ETHOLOGIC OBSERVATIONS ON THE SPECIES OF *CORVUS FRUGILEGUS* (L.) AND *C. MONEDULA* (L.) IN THE CONTEXT OF THE CORVIDAE BEHAVIOUR

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Abstract. The observations carried out on representatives of corvidae that are often met in Iaşi focus on their behaviour in the breeding season, beginning with the courtship and ending in the flight of the chicks out of the nest. By observing crows in their nesting area from a distance, the risk of disturbing them is eliminated, but for more information, observations may be made in parallel on the fledging bred in semicaptivity. It is true that the improvisation of an artificial environment for the same subjects deprives them of the family community and of freedom and from an ethological point of view this may lead to incorrect interpretations of their behaviour. However, their return to the wild community may remedy such situations.

Keywords: ethology, corvidae.

Rezumat. **Observaţii etologice asupra speciilor *Corvus frugilegus* (L.) şi *C. monedula* (L.) în contextul comportamentului corvidelor.** Comportamentul speciilor *Corvus frugilegus* (L.) şi *Corvus monedula* (L.) înregistrat în sezonul de reproducere, include intensificarea manifestărilor prin glas, precum şi jocuri aeriene efectuate pe teritoriul de cuibărit. Dacă intervine la acest nivel un factor perturbator, glasul, mai estompat pe durata incubaţiei, capătă vigoare, prin participarea mai multor indivizi antrenaţi în emiterea semnalului de avertisment. Zborul acestor două specii de ciori în stoluri mixte ilustrează un comportament gregar, iar cât priveşte apărarea cuibului, se poate vorbi de o cooperare interspecifică, având în vedere intersectarea graniţelor teritoriului de reproducere al acestora, observabilă în coloniile de *Corvus frugilegus* (L.) în cazul unui deranj. Adaptările morfologice ale ciocului şi ghearelor pentru hrănirea cu prăzi de mici dimensiuni (pui de păsări, şoareci etc), sau cu hoituri, în cazul ciorii de semănătură, le încadrează în rândul consumatorilor de rang superior în piramida trofică, iar agresivitatea caracteristică le asemuie răpitoarelor. Tendinţa de antropizare, concretizată prin obiceiul de a se hrăni din containere de gunoi, prin instalarea corbăriei şi a coloniei în mediul citadin are drept principală cauză existenţa a puţini prădători în natura urbană. Inclusiv impactul antropic este redus în oraş, câtă vreme omul nu le acordă nici o atenţie. Urmăritul ciorilor la nivelul coloniei, cu ochiul liber sau cu binoclul, le poate induce în schimb nelinişte, în detrimentul observaţiilor etologice, care ţintesc evitarea producerii de influenţe perturbatorii de către observator. Creşterea juvenililor în semicaptivitate poate îmbogăţiri cunoştinţele despre comportamentul complex al corvidelor, prin efectuarea în paralel de observaţii pe exemplare sălbatice. Contactul pe care obişnuiesc să-l stabilească subiecţii dublu-imprimaţi cu adulţi sălbatici, dacă au ocazia, dezvăluie viaţa socială a ciorilor. Evitarea omului ca potenţial duşman dispare în prezenţa lor, aspect constatat personal din experienţa traversată cu pui zburători din specia *Corvus monedula* (L.), şi care este favorabil efectuării de observaţii îndeaproape.

Cuvinte cheie: etologie, corvide.

Introduction

The present paper proposes an interpretation of a series of experiments on three different species of corvidae in an urban area, *Corvus frugilegus* (L.), *Corvus monedula* (L.) and *Garullus glandarius* (L.), initiated in 1993 and particularised on the first two of the above mentioned between 2001-2006, observed in two districts of Iasi, Grădina Copou and Tătăraşi.

Material and Methods

- the observation from a distance either with the naked eye or with the help of binoculars, **avoiding any disturbance;**

- **the isolation of some fledging to be bred in semicaptivity;**
- the use of a **food stimulus substitute**, possible by the replacement of the parental call voice by a sound corresponding to the tonal register characteristic of the species;
- the detection of juveniles by the warning sound emitted by the adult in order to capture them.

Results and Discussion

Adapted to a variety of environmental resources, the representatives of the corvidae are omnivorous birds, characterised by the following:

1. **Intelligence**, according to which adequate behavioural response can be observed in different situations. The extraordinary memory of crows is easily observed in the promt reactions both to persons recognised as harmless in the past (feeding the birds good food, for example) as well as to people generating discomfort.
2. Their high **ecologic plasticity** is an advantage as they may inhabit urban areas where there is enough food waste and where vigilent farmers are not a threat. The city also hosts fewer predators that may disturb them during nesting season. Furthermore, placing their rookaries in the middle of the town ensures relative protection against predators. They find subterranean larvae and insects in agricultural fields, particularly during or after tractor works. This has already been recorded by I. Simionescu in 1983, and I also had the chance to notice it in agriculture fields at the same time as the interdependence between the species *C. frugilegus* (L.) and the herring gull, (*Larus argentatus* L.). This is due to the omnivorous trophic regime and it lasts all winter, for example on the frozen lake of Herăstrău in Bucureşti, where I had the opportunity to observe it.
3. Distinct **aggressiveness**, manifested when defending the nest and the neighbouring area from intruders, is perceivable in their chase from one branch to the other and in the conflicts over the nest, the latter offering the spectacle of two or more individuals clinging to one another by the beak. Once started at the nest, the conflict may continue in flight. The jackdaw chases away enemies with the help of excrements. The defense reactions in the case of this species consist in a clattering of the beak and the emission of a hissing sound, while for the rook they consist in using the beak as a weapon and in panic sounds.
4. **Prudence** and caution persist in spite of their attraction to anthropic environments. They cover up and hide food when they have plenty. The jackdaw visits a window sill for just as long as it takes to snatch a piece of food and is never at ease around people. Maintaining the safety of the nest and of the family group entails interspecific cooperation, manifested by warning sounds and circling flight, and involves the overlapping of the breeding area boundaries for the species *C. frugilegus* (L.) şi *C. monedula* (L.). Physical strength, related to their predatory behaviour allows the adults to defend their offspring by exposing themselves demonstratively to predators such as cats.
5. **Leaving the nest** close to the final stage of the offspring exposes the fledging to the risk of falling prey to carnivorous species, because their flight is safe only after the complete growth of the main flying feathers.
6. The specific **sobriety**, in keeping with the vigorous appearance and with the harsh tone of the voice is counterbalanced in juveniles by mainly playful activities, illustrative for the tame individuals, which are at ease in the proximity of humans.

Behaviour of the corvidae in captivity and semicaptivity

From the ethological experiences that I have had with members of the species *Corvus frugilegus* (L.) and *Corvus monedula* (L.), totally or partly captive, I could notice that the fledging are difficult to raise in these artificial conditions due to the highly defensive behaviour that they develop against any enemy, be it human or animal. At a certain point they relate to the humans that raise them exactly as to their natural feeding parents, but this is valid only for subjects where there is double imprinting.

Their familiarisation with man causes unease among the wild individuals, until the latter grow familiar with human presence too. Their leaving the caretaker when they have reached full development says nothing about the success of their further integration in nature. They usually signal their freedom through a farewell ritual, which for the caretaker that will not be available in their need is a hopeful sign. I have identified this ritual in 2006 at a representative of *C. monedula* L. and in 1992 at a jay, (*Garrulus glandarius* L.).

Activities observed at *C. frugilegus* L. and *C. monedula* L.

- rummaging the litter in green areas, particularly in spring when the soil is soft after the melting of the snow;
- bathing in the snow, in the rain or pipe water;
- stealing eggs and chicks from Collared Dove nests;
- preening by pecking the partner's or the brother's head in the case of chicks;
- defending the chicks against predatory mammals such as cats or dogs and owls, such as the tawny owl (*Srix aluco* L.).

Breeding at *Corvus frugilegus*

The acces to the windows of the upper storeys of two blocks of flats, in the neighbourhood of which the *Corvus frugilegus* (L.) uses to reproduce, has given me the opportunity to observe the following aspects: the courtship, the building of the nest, the feeding of the female by the male, the change of partners in the nest, the hatching and the nursing of the chicks.

The courtship at *Corvus frugilegus* (L.) consists in the raising of the beak and the trembling of the wings, which are extended and lowered a little, a characteristic posture for the courtship. The successive approaching and departing flight marks the return to the colony and the beginning of the nesting season. Only after a while after occupying the territory do the pairs spend the night in the colony.

The representatives of the two sexes look for food together, or the female remains in the colony and the male brings her food at the nest. When they build a new nest, they start by gathering dry twigs and end by breaking green, budding ones. When they fix the old nest, they just add green twigs and thus the nest gets the shape and colour given by the fresh material. Sometimes a number of adults may be noticed to seemingly fight over the same nest, grabbing one another with their beak and fluttering their wings noisily.

After finishing the nest the eggs are laid and the hatching begins. Both sexes participate in it. The nest is only temporarily uncovered while eliminating the excrements. With no other protection but the foliage of the tree, the nest may become a graveyard for the chicks, but at the more developed stages when they have already grown the protective plumage, they survive adverse weather, such as heavy rains.

During the hatching (around 18 days) and the nursing of the chicks (approximately 32 days), the male provides the food, at first alone, and then accompanied by the female.

When they start fledging, the chicks flutter their wings in the nest, on its edge, or on the branches, and wait there for their parents to feed them. At a later stage, they all leave the colony.

Most of the nests in the neighbourhood of which the species *Asio otus* (L.) has settled are abandoned as the rook will lose the battle against the latter. However, it is not impossible for these two species to cohabitate in neighbouring nesting areas, as it is also not impossible for disputes to arise between them in these circumstances.

Breeding at *Corvus monedula* (L.)

The jackdaw may be seen taking food intended for other birds from the windows sills or rummaging in garbage containers in winter. More often than not it is noticed in the month of June, when it keeps close to the ground to supervise the chicks that are not experimented in flying.

- the mating act is performed in the nest (a hollow tree, or a ventilation opening); in the case of a less roomy nest, right near it. The female solicits copulation by quivering her tail. After mating, the male grooms the head area of the female;
- not overparticular about the size of the nest entrance, both sexes work at repairing it, particularly in the morning;
- after starting to use it, the female rarely leaves the nest. The male provides the food. The incubation period is also 18 days, but the raising of the chicks takes only 23 days, during which they are fed, until they begin incursions in the neighbouring areas;
- spattering excrements or food is meant to keep enemies away from the nest;
- right after the flight out of the nest, the chicks are easy prey, for which reason parents bravely face predators that come near them;
- in the beginning, the adults supervise the chicks coming out from the nest for their first flight in the bushes, whose foliage ensures camouflage. If the family still uses the nest for the next two or three days, after two weeks, they gather up in flocks and and do not come back to the nest area till next breeding season.

Breeding at *Corvus monedula* (L.)

As breeding failure I have registered:

- juveniles dead under the nest, most with wounds on the body or crashed by traffic;
- weak or physically handicapped chicks (one eye sunk in the orbit, for example);
- adults dead during the fledgelings' flight training.

Conclusions

As gregarious birds, these two species on which I have focused my study in the present paper seem to communicate through specific signals during the voyages for food or sleep, which they undertake in mixed flocks. However, there is a difference as to the preference manifested for the space where the nest is installed – in the light, in the tree crowns for *C. frugilegus* (L.) and, on the contrary, in darkness, in cavern areas for *C. monedula* (L.).

Familiarisation with human presence is quite strong in the case of the jackdaw as the species is connected to buildings through its nesting habits. The rook avoids man's proximity and only makes stops on rooftops at the most.

It is worth mentioning that certain aspects related to their physical appearance and to the predominance of dark colours in their plumage, as well as the unpleasant sound of their voice in the case of the crows, have a negative impact on human perception,

which mostly reflects a cultural prejudice. The same is true for the rook's feeding on dead bodies.

At the same time, *Corvus frugilegus* (L.) and *Corvus monedula* (L.), being average to big in size, sociable, intelligent, situated on the level of the superior consumers in the trophic pyramid, can develop a complex range of behaviour. From this point of view, the species described have a definite role in the configuration of nature.

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