A case of intraspecific killing in passerines: the House Sparrow (*Passer domesticus*)

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Abstract Even if intraspecific conflict is a well-known behaviour in birds, intraspecific killing among passerines is very rare in the literature. Cases of intraspecific predation among passerines constitute a very small percentage of published reports, and many of the cases are based on circumstantial evidence. In March 2013, we witnessed a group of House Sparrows (*Passer domesticus*) kill a conspecific male adult in the village of Gonsans (France, Doubs department). During the reproductive season three explanations of others studies (lack of food, weak condition and territorial behaviour during) could be relevant in our case. In conclusion, it appears that our observation is a very rare one and the second one for the House Sparrow.

Keywords: House Sparrow, aggressive event, intraspecific killing, intraspecific competition, passerines

Összefoglalás Míg a fajtársak közötti összetűzés jól ismert viselkedés a madaraknál, a verébalkatúak rendjén belül, a fajtársak megölése az irodalomban ritkán említett jelenség. Ilyen esetben is inkább közvetett bizonyítékok állnak rendelkezésre. 2013 márciusában a franciaországi Gonsans nevű faluban egy kisebb házi verébcsapat (*Passer domesticus*) egy fajtársa megölelésének voltunk szemtanúi. Tekintve, hogy ez a téri időszak vége és a szaporodási szezon kezdete, így az élelemhiány, az áldozat rossz fizikai kondíciója és a territoriális viselkedés bármelyike magyarázhatja a történeteket. Mindössze egy ilyen jellegű eseményt publikáltak ezelőtt a házi veréb esetén.

Kulcsszavak: házi veréb, agresszió, fajtársak közötti gyilkosság, versengés, énekesmadarak

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Introduction

Despite considerable interest in its occurrence or potential occurrence (e.g. Lorenz 1963), both direct and circumstantial evidence of intraspecific killing in adult passerines is rare (Davis 1940, Cottrille 1950, Joslin 1964, Clevenger & Roest 1974, Fisher 1975, Grubbs 1977, Loflin 1982, Cawston 1983, Lombardo 1986, Andersen 2004). Our aim was to contribute to this meagre body of literature with the second observed case of intraspecific killing in adult House Sparrow (*Passer domesticus*).

Description of the observation and the environmental context

Our study site is the village of Gonsans in France (47°13′58″N, 6°18′04″E). This village is about 545 inhabitants with a surface of 17.29 km² (density of 32 inhabitants per km²) represents a normal size for a village in Franche-Comté area and in France. This village is situated at the beginning of the medium mountain stage (from 500 to 600 meters of elevation). The buildings are composed of old renovated farms in the downtown of the village and new houses in the periphery. The
buildings are rarely taller than two floors. Urbanized areas are known to be friendly for the House Sparrow (Bichet et al. 2013). In Franche-Comté, the study of the House Sparrow allows us to consider that the density of the species is about 70 individuals per km² (Legay & Weidmann 2005). In the very local urban area where we were (about 10 houses) we observed a maximum of seven different individuals for a number of couple of three. The landscape around the village is composed by grassland and mixed forested areas (Giraudoux et al. 1997).

On 7th March 2013 at 9 a.m., we observed an adult male House Sparrow attacked by four others of the species as three adult males and one adult female. We missed the beginning of the combat. We were located 25 meters from the event, which was occurred less than 50 meters from the closest source of food (bakery and bird table) or nesting place. The male was on the ground in the middle of the street and the four other individuals pecked the head of the victim alternatively for almost twenty minutes killing him slowly but certainly. The victim was still alive during the aggressive event (moving slowly) and we examined the corpse after the observation to be sure that the individual was dead and we did not find any clue of an injury by another source (car, predation etc.).

In March, the sparrows were still feeding on pieces of bread from the bakery and sunflower seeds distributed by people situated less than 50 meters from the event. This period (the end of winter/beginning of spring) corresponds to the start of the reproductive season meaning territorial behaviour from potential reproducers and also the existence of differences in body condition between individuals because of the lack of food during winter.

We observed mated pairs starting to build nests in holes below the roofs close to the event (less than 50 meters away). After the aggressive event the four aggressors returned to the building of nests. The victim seemed to be unable to fly or fight off the aggressors.

Considering the fact that we observed the victim alive during the event, was it because of a hurt present before or because of the aggressive event, sickness, our observation cannot bring efficient information to answer.

Discussion

Grubbs (1977) described for the first time for the same species a similar case of intraspécific killing without be able to explain it. One sparrow held the other one by the neck and after a few seconds the struggling victim became still. The attacking sparrow, still on top of the nearly lifeless one, began to hammering on the head of the victim. Several sparrows flew near, then all flew away leaving the motionless body on the ground. Minutes later a sparrow returned, jumped on the dead sparrow and again struck it on the head several times, then flew away. This evidence indicates that House Sparrows are capable of causing mortal wounds on one another.

Kuerzi (1941) presented evidence of intraspecific killing in Tree Swallows (Tachycineta bicolor) and reported two fights between a male and a female in brown plumage. During one fight the brown female had the male pinned on the ground, and she pecked at the back of his head until he escaped when Kuerzi approached for a better view. This observation of Kuerzi (1941) is similar to ours with the same ‘pecking on the head’ behaviour.

In birds, we found additional descriptions of intraspecific killing in avian species including Egretta sacra, Arenaria interpres, Passer domesticus, Motacilla alba (Joslin
Intraspecific predation is often a function of density. Polis (1981) found 65 reports of increased predation rates due to overcrowding or high densities in birds, fishes and invertebrates (Fox 1975, Polis 1980). There are two possible explanations for this relationship. First, changes in the rate of intraspecific killing occur because predators exhibit density-dependent responses to heterospecific prey as well as for homospecific prey. Second, individuals of many species maintain inter-individual space or territory in which they are intolerant to conspecifics. Crowding caused by the searching for a sexual partner increases the frequency with which conspecifics violate a critical minimum individual distance (intraspecific space) and thus promotes the observed increase in the rate of intraspecific killing. Finally, ethologists have insisted that intraspecific killing and predation in passerines are rare events in the environment. They have stressed that passerine fighting is commonly restrained by ritual, bluff and nonfatal violence (Polis 1981).

In conclusion, it appears that our observation is a very rare one and the second one for the House Sparrow. The literature provides some potential explanations in different cases of intraspecific killing, such as bad body condition, territoriality during reproduction period or lack of food. Considering the period (the end of the winter and the beginning
of the reproductive season), all three explanations could be relevant in our case. The lack of knowledge about intraspecific killing in passerines must lead to more specific studies than local observations as ours.

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References


