affirmation on the fact that the nests of this two species are very similar, being built in the same habitat type and from the same material. There have been cited cases in which the common moorhen has either used the abandoned nest of other species, or built her own on top of abandoned nests (Ripley 1977, Ciochia 1992, Post and Seals 2000). Because this nest has been preyed for the second time (probably by magpies *Pica pica*), the common moorhen laid one egg in the active nest of the little bittern during the host laying period. Previous research on the intraspecific brood parasitism in common moorhen have disclosed the fact that eggs laid during the host laying period have better chances to hatch than those

laid before or after the host laying period (Forman 2001), these results resembling those found in other bird species (Lyon and Everding 1996).

Regarding to the intraspecific brood parasitism in the common moorhen, there are three theoretical possibilities for the parasitic egg-laying: before, during or after its own eggs are laid. However, the parasitic eggs are mainly laid as a result of the loss of its own clutch (Gibbons 1986, McRae 1997), as both age and experience of females might also influence parasitic egg-laying (McRae and Burke 1996, McRae 1998). The little bittern pair has accepted and incubated the common moorhen egg although it differs in size, shape and colour from their own eggs. This may indicate that, at least theoretically, the little bittern is not a common host or it has not developed any protection mechanism to counteract parasitic intruders. We base our affirmation on an experiment in which, we artificially placed a hen *Gallus domesticus* egg in a little bittern nest (on the 21th of July), and it was accepted and incubated.

It is difficult to draw conclusions on the adaptive value of interspecific brood parasitism in the common moorhen, particularly because of scarcity of data collected until now. The efficiency of this breeding strategy is also unclear, since in two previously described cases, the common moorhen egg hatched successfully and the young survived (Post and Seals 1989, Ueda 1993) while in another the parasitised nest was preyed on (Forman 2003).

Taking into account the reproductive particularities and the behavioural flexibility of the common moorhen, we think that the frequency of interspecific brood parasitism in natural populations of this species might be higher than what is reported in the literature. Interspecific brood parasitism may confer a selective advantage because it improves the chance that at least some offspring will escape predation. New data on the interspecific brood parasitism in common moorhen may help to better understand the evolutionary origin of this phenomenon in birds, by using comparative approaches (Rothstein 1993).

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La comunità ornitica in un'area agricola lombarda dal 1971 al 1986

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Abstract – *The avian community of an agricultural area of Lombardy (N Italy) between 1971 and 1986.* I collected data on the occurrence of bird species in an agricultural area of Lombardy (45° 6' N, 9° 6' E), between 1971 and 1986. Overall, 107 species were recorded. The yearly species richness and the number of species of conservation concern (SPEC) did not significantly declined during the study period. However, the number of breeding non-passerines and insectivorous species decreased significantly over the study period. These results confirm the negative population trends of some species related to agricultural habitats observed elsewhere in Europe.

Si stima che attualmente a livello mondiale l'agricoltura utilizzi oltre un terzo delle terre emerse (Ormerod e Watkinson 2000). In molti stati europei l'incidenza delle aree coltivate è pari o supera i due terzi della superficie disponibile (Ostermann 1998). In Italia nel 2000 la superficie interessata da attività agro-silvo-pastorali era di 19600000 ha, pari al 65% dell'intero territorio nazionale, mentre la superficie agricola utilizzata era di 13200000 ha, pari al 43.8% del territorio (ISTAT 2004). Nel corso degli ultimi decenni del XX secolo si è registrato un netto declino di molti uccelli degli ambienti agricoli, in particolare in Europa occidentale e negli USA (Tucker e Healt 1994, Millenbah *et al.* 1996, Donald *et al.* 2001, Berthold 2003). Il declino in Europa ha riguardato sia la consistenza numerica delle popolazioni (-42% per le specie tipiche delle aree agricole nel periodo 1980-2002) (BirdLife International 2004a), sia l'estensione dei loro areali riproduttivi (Newton 2004), ed è fortemente correlato all'intensificazione delle pratiche agricole (Fuller *at al.* 1995, Chamberlain *et al.* 2000, Donald *et al.* 2001). In particolare, l'incremento nell'uso di pesticidi e di fertilizzanti organici, l'anticipo nei tempi di aratura, la conversione a monocoltura dei terreni agricoli, il taglio di siepi e di filari arborei e la riduzione di tutti gli habitat semi-naturali presenti nelle aree coltivate sono i fattori ritenuti responsabili del declino delle specie ornitiche degli ambienti agricoli (Campbell *et al.* 1997, Wilson *et al.* 1997, Hinsley e Bellamy 2000, Newton 2004). Non sempre l'intensificazione delle pratiche agricole ha avuto effetti negativi sull'avifauna, in quanto esistono situazioni in cui gli uccelli hanno tratto vantaggio dall'accresciuta disponibilità alimentare, come, ad esempio, le specie acquatiche in California (Bird *et al.* 2000). Poiché a livello europeo per molte specie il maggior declino nelle aree agricole si è avuto tra il 1970 e il 1990 (soprattutto fra 1975 e il 1985) (Siriwardena *et al.* 1998, Fuller 2000, Gregory *et al.* 2004, Newton 2004), ho analizzato nel periodo 1971-1986 le variazioni annuali del numero totale di specie e di quelle a priorità di conservazione o appartenenti alle diverse categorie trofiche e fenologiche della comunità ornitica (v. sotto) in un'area intensamente coltivata della Lombardia, per verificare le similarità/differenze rispetto alle tendenze continentali.

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