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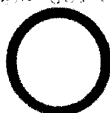


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Sound production, spawning behaviour, and parasitic nest intrusions in the black-spotted goby *Pomatoschistus canestrinii*

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The black-spotted goby *Pomatoschistus canestrinii* (Ninni) is an endemic sand goby occurring in lagoons and estuaries of the northern Adriatic Sea. Likewise as in other sand gobies, reproduction implies nest acquisition and defence, mate attraction, and repulsion of other male intruders, that may try to penetrate the nest and perform sneaking fertilisations of the eggs. Furthermore, sound production has been documented in this species by previous work, occurring both in reproductive and aggressive behavioural contexts. In this paper, sound production and associated behaviours were assessed and compared in pairs spawning in two different experimental situations: 1) Isolated resident males 2) Resident males paired with a smaller male, and therefore exposed to possible nest intrusions. The simultaneous video- and acoustical recording of the spawning behaviour allowed to quantify the intensity of sound production and associated behaviours, that were then compared between the groups of males. Results indicated that the spawning behaviour of the nest-holding male was affected by the presence of a male intruder, as the spawning sequence was repeatedly interrupted by the intrusion attempts. This was reflected in an intense aggression and associated sound production of the nest-holding male towards the intruder male, but also in a significant increase of aggressive sounds and aggressive visual displays towards the female. Furthermore, the frequency of a female visual display increased significantly when the male was exposed to nest intruders. By contrast, the overall frequency of pre-spawning sounds did not change between the two situations, although the mean duration of the burst containing the highest number of sounds was higher in the group of males exposed to male intruders than in the isolated spawning males. On the whole, these results indicate that parasitic nest intrusions affect significantly the spawning patterns of the nest-holding males, even in terms of sound rate.

Notes
