

## Behaviors of the corvids towards common buzzard *Buteo buteo* on urban and extra-urban areas of the Mazowieckie Province

IWONA BIELA<sup>2</sup>, MARLENA KOŹLIŃSKA<sup>2</sup>, PAULINA SOSNOWSKA<sup>2</sup>,  
DOROTA JĘDRUCHÓW<sup>2</sup>, MONIKA ŁUKASIEWICZ<sup>1</sup>

<sup>1</sup> Department of Animal Breeding, <sup>2</sup> „Aves” Scientific Circle  
Warsaw University of Sciences – SGGW

**Abstract:** *Behaviors of the corvids towards common buzzard Buteo buteo on urban and extra-urban areas of the Mazowieckie Province.* The study was based on observations of birds of the crow family (Corvidae) since May till November, during intensive training of a raptor common buzzard *Buteo buteo* on various areas – urban and extra-urban, of the Mazowieckie Province at various times of the day. A distinct difference was noted in the activity of the corvids depending on land development. In the study period, 305 birds were recorded, the majority of which (n = 276) were noted on the urban area, which constituted 91% of all birds observed in the entire study period. The evaluation was also significantly affected by day time. In the afternoon hours, the activity of birds towards common buzzard was significantly higher and reached 65% on average. A lower activity of the birds was observed on extra-urban areas where representatives of the crow family – Eurasian jay *Garrulus glandarius* and Eurasian magpie *Pica pica* – showed minimal interest in the bird of prey. They were undertaking individual attempts of scaring the raptor off, without intensive alerting signals and calling other individuals.

**Key words:** corvids, raven, common buzzard, behaviors

## INTRODUCTION

Behaviors of birds are currently addressed in many studies, while our knowledge on this exquisitely fascinating subject is

still fragmentary. The problem relies, in part, in the fact that these behaviors often attain many forms that also result from various environments.

In Europe, the corvids are represented by 12 species. In Poland, regular hatches are observed for 7 species: rook *Corvus frugilegus*, hooded crow *Corvus cornix*, raven *Corvus corax*, magpie *Pica pica*, jackdaw *Corvus monedula*, jay *Garrulus glandarius*, and spotted nutcracker *Nucifraga caryocatactes*. The raven *Corvus corax* (Linnaeus, 1758) is the least “singing” and at the same time the largest representative of the order of passerines *Passeriformes*. The syntaxonomic position of raven, determined based on DNA analysis, is as follows: order Passeriformes, sub-order Oscines, superfamily Corvoidea, family Corvidae, subfamily Corvinae, and species *Corvus* (Glangt 2003, after Sibeley and Ahlquist 1990). The raven is a large bird, in size resembling common buzzard, with completely black (raven-black) plumage having a metallic sheen. Also feathers of raven are in size similar to those of common buzzard and, additionally, have a characteristic scent absent in other Accipitriformes (Zawadzka 2006).

Great environmental plasticity and capability of utilizing food residues left by man made that for hundreds of years the corvids have been accompanying man. In recent years, the population of corvid family birds (Corvidae) has rapidly increased on urban areas (Mazgajski and Szczepanowski 2005). It was ascribed to the easiness of acquiring feed and a reduced number of raptors. The corvids have been shown to exert a strong impact on the nesting success of many species of birds (Tomiałojć and Stawarczyk 2003, Zduniak 2005). In addition, their role in ecosystems stirs up many emotions amongst biologists, hunters, officials administering the bird-protecting areas and institutions responsible for natural environment preservation in Poland, by making this group a conflicting one (Mazgajski and Szczepanowski 2005). For a few decades, a very large (over 100,000 birds) population of the corvids is observed to appear each year in Warsaw at the beginning of November and to leave the city at the turn of February and March. In Poland, the corvids occur both in forests, on open areas as well as on fringes of arable lands and forests. The majority of this population is nesting in forests. If they do nest in large agglomerations, it is always on their outskirts (Luniak et al. 2001, Tomiałojć and Stawarczyk 2003).

Common buzzard *Buteo buteo* is a slender bird of prey with elongated tail and long sharp-ended wings that during winging are kept in the form of a shallow letter "V". Its population is averagely numerous. It inhabits the entire area of the country and its biotopes include forests (usually their fringes) or fringes of forest enclaves (Dudziński 1988). Common buzzard feeds with small rodents of the

rural and field landscape (Perrins 1998), small passerines and other birds. Birds constitute the second in line component of its diet (Goszczyński and Piłatowski 1986, Jędrzejewska and Jędrzejewski 2001, Reif et al. 2001, Goszczyński et al. 2005, Skierczyński 2006).

The biology of birds, their behaviorism, migrations and geography of routes are very interesting and increasingly better recognized. But still little is known on the dynamics of the flock – including species and spatial dynamics, causes of sudden "plays" during flight, behaviors towards other bird species, or alerting signals. Therefore, any action that allows extending knowledge on birds is valuable.

In view of the above, this study was aimed at evaluating behavioral differences of the corvids on the urban and extra-urban areas of the Mazowieckie Province toward birds of prey.

## MATERIAL AND METHODS

The study was based on observations of the corvid family birds (Corvidae) since May till the end of November, during intensive trainings of a raptor common buzzard *Buteo buteo* in various areas – urban and extra-urban, of the Mazowieckie Province at different times of the day without rain. Observations were registered with photograms and short videos, and meticulously described.

## RESULTS AND DISCUSSION

The analysis of results of observations demonstrated a significant difference in the activity of the corvids depending on land development. A similar tendency

was noted by Mazgajski and Szczepanowski (2005).

In the course of the study, a total of 305 birds were noted, the majority of which were observed on the rural areas (i.e. 276 birds, 91% of all birds observed in the study period). The evaluation of birds behavior was also significantly affected by the time of the day. The activity of the corvids towards common buzzard was remarkably higher in the hours before the afternoon and reached 65% on average (Table 1). Since the results of the observations were often similar in the amount of observed birds in the diagram shows the chosen dates.

The corvids (Fig. 1) are fiercely territorial birds (Mazgajski and Szczepanowski 2005, Zduniak 2005). Our study showed that most of the birds colonizing the area, where the raptor common buzzard *Buteo buteo* was appearing, were raising a significant verbal alert. It needs

to emphasized that the birds are recognizing one another inside the flock. After alerting signals, the corvids were suddenly flying off and were hovering in smaller and smaller circles around the raptor or were sitting on nearby trees, brickworks, roof of buildings, and were calling their fellows. We also observed attempts of attacks on the claw bird with, e.g. twigs, acorns and other materials available to the corvids, that were aimed at scaring the intruder off. The main aggressors were birds with predominating positions in the flock. According to Henrich (1989, 1999), the group actions of the corvids are aimed, most of all, at satisfying the needs of an individual, and not the community. These actions include the need to break the defense line of protecting the resources by owners of the territory (hatching mates of ravens) and scaring off the species competing for feed – carrion.

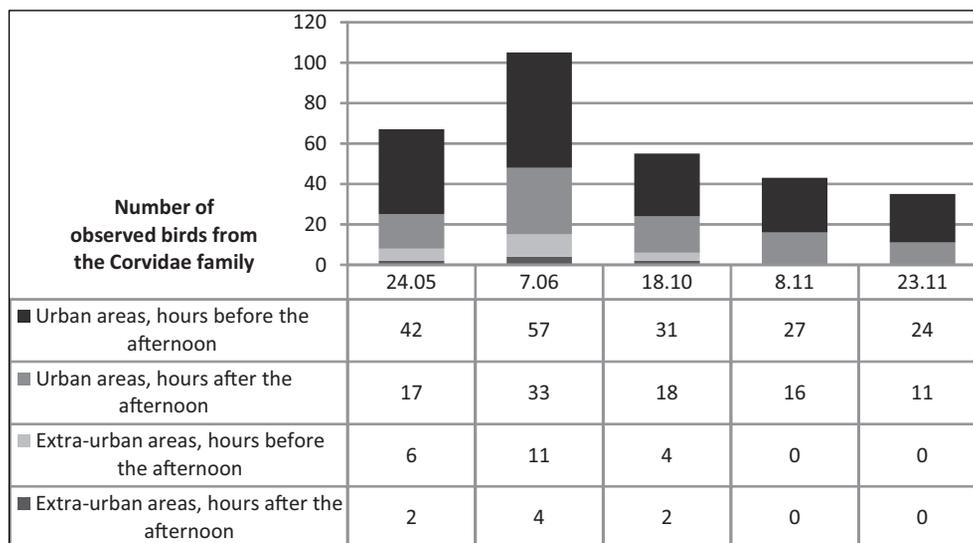


TABLE 1. Activity of the corvids depending on the site and time of observations



FIGURE 1. The corvids – from left raven, hooded crow and jackdaw (authoress: Paulina Sosnowska)

Lower activity was observed on the extra-urban areas, where representatives of the corvids – jay and magpie – expressed minimal interest in the raptor. They were undertaking individual attempts of scaring the raptor off, without intensive alerting signals and calling other individuals. Such a different behavior was, probably, due to conditions occurring in these two extremely different environments. Excellent living conditions, lack of natural enemies, easiness in acquiring food, and living in large flocks – that are characteristic for the developed area – contributed to the elimination of the instinct of natural escape from the raptor in the group of the corvids. Most of relations with large birds of prey are examples of commensalism, dietary parasitism, competitiveness or predation.

It is likely that the enhanced activity of the corvids in the hours before afternoon could be due to disturbance of

uneventful feeding of their community by the predator. Slightly different observations were made by Selva (2004) in the Białowiecki Primeval Forest. This author stated that although ravens were attacking all birds except for jay, most of their aggressive behaviors were targeted at individuals of their own species, i.e. as many as 94% of cases, and that only 4% of cases referred to attacks on common buzzard and 2% to attacks on white-tailed eagles. The white-tailed eagle, definitely predominating in this community, was attacking most of all ravens (90%). Ravens were also targets of attacks by common buzzard (89%), whereas other common buzzards were attacked significantly less frequently.

Because attacks hardly ever ended in a definite victory of one of the sides, it is difficult to determine explicitly the hierarchy between common buzzard and raven. It may be hypothesized that, in

this case, the common buzzard was the “dominant” owing to the presence of man during bird training.

## SUMMARY

The corvids are characterized by specific intelligence and interesting behaviors in the flock; what is more, they are capable of acting in a group. Raven being a numerous and controversial species in Poland, ought to be definitely more often a subject of complex investigations.

## REFERENCES

- DUDZIŃSKI W., 1988: Ptaki łowne, PWRiL Warszawa.
- GOSZCZYŃSKI J., PIŁATOWSKI T., 1986: Diet of common buzzards (*Buteo buteo* L.) and goshawks (*Acipiter gentilis* L.) in the nesting period. *Ekologia Polska* 34: 655–667.
- GOSZCZYŃSKI J., GRYZ J., KRAUZE D., 2005: Fluctuations of a Common Buzzard *Buteo buteo* population in Central Poland. *Acta Ornithologica* 40: 75–78.
- HENRICH B., 1989: Ravens in Winter. Vintage Books, New York.
- HENRICH B., 1999: Mind of the Raven. Harper Collins Publisher Inc., New York.
- JĘDRZEJEWSKA B., JĘDRZEJEWSKI W., 2001: Ekologia Zwierząt Drapieżnych Puszczy Białowieskiej. Wydawnictwo Naukowe PWN, Warszawa.
- LUNIAK M., KOZŁOWSKI P., NOWICKI W., PLIT J., 2001: Ptaki Warszawy 1962–2000 – Atlas Warszawy 8. IGPiP PAN, Warszawa.
- MAZGAJSKI T.D., SZCZEPANOWSKI R., 2005: Liczebność zgrupowania ptaków krukowatych zimujących w Warszawie. [In:] Ptaki krukowate Polski. Bogucki. Wyd. Nauk., Poznań: 427–434.
- PERRINS C., 1998: The Complete Birds of the Western Palearctic [CD-ROM]. Oxford University Press, Oxford.
- REIF V., TORNBORG R., JUNGELL S., KORPIMÄKI E., 2001: Diet variation of common buzzards in Finland supports the alternative prey hypothesis. *Ecography* 24: 267–274.
- SELVA N., 2004: The role of scavenging in the predator community of Białowieża Primeval Forest. PhD Thesis. Mammal Research Institute Academy of Sciences.
- SIBLEY C.G., AHLQUIST J.E., 1990: Phylogeny and classification of birds: A study in molecular evolution. Yale Univ. Press, New Haven, CT.
- SKIERCZYŃSKI M., 2006: Food niche overlap of three sympatric raptors breeding in agricultural landscape in Western Pomerania region of Poland. *Buteo* 15: 17–22.
- TOMIAŁOJĆ L., STAWARCZYK S., 2003: Awifauna Polski. Rozmieszczenie, liczebność i zmiany. PTPP “pro Natura”, Wrocław.
- ZAWADZKA D., 2006: Kruk. Wydawnictwo Klubu Przyrodników, Świebodzin: 1–196.
- ZDUNIAK P., 2005: Wrona siwa *Corvus cornix* w Polsce – stan wiedzy i perspektywy badań. [In:] Ptaki krukowate Polski. Bogucki. Wyd. Nauk., Poznań: 113–125.

**Streszczenie:** Zachowania ptaków krukowatych w stosunku do myszołowa zwyczajnego *Buteo buteo* na obszarach miejskich i pozamiejskich województwa mazowieckiego. Badania oparto na obserwacjach ptaków z rodziny krukowatych (Corvidae) od maja do końca listopada, podczas intensywnego treningu ptaka drapieżnego myszołowa zwyczajnego *Buteo buteo* w zróżnicowanych obszarach – miejskim i pozamiejskim, województwa mazowieckiego o różnych porach dnia. Stwierdzono wyraźną różnicę w aktywności krukowatych w zależności od zabudowania terenu. W trakcie prowadzonych badań odnotowano 305 sztuk ptaków, z czego zdecydowaną większość, tzn. 276 sztuk, na terenie miejskim, co stanowiło 91% obserwowanych osobników w ciągu

całego okresu badań. Istotny wpływ na ocenę miała również pora dnia. W godzinach przedpołudniowych aktywność ptaków w stosunku do myszólowa zwyczajnego była znacznie większa i wynosiła średnio 65%. Mniejszą aktywność obserwowano na terenach pozamiejskich, gdzie przedstawiciele krukowatych – sójka zwyczajna *Garrulus glandarius* oraz sroka *Pica pica* – wykazywały minimalne zainteresowanie ptakiem drapieżnym. Podejmowały one indywidualne próby odstraszenia drapieżnika, bez intensywnych sy-

gnałów ostrzegawczych i nawoływania innych osobników.

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**Authors' address:**

Monika Łukasiewicz  
Wydział Nauk o Zwierzętach SGGW  
Katedra Szczegółowej Hodowli Zwierząt  
Zakład Hodowli Drobni  
ul. Ciszewskiego 8, 02-786 Warszawa, Poland