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CONTENTS

Paweł Czechowski – Wintering Dunnock <i>Prunella modularis</i> in Lubusz Voivodeship	4
Robert Piekarski, Leszek Jerzak – Changes in the breeding population of the Rook <i>Corvus frugilegus</i> in Gorzów Wielkopolski in the years 2001-2025	10
Rushikesh Sankpal, Tanay Deodhar – Maneuver by Indian House Crows (<i>Corvus splendens</i>) in urban habitat – perching and feeding on moving vehicles: observations from Pune, India	23
Review	26
Instructions and information for authors	28

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WINTERING DUNNOCK *PRUNELLA MODULARIS* IN LUBUSZ VOIVODESHIP

ABSTRACT

In Poland, the wintering of Dunnock *Prunella modularis* is a regular phenomenon, which has intensified in recent years, especially in western Poland. The aim of this study is to characterize winter observations of Dunnock in the Lubusz Voivodeship. The study used 103 observations collected from the Lubusz Voivodeship during spontaneous ornithological observations carried out between 1996 and 2024. A total of 123 individuals were recorded during 23 winters out of the 29 winter seasons analyzed. Most observations took place in January (42.7%), followed by December (38.8%) and least in February (18.4%). Dunnock observations were assigned to five types of environments (river valleys, banks of water reservoirs, agricultural landscape, greenery in cities and villages, forests). Birds were most frequently recorded in river valleys – a total of 39.8%. In this environment, Dunnedocks were most frequently observed in all winter months. Most observations concerned single birds – 86.4% of records. The remaining records concerned observations of 2-4 birds.

Key words: wintering, Dunnock *Prunella modularis*, (Western Poland), habitat

INTRODUCTION

European populations of the Dunnock *Prunella modularis* are either migratory or resident, depending on the region. The populations inhabiting northwestern, western, and southern Europe are mostly resident or short distance migrants within the region. Birds from northern Europe wintering mainly in western and southwestern Europe, but the Finnish population migrates mainly to central and southeastern Europe. The Central European population winter in southwestern and southeastern Europe, with some birds reaching northern and northwestern Africa (Algeria, Morocco). Birds breeding in the Baltic countries, winter in northern Italy and neighboring areas of southeastern Europe (Nikolov 2022).

In Poland, Dunnock has the status of a moderately numerous breeding species and a numerous migratory species (Tomiałojć and Stawarczyk 2003, Chodkeiwicz et al. 2015). Winter observations of Dunnock in Poland are regular and have been increasing in recent years (Tomiałojć and Stawarczyk 2003, Sikora and Bład 2011, Beuch 2015, Chmielewski 2024). Winter observations have been known since the early 19th century

(Tomiałojc and Stawarczyk 2003). This species is found in all regions of the country, but not everywhere with the same frequency and not during all winters (Dyrzc et al. 1991, Bednorz et al. 2000, Tomiałojc and Stawarczyk 2003, Chmielewski et al. 2005).

STUDY AREA AND METHODS

The study is based on 103 Dunnock observations from the Lubusz Voivodeship collected during spontaneous ornithological observations conducted between 1996 and 2025, during the winter months (December, January, February). Ornithological observations were carried out in various environments, mainly in river valleys, agricultural landscapes, and near water reservoirs. Each time Dunnock was found during winter, the number of individuals and the type of environment in which the birds were found were recorded. The habitats in which the birds were observed were assigned to five main categories: 1. trees and shrubs in river valleys, 2. trees and shrubs among fields (agricultural landscape), 3. trees and shrubs on the banks of water reservoirs, 4. trees and shrubs (including allotment gardens) within towns and villages, and 5. forest areas.

RESULTS

A total of 123 Dunnock individuals were recorded in 103 observations. Of the 29 winter seasons analyzed, birds were observed during 23 winters. No wintering Dunnocks were recorded in the following seasons: 1998/1999, 2003/2004, 2006/2007, 2009/2010, 2010/2011, and 2012/2013 (Fig. 1). An exceptionally large number of wintering birds were observed during four seasons (2000/2001 – 29% of all observations, 2001/2002 – 8%, 2020/2021 – 20%, and winter 2023/2024 – 9%). Since the 2013/2014 season, birds have been observed every winter. During this period (12 seasons), 53% of all observations were recorded.

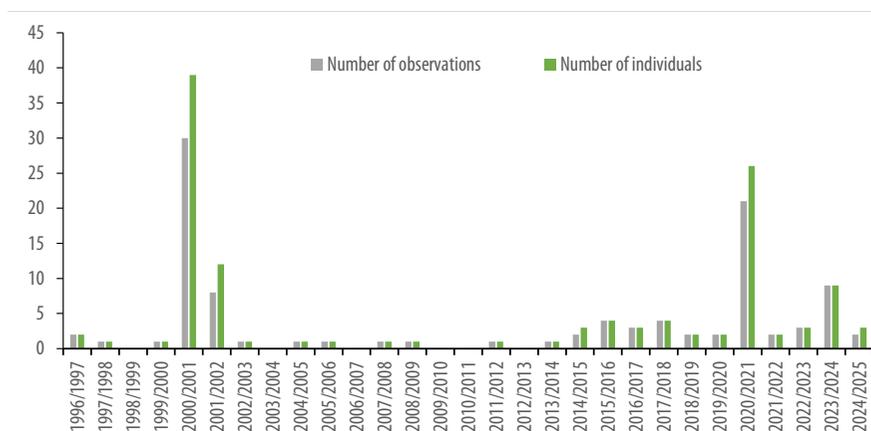


Fig. 1. Distribution of the number of observations and the number of individuals of Dunnock *Prunella modularis* in winter seasons in 1996–2025 years in Lubusz Voivodeship

Most observations took place in January – 42.7% of all observations (Fig. 2), followed by December (38.8%) and least in February (18.4%).

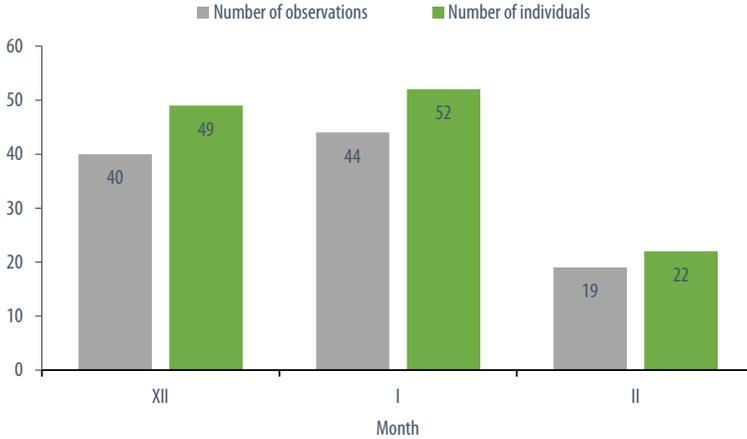


Fig. 2. Distribution of the number of observations and the number of individuals of Dunnock *Prunella modularis* by winter months in Lubusz Voivodeship

Wintering Dunnock were observed in various habitats. Most often in trees and shrubs in river valleys (mainly the Odra River) – a total of 39.8% of all observations and 42.3% of birds observed. A high proportion of sightings also occurred in green areas within human settlements (towns and villages) – 21.4% of observations, and in trees and shrubs in agricultural landscapes – 19.4%. The number of observations, individuals, and proportion of those individuals occurred in each specific habitat type are presented in Table 1. In all three months, the highest number of observations was recorded in river valleys. The proportion of other habitat categories varied in individual months (Fig. 3).

In the majority of accounts single birds were observed – 86.4% of cases. Observations of two individuals accounted for 9.7%. In addition, three and four birds were seen twice, in December (three observations) and January (one observation).

Table 1. Occurrence of Dunnock *Prunella modularis* in winter in different types of habitats in Lubusz Voivodeship

Habitat	Number of observations	% observations	Number of individuals	% individuals
River valley (1)	41	39.8	52	42.3
Farmland (2)	20	19.4	25	20.3
Water reservoirs (3)	12	11.7	12	9.8
Urban area (4)	22	21.4	25	20.3
Forest (5)	8	7.8	9	7.3
Total	103	100.0	123	100.0

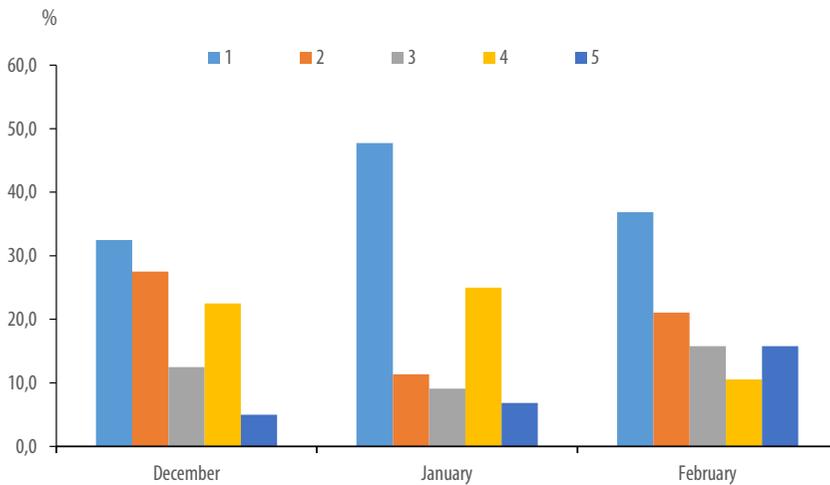


Fig. 3. Proportion of Dunnock *Prunella modularis* observation in a given habitat by months in Lubusz Voivodeship. 1 – river valley, 2 – farmland, 3 – water reservoirs, 4 – urban area, 5 – forest

DISCUSSION

The phenomenon of wintering of Dunnock in Poland is described to varying degrees in regional faunistic monographs (Dyrcz et al. 1991, Bednorz et al. 2000, Walasz et al. 2000, Chmielewski et al. 2005, 2024) and summarized in the avifauna of Poland (Tomiałoć and Stawarczyk 2003). The authors report that this bird winters almost every year throughout the country, especially in the west. This phenomenon was already known in Silesia at the beginning of the 19th century and on the Warta River until the beginning of the 20th century (Tomiałoć and Stawarczyk 2003). In the Lubusz Voivodeship, the species was not recorded until the end of the 1980s (Jermaczek et al. 1995). It was only after numerous ornithological observations began in the early 1990s that regular observations of this species were made in the Lubusz Voivodeship (Bocheński et al. 2006, Czechowski et al. 2016).

In Silesia, Dunnock is a regular wintering bird. By the end of the 1980s, several dozen observations had been recorded, and in the last two decades, over 100 more (Dyrcz et al. 1991, Silesian Avifaunistic Database). In Wrocław, it is recorded irregularly, mainly in peripheral parks and heavily bushy slopes of settling ponds (Tomiałoć et al. 2020). Regular wintering of Dunnock has also been observed in Upper Silesia in Bytom and Zabrze near mine settling ponds, where up to 6 birds were recorded in January between 2009 and 2015 (except for 2011) (Beuch 2015). In Greater Poland, until 1996, winter observations of the species were recorded only 14 times (Bednorz 2000). Another 6 observations were recorded between 2009 and 2016 (Żurawlew and Radziszewski 2014, Żurawlew and Nowak 2017a, b). In Lesser Poland, 33 observations were analyzed, with birds most frequently observed in December and then in January (Walasz et al. 2000). In

the Świętokrzyskie Mountains, only 9 observations were recorded in December-January between 1984 and 2000 (Chmielewski et al. 2005). In the Mazovian Lowlands, between 1974 and 2021, it was recorded approximately 81 times in December and January, and after 2010, an increase in observations was noted (Chmielewski 2024).

In the Lubusz Voivodeship, approximately 50% of winter Dunnock observations took place in river valleys, mainly along the Odra River, and near water reservoirs. In other regions of Poland, the birds were also more frequently found near water environments, in Lesser Poland in thickets, bushes, and brushwood piles along rivers and streams (Walasz et al. 2000), and in the Mazovian Lowlands most often along rivers (Chmielewski 2024). In Silesia, for example, in Bytom and Zabrze (Beuch 2015) or Wrocław (Tomiałojsć et al. 2020), Dunnock was regularly seen in vegetation near water reservoirs. Wintering birds in the Lubusz Voivodeship were also found in urban and rural green areas, including bird feeders. In the Mazovian Lowlands, residential areas were the second most common habitat in terms of the number of observations (Chmielewski 2024).

The majority Dunnock winter observations were single birds (Walasz 2000, Chmielewski 2024, Silesian Avifaunistic Database, present study). It is less common to observe 2-3 birds, and even rarer to see larger groups, e.g., 5-6 individuals (Walasz 2000, Beuch 2015). Exceptionally, groups of more than 10 birds were recorded: 12 individuals 15.02.1981 in Silesia (Dyrz et al. 1991) and 19 birds 03.02.2001 at the ash storage site of the combined heat and power plant in Gdańsk Nowy Port (Sikora and Bład 2011).

In summary, the wintering of Dunnock in Poland is a regular phenomenon (with varying intensity in different regions of the country), which has intensified in recent years. A large proportion of observations take place near water environments (river valleys, reservoirs). Birds, which most often stay in dense vegetation, are detected mainly on the basis of their call. Therefore, many individuals may not be detected, and as a result, the number of Dunnock staying in Poland for the winter may be higher. This is particularly true in the last dozen or so years, when winters have been much milder.

REFERENCES

- Bednorz J., Kupczyk M., Kuźniak S., Winiecki A. 2000. Ptaki Wielkopolski. Monografia faunistyczna. Bogucki Wyd. Nauk., Poznań.
- Beuch S. 2015. Regularne zimowanie pokrzywnicy *Prunella modularis* na osadnikach kopalnianych w Bytomiu i Zabrze. Ptaki Śląska 22: 146-150.
- Bocheński M., Kajzer Z., Czechowski P., Jędro G., Cichocki J., Rubacha S., Sidelnik M., Wąsicki A. 2006. Awifauna przelotna i zimująca środkowego odcinka doliny Odry. Ptaki Śląska 16: 123-161.
- Chmielewski S., Fijewski Z., Nawrocki P., Polak M., Sułek J., Tabor J., Wilniewczyc P. 2005. Ptaki Krainy Gór Świętokrzyskich. Monografia faunistyczna. Bogucki Wyd. Nauk. Poznań.
- Chmielewski S. 2024. Pokrzywnica *Prunella modularis* (Linnaeus, 1758). In: Chmielewski S., Dombrowski A., Łukaszewicz M., Tabor J., Górski A. (Eds.). Ptaki Niziny Mazowieckiej Tom IV. MŚTO, Pionki-Poznań: 198-207.

- Chodkiewicz T., Kuczyński L., Sikora A., Chylarecki P., Neubauer G., Ławicki Ł., Stawarczyk T. 2015. Ocena liczebności ptaków lęgowych w Polsce w latach 2008-2012. *Ornis Polonica* 56: 149-189.
- Czechowski P., Jerzak L., Bocheński M., Jędro G., Rubacha S., Wąsicki A. 2016. Ptaki powiatu zielonogórskiego. Oficyna Wydawnicza Uniwersytetu Zielonogórskiego, Zielona Góra.
- Dyrz A., Grabiński W., Stawarczyk T., Witkowski J. 1991. Ptaki Śląska. Monografia faunistyczna. Uniwersytet Wrocławski, Zakład Ekologii Ptaków, Wrocław.
- Jermaczek A., Czwałga T., Jermaczek D., Krzysków T., Rudawski W., Stańko R. 1995. Ptaki Ziemi Lubuskiej. Monografia faunistyczna. Wyd. Lubuskiego Klubu Przyrodników, Świebodzin.
- Nikolov B. 2022. Dunnock *Prunella modularis*. In: Franks S., Fiedler W., Arizaga J., Jiguet F., Nikolov B., van der Jeugd, Ambrosini R, Aizpurua O., Bairlein F., Clark J., Fattorini N., Hammond M., Higgins D, Levering H., Skellorn W., Spina F., Thorup K. Walker J., Woodward I., Baillie S.R. Online Atlas of the movements of European bird populations. <https://migrationatlas.org EURING/CMS>.
- Sikora A., Bład A. 2011. Zimowa obserwacja stadka pokrzywnic *Prunella modularis* w Gdańsku. *Ptaki Pomorza* 2: 157-158.
- Tomiałojć L., Stawarczyk T. 2003. Awifauna Polski. Rozmieszczenie, liczebność i zmiany. PTPP „proNatura”, Wrocław.
- Tomiałojć L., Orłowski G., Czapulak A., Jakubiec Z. 2020. Ptaki Wrocławia w okresie 200 lat. Występowanie, liczebność i zmiany w dzisiejszych granicach administracyjnych miasta. PTPP „pro Natura”, Wrocław.
- Walasz K. (ed.). 2000. The Atlas of wintering birds in Małopolska. Małopolska Ornithological Society, Kraków.
- Żurawlew P., Radziszewski M. 2014. Wielkopolski Raport Ornitologiczny nr 4. Podsumowanie roku 2012. *Ptaki Wielkopolski* 3: 151-178.
- Żurawlew P., Nowak B. 2017a. Wielkopolski Raport Ornitologiczny nr 6. Podsumowanie roku 2014. *Ptaki Wielkopolski* 5: 95-121.
- Żurawlew P., Nowak B. 2017b. Wielkopolski Raport Ornitologiczny nr 7. Podsumowanie roku 2015. *Ptaki Wielkopolski* 5: 122-145.

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CHANGES IN THE BREEDING POPULATION OF THE ROOK *CORVUS FRUGILEGUS* IN GORZÓW WIELKOPOLSKI IN THE YEARS 2001-2025

ABSTRAKT

Gorzów Wielkopolski (Lubusz Voivodeship, western Poland) has for many years constituted an important stronghold of the Rook *Corvus frugilegus* population in the Lubusz Land. This study analyses changes in population size, spatial distribution, and the structure of breeding colonies of the Rook within the city limits in 2021-2025. Over the survey period, breeding colonies were recorded at 16 sites, with the number of active colonies in individual years ranging from 12 to 5. On average, the size of Rook colonies ranged from 48 nests (Me = 11) in 2021 to 132 (Me = 143) in 2008. Most were concentrated in the central part of the city, at a short distance from the valley of the Warta River and its tributary, the Kłodawka (in close proximity to foraging areas).

The Gorzów Wielkopolski population reached its maximum size in 2006 (849 nests; 9.9 pairs/km²), after which a systematic decline began, leading to a minimum recorded in 2025 (338 nests; 3.9 pairs/km²). Over the last two decades, the population decreased by as much as 60.2%, at an average rate of 4.7% per year. These figures are alarming. Analysis of the results indicates that the pronounced reduction in the number of breeding pairs was primarily driven by anthropogenic factors, including disturbance of birds, removal of nests, felling and pollarding of trees within colonies, progressive suburbanisation, and a reduction of foraging resources caused by changes in the use of agricultural land around the city. It is evident that additional factors may also be involved and further investigation is needed.

The obtained results are consistent with the nationwide trend of a significant decline in the Rook population in Poland and underscore the need for the development of conservation and educational programmes, not only at the local level.

Key words: Rook *Corvus frugilegus*, corvids, distribution, decrease of abundance, Lubusz Voivodeship, Lubusz Land

INTRODUCTION

Studies on the Rook *Corvus frugilegus* population from the Lubusz Voivodeship in western Poland are relatively scarce. The literature also lacks long-term observations from this area spanning several decades, which would allow the identification of actual population trends beyond short-term fluctuations.

Publications from the 1980s and the early 21st century regarding the distribution of Rook breeding colonies in the Lubusz Land indicate that the species inhabits exclusively urban habitats in this region (Jermaczek 1995, Jerzak & Piekarski 2001, 2005). According to estimates provided by these authors, the Rook population during this period was relatively stable, reaching a maximum of 1,344 pairs in 1987, with a slight decline in subsequent years, reaching 1,125 pairs in 2004 (Jerzak & Piekarski 2005).

Recent studies indicate an alarming declining trend in the breeding populations of the Rook across various regions of Poland. In 2001, the species was included in the Polish nationwide research programme, the Monitoring of Flagship Bird Species (MFGP), which has confirmed a pronounced decrease in its abundance for more than a decade. Between 2010 and 2017, the decline in the Polish breeding population was estimated at approx. 40% (Wardecki et al. 2021). Currently, due to the rapid nationwide decrease in numbers (ca. 57%), the Rook has been classified as Vulnerable (VU) according to IUCN criteria and included in the Polish Red List of Birds (Wilk et al. 2020). Despite this decline, Poland still supports the fourth largest population of this species within the European Union (Beuch et al. 2024). Across Europe, a decrease in Rook abundance has been observed since the 1990s, primarily as a result of changes in land-use structure and human persecution (Marchant & Gregory 1999, Orłowski & Czapulak 2007, Wylegała et al. 2013). At the beginning of the 21st century, a similar trend of agricultural changes unfavorable to birds also emerged in Poland.

In the Lubusz Voivodeship, the largest Rook breeding colonies have been recorded in Gorzów Wielkopolski (Jermaczek 1995, Jerzak & Piekarski 2005), one of the two main urban centres of this region of western Poland. The aim of this study is to present data on the abundance, distribution, and trends in the Rook population over the past 25 years (2001-2025) in Gorzów Wielkopolski.

STUDY AREA

Gorzów Wielkopolski is located in north-western Poland, in the northern part of the Lubusz Voivodeship, and covers an area of approx. 86 km². It is classified as a medium-sized city. According to Statistics Poland (GUS 2025), the population of Gorzów Wlkp. in 2024 amounted to just under 115,000 inhabitants and showed a declining trend.

According to the physico-geographical regionalization of Kondracki (2013), the area of the city is situated at the boundary of two morphogenetically distinct units. The northern part lies within the macroregion of the South Pomeranian Lakeland,

mesoregion Gorzów Plain. The southern part, in turn, is located within the western section of the Toruń–Eberswalde Ice-Marginal Valley macroregion, mesoregion Gorzów Basin. The ice-marginal valley is traversed by the River Warta, which divides the city into two parts: the left-bank and right-bank sections. The left-bank part has a lowland character and comprises a flat floodplain terrace. In contrast, the right-bank part of the city is situated within the northern escarpment of the ice-marginal valley, characterized by strongly undulating terrain with elevations of up to 82 m a.s.l. The majority of Rook colonies were located in the southern part of the city, within the river ice-marginal valley.

An analysis of land-use structure in Gorzów Wlkp. indicates that built-up and urbanized areas occupy approx. 36% of the city's administrative area, whereas agricultural and green areas (meadows, forests, and arable land) constitute the majority of its territory. Within the city boundaries, there is also a network of urban green spaces (parks and green areas) with a total area of approx. 342.7 ha, representing about 4% of the city area (UM Gorzów Wielkopolski 2016). The high proportion of agricultural land and forests within the administrative boundaries of the city results from the incorporation, in the 1970s, of surrounding villages and parts of rural settlements, which have retained their rural character to the present and have become districts of the city. These areas provide favorable foraging habitats for birds, including the Rook.

Despite the relatively small area occupied by urban green spaces, Gorzów Wlkp. is characterized by a relatively well-developed network of city parks. Importantly, these urban parks contain trees of older age classes (50-150 years), including plane trees *Platanus × acerifolia*, oaks *Quercus* spp., limes *Tilia* spp., maples *Acer* spp., hornbeams *Carpinus betulus*, and ashes *Fraxinus* sp., located both along avenues and in the central parts of the parks (UM Gorzów Wielkopolski 2016). These mature trees play a significant ecological role by providing habitats for colonial birds, including the Rook. In combination with access to open areas (meadows, pastures, fields, lawns), the presence of older trees in parks promotes the formation of breeding colonies and makes Gorzów Wlkp. an attractive environment for corvid species in the urban landscape.

METHODS

Field studies were conducted between 2001 and 2025 and encompassed the area within the administrative boundaries of Gorzów Wielkopolski (study area: 86 km²). Rook colonies were surveyed annually during the third decade of April. Each year, all wooded areas throughout the city were also inspected to identify potential new colonies.

The location of each colony was mapped onto the city plan, and its position, GPS coordinates, and microhabitat were recorded. A breeding colony was defined as the presence of a minimum of 3 nests. Separate colonies were considered as clusters of nests located more than 250 m apart. Within each Rook colony, the number of nests per tree was recorded, the average height of nest placement was determined, and the

tree species or genus hosting the nests was identified. It was assumed that one nest corresponds to a single breeding pair.

The mean annual percentage decline of the Rook population was calculated using an exponential model describing changes in population size over time, as recommended in the methodology of the State Environmental Monitoring Programme (GIOŚ 2025):

$$\lambda = (N_T / N_0)^{1/T}; r = (\lambda - 1) \times 100\%$$

where: λ – the coefficient of population growth/decline, N_T – the value of the parameter after T years from the beginning of the measurement series, T – the number of years elapsed since the first year of measurements, N_0 – the value of the parameter in the first year of measurements, r – the mean annual percentage decline.

To forecast population changes over the study period, an exponential decay model was applied, described by the following formula:

$$N_T = N_0 \times (1 - r)^T$$

where: N_T – predicted population size after T years, N_0 – population at the start of the period, r – annual rate of decline, T – number of years.

RESULTS

Population status

Between 2001 and 2025, Rook colonies were recorded in 16 locations within the city of Gorzów Wlkp. (Tab. 1). Their numbers fluctuated over the years but remained relatively stable at 6-8 colonies during the period 2006-2020 (Fig. 3). In 2003, the highest number of colonies was recorded - 12, whereas the lowest number was observed in 2025 – only 5.

The distribution of most breeding colonies (approx. 60-75% in individual years) was concentrated mainly in the central part of the city, characterized by the presence of old tenement buildings and mature greenery (tree-lined avenues and clusters of older trees). This choice of breeding sites was likely determined both by the availability of suitable nesting trees (primarily old plane trees) and by the short distance to the Kłodawka and Warta rivers (up to 0.5 km). The Warta River valley provides favourable foraging habitats, such as flood terraces, meadows, and pastures. Two relatively large colonies (up to 227 nests) were located in the southern districts of Gorzów Wlkp. with a rural character, surrounded by agricultural land (Gorzów-Zieleniec and Gorzów-Karnin). No breeding birds were recorded within housing estates characterized by modern buildings and young tree plantings.

The distribution of Rook colonies within the administrative boundaries of Gorzów Wlkp. over a 25-year period is shown in Figs. 1-2. Figure 2 presents the situation in 2025 and illustrates the scale of the decline in the number of colonies during the study period.

The size of Rook colonies varied considerably, ranging from 3 to 344 nests. Throughout the study period, small colonies containing up to 20 nests were the most numerous (9). The numbers of five colonies in peak years fell within the ranges of 21-50 and

51-230 nests, whereas the largest colonies, exceeding 300 nests in some years, were recorded at only two locations.

Tab. 1. Nesting localities of Rooks in Gorzów Wielkopolski in the years 2001-2025 and their periods of activity

No.	Location of colony	Active period	Number of years
1	Śródmieście / Park Wiosny Ludów	2001-2025	25
2	Teatralna Str.	2001-2025	25
3	Warszawska Str. / rondo	2001-2025	25
4	Chrobrego Str. / Łokietka Str.*	2001-2003	3
5	Walczaka Str./ church	2001-2005	5
6	Koniawska Str.	2001-2004	4
7	Kobylogórska Str. / SP4	2001	1
8	Grobła Str.	2001-2005	5
9	Walczaka Str./ hospital-park / ZSZ*	2001-2021	21
10	district Gorzów-Zieleniec**	2001-2025	25
11	district Gorzów-Karnin**	2001-2025	25
12	Słowackiego Str. / Grunwaldzki Square	2003-2007; 2009-2022	19
13	Walczaka Str. / Kopernik's Park	2003	1
14	11 Listopada Str. / ul. Słoneczna Str.	2014; 2016-2019	5
15	Bracka Str. / church	2021-2024	4
16	Wawrzyniaka Str. / park	2021-2023	3

* Two colonies in close proximity were merged into a single colony. In earlier publications, they were treated as separate (Jerzak & Piekarski 2001, 2005).

** In earlier publications (Jerzak & Piekarski 2001, 2005), these peripheral districts of Gorzów Wlkp. were treated as separate localities.

The number of Rook pairs in individual years, including all breeding colonies, is shown in Tab. 2 and Fig. 4. The highest population within the city was recorded in 2006 – 849 nests (mean density 9.9 pairs/km²). Since then, the breeding population has steadily declined, reaching a minimum of 338 nests in 2025 (mean density 3.9 pairs/km²). The mean colony size ranged from 48 nests (Me = 11) in 2021 to 132 nests (Me = 143) in 2008.

The number of nests per individual tree usually ranged from 1 to 36 (averaging from 4.8 in 2007 to 6.7 in 2024). In two colonies located in the southern, rural parts of the city, the number of nests on a single tree (plane tree) reached as many as 71 (Gorzów-Karnin in 2002) and 106 (Gorzów-Zieleniec in 2008 and 2012) in peak years. Notably, in the most recent period (2022-2025), when the number of Rook colonies declined sharply, the mean number of nests per tree reached its highest values (6.2-6.7).

During the study period, Rooks most frequently selected the following tree species for nesting: plane tree (mean 48.2%), maple (mean 13.5%), hornbeam (mean 12.9%), and lime (mean 10.5%). In urban tree stands of Gorzów Wlkp, especially in parks, mature plane trees make up a large proportion. Owing to their large size and spreading crowns, this species was the most frequently selected for nesting by birds.



Fig. 1. Distribution and size of Rook colonies in Gorzów Wielkopolski between 2001 and 2025



Fig. 2. Distribution and size of Rook colonies in Gorzów Wielkopolski in 2025

Tab. 2. Number of Rook nests in the city of Gorzów Wielkopolski in the years 2001–2025

No.	Location of colony	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1	Śródmieście / Park Wiosny Ludów	170	183	224	175	156	168	158	221	250	325	318	307	344	289	273	303	285	278	259	237	238	228	219	216	223
2	Teatralna Str.	10	9	7	10	13	16	10	7	5	9	15	16	16	24	23	16	12	7	11	10	20	28	28	21	11
3	Warszawska Str. / rondo	37	43	40	32	40	40	27	19	26	32	34	25	24	23	20	24	17	17	32	13	10	11	16	8	8
4	Chrobrego Str. / Łokietka Str.	17	14	5																						
5	Walczaka Str. / church	6	10	7	5	4																				
6	Koniawska Str.	5	5	5	3																					
7	Kobylogórska Str. / SP4	3																								
8	Grobła Str.	36	35	32	24	27																				
9	Walczaka Str. / hospital-park / ZSZ	269	318	206	235	240	311	180	254	199	222	130	181	166	118	114	108	46	38	30	14	11				
10	district Gorzów-Ziele-niec	85	108	126	132	164	207	180	227	215	153	132	129	117	117	143	118	135	125	79	88	112	106	77	60	69
11	district Gorzów-Karmin	110	111	90	79	81	96	54	65	38	34	22	18	14	8	14	16	24	20	37	22	30	39	30	29	27
12	Słowackiego Plac Grun-waldzki			15	17	5	11	3		13	8	10	13	14	14	6	3	8	4	5	5	4	3			
13	Walczaka Str. / Kopernik's Park			6																						
14	11 Listopada Str. Słoneczna Str.													5		10	16	10	15							
15	Bracka Str. / church																					6	8	7	5	
16	Wawrzyniaka Str. / park																					3	3	3		
RAZEM:		748	836	763	712	730	849	612	793	746	783	661	689	695	598	593	598	543	499	468	389	434	426	380	339	338

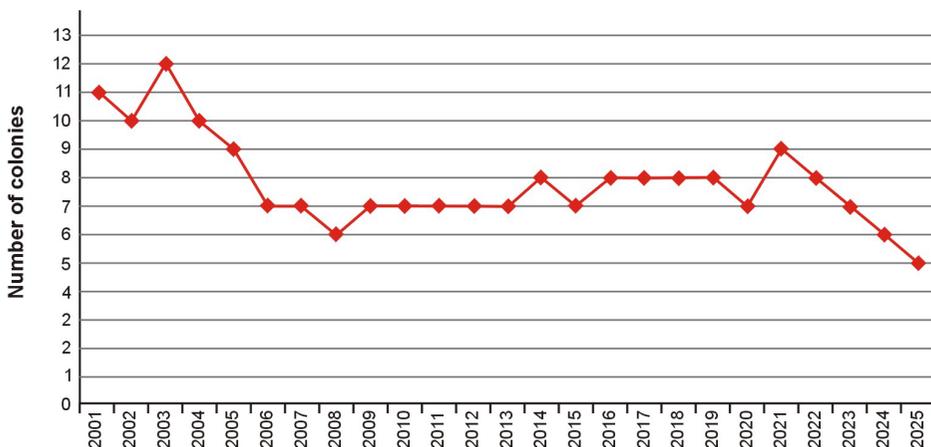


Fig. 3. Changes in the number of Rook colonies recorded in Gorzów Wielkopolski in the years 2001-2025

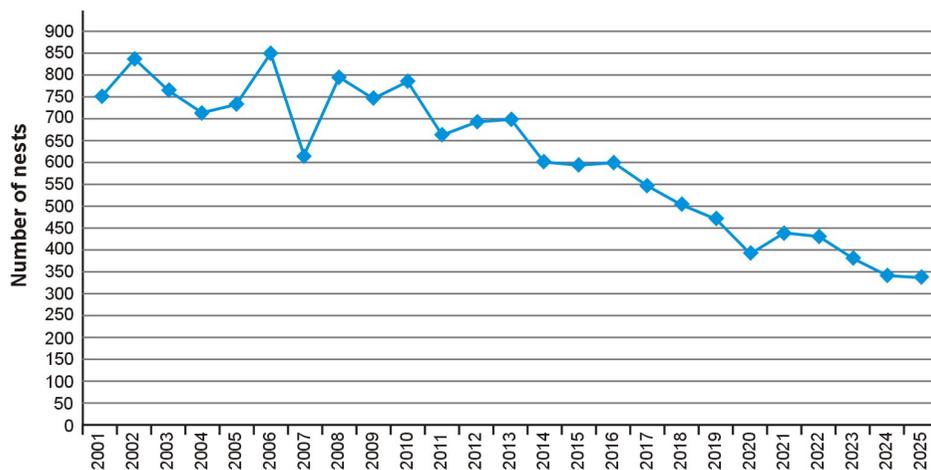


Fig. 4. Dynamics of breeding pair numbers of Rooks in Gorzów Wielkopolski in the years 2001-2025

Declining trend of the Gorzów Wielkopolski population

Over the past two decades, the breeding population of Rook in the city of Gorzów Wlkp. has declined significantly. Since reaching its peak in 2006 (849 pairs), the population has decreased by 60.2%. Data presented in the tables and figures indicate a continuous decline in the number of Rooks in Gorzów Wlkp. since 2007. The mean annual decrease in the breeding population, calculated using an **exponential model**, amounted to approx. 4.7%.

If the current trend persists, further population decline can be expected, particularly in smaller colonies. Using an exponential decay model, projections were made for the Rook population in Gorzów Wlkp. over the next 10 and 20 years. According to these projections, assuming an annual decrease of 4.7%, the population is expected to decline to approx. 206 pairs by 2035 and to 126 pairs by 2045.

DISCUSSION

Data on the population of the Rook in the Lubusz Land, including Gorzów Wielkopolski, are scarce. In the late 1980s, 570-600 breeding pairs were reported from Gorzów (Jermaczek et al. 1992, 1995), which was the highest figure among localities in the region. In 2004, a total of 1,757 nests were recorded throughout the Lubusz Voivodeship, all of them located exclusively within urban areas (Jerzak & Piekarski 2005). In that year, 712 nests were found in Gorzów (Tab. 2), which accounted for over 40% of the regional population. In 2006, the maximum number of nests within the city was recorded – 849, which remains the highest value observed to date. No breeding of the species was recorded in Zielona Góra County (Hordowski 2009) and Zielona Góra city, another major urban center in the region (unpublished). These data indicate that Gorzów Wlkp. constitutes an important stronghold of the species in the analysed region. As reported by Hordowski (2009, after Jerzak & Piekarski 2005), the highest number of nests recorded on a single tree in Poland (88) was observed at this site. The studied tree (a plane tree) is located in the Gorzów–Zieleniec colony. During subsequent surveys, a record number of nests was documented on the same plane tree, reaching 106 in 2008 and 2012. Over time, the number of nests per tree gradually declined, reaching 66 in 2025.

A significant decline in the Rook population in Poland over recent decades has been reported by numerous authors (Kuźniak et al. 2005, Hordowski 2009, Adamiak 2010, Neubauer et al. 2011, Tobółka et al. 2011, Wylegała et al. 2013, Zbyryt et al. 2013, Jerzak et al. 2017, Zbyryt et al. 2018, Wachecki 2021, Dylík et al. 2024) and has intensified markedly in the last two decades (Chylarecki et al. 2018, Wilk et al. 2020). According to the Polish Red List of Birds, the national population has decreased by 57% (Wilk et al. 2020). Countrywide, Rook abundance declined on average by 4% per year between 2001 and 2020, with an acceleration after 2008 (Chylarecki et al. 2018, Wilk et al. 2020). In eastern Poland, the population decline reached 10% per year, which was twice the rate observed in western regions (Chylarecki et al. 2018). The magnitude of the population decline observed (4-10% per year) qualifies as substantial or strong in the long-term perspective.

The Rook population in Gorzów Wlkp. has declined by 60.2% over the past 20 years, reflecting the nationwide decreasing trend, with an average annual reduction of 4.7%. Predictive simulations for the city of Gorzów Wlkp. indicate that, over the next two decades, the population may decrease to approx. 126 breeding pairs.

Comparing these data with the decline in the Rook population from nearby Strzelce Krajeńskie (Gorzów Wlkp. County), where a 56.4% decrease in abundance occurred over the past 24 years at an average rate of 3.6% per year (R. Piekarski, unpublished), the Gorzów Wlkp. population exhibits a concerning trend, indicating an urgent need for conservation measures.

Causes of population decline

There may be multiple causes underlying the decline of the Rook population, some of which remain unexplained. Anthropogenic factors undoubtedly play a significant role, as Rooks in urban areas are considered a conflict species (Zbyryt et al. 2013). The attitude of the Gorzów Wlkp. community toward these birds is predominantly negative, particularly among residents of tenement buildings close to the breeding colony, or in the area of the hospital complex. The main problems include contamination by droppings in streets, parking areas and pedestrian alleys, as well as noise and odor. In rural areas (Gorzów–Karnin), occasional killing of nestlings fallen from nests by local residents has been reported. In the case of colonies located near churches and on cemetery grounds, a significant problem is the contamination of the area with bird droppings.

Over the past 25 years in Gorzów Wlkp., the disappearance or substantial reduction of Rook colonies has been documented due to the following factors: disturbance, felling of nest-bearing trees, topping of trees with nests in cemeteries, and the successive removal of nests outside the breeding season. Such practices have been frequently reported in the literature (Zbyryt et al. 2013, Wachecki 2021, Pawlak 2022, Dylík et al. 2024).

A letter obtained under the access to public information procedure, issued by the Regional Directorate for Environmental Protection in Gorzów (RDOŚ, WOIS.402.149.2025.JM), indicates that over the past 15 years only a single derogation decision for scaring Rooks has been issued. The authorization was justified by a “conflict arising from Rook breeding sites located along the main park avenues, in the area of the summer garden adjacent to the restaurant, and near the playgrounds within the Wiosny Ludów Park in the center of Gorzów Wielkopolski.” Fortunately, the colony was not significantly affected.

For reasons unknown but easily anticipated (systematic removal of nests outside the breeding season), one of the largest colonies, located in a park within the hospital complex and the ZDZ school grounds on Walczaka Street, disappeared over a five-year period. Similar situations were observed on church grounds and in areas frequently visited by city residents (e.g., tenement buildings and the pedestrian street adjacent to the music school on Chrobrego and Łokietka Streets). According to the authors of this paper, at least 5-6 colonies have thus vanished from the Gorzów Wlkp. landscape, and two others have been significantly reduced. The few smallest colonies probably disappeared naturally, a phenomenon that has also been observed by other authors (Józefik 1976, Wachecki 2021).

Analyses of average colony sizes in Gorzów Wlkp. and the mean number of nests per tree indicate that after the disappearance of smaller colonies, some birds were incorporated into the remaining larger colonies (Jerzak & Piekarski 2005, Jerzak et al. 2017). This pattern is further evidenced by the fact that in 2003 a greater number of breeding colonies (12) was associated with a lower total number of nests (732) than in 2006, when only 7 breeding colonies were recorded in the city, yet they encompassed as many as 849 nests. No clear phenomenon of small colony formation in the vicinity of a large colony following its fragmentation, as reported by Wachecki (2021) and Pawlak (2022), was observed.

Beyond bird scaring and nest removal, significant causes of population decline should be sought in changes in agricultural land use in the vicinity of Gorzów Wlkp. Rooks exploit foraging grounds both within the urbanized part of the city and on its outskirts, located in close proximity to breeding colonies. Within the urban area, these comprise green urban spaces, accounting for approx. 2.4% of Gorzów's surface area (excluding parks), whereas on the periphery they include grasslands, pastures, and arable land. Unfortunately, the availability of agricultural areas for birds has steadily declined in recent years. According to data from the Gorzów Wielkopolski City Office (2016), in 2015 green areas and arable land covered approx. 48% of the city's area. However, part of these lands was earmarked for development, which subsequently reduced their suitability for birds. Similar causes of Rook population reduction, particularly in western Poland, have been previously reported by other authors (Orłowski & Czapulak 2007, Wylegała et al. 2013, Zbyryt et al. 2013, Zbyryt et al. 2018, Dylík et al. 2024).

The environmental protection program for Gorzów Wlkp. (2020/2021) highlighted weaknesses related to the development of green areas, including ongoing suburbanization and highly specialized agriculture (e.g., large-scale rapeseed and maize cultivation, chemical intensification, and the loss of alternative habitats). Agriculturally used areas are expected to decrease as urban development projects are implemented. Such trends indicate a further contraction of the food base in the city's surroundings.

In summary, it can be stated that the widespread perception of the Rook as a conflict species, causing nuisance to urban residents, has led to actions aimed at substantially reducing its population in the city. This is facilitated by Polish legal acts which, since 2014, have classified the Rook as a partially protected species in urban environments. The contraction of the food base around the city further intensifies the decline in their numbers. Over the past 20 years, the Rook population in Gorzów Wlkp. has decreased by 60.2% (an annual decline of approx. 4.7%), which is alarming and calls for consideration of a species conservation strategy, as well as public environmental education.

REFERENCES

- Adamiak W. 2010 – Populacja lęgowa gawrona *Corvus frugilegus* w Gnieźnie w latach 2005-2007 – Chrońmy Przyr. Ojcz., 66(4): 299-302. (In Polish)

- Beuch S., Chodkiewicz T., Przymencki M., Wardecki Ł., Sikora A., Neubauer G., Smyk B., Marchowski D., Ławicki Ł., Meissner W., Chylarecki P. 2024 – Monitoring Ptaków Polski w latach 2021-2024. *BiMonit. Przyr.*, 28: 30-32. (In Polish)
- Chylarecki P., Chodkiewicz T., Neubauer G., Sikora A., Meissner W., Woźniak B., Wylegała P., Ławicki Ł., Marchowski D., Betleja J., Bzoma S., Cenian Z., Górski A., Korniluk M., Moczarska J., Ochocińska D., Rubacha S., Wieloch M., Zielińska M., Zieliński P., Kuczyński L. 2018 – Trendy liczebności ptaków w Polsce – GIOŚ, Warszawa. (In Polish)
- Dylik A., Królak T., Wasielewski L., Węclawek D. 2024 – Rozmieszczenie i liczebność lęgowej populacji gawrona *Corvus frugilegus* w województwie kujawsko-pomorskim w latach 2014-2022 – *Ornis Pol.*, 65: 42-56. (In Polish)
- GIOŚ 2025 – Analiza danych – Monitoring Ptaków Polski – Państwowy Monitoring Środowiska. Available online: <https://monitoringptakow.gios.gov.pl/analiza-danych.html> (accessed: 20 December 2025). (In Polish)
- GUS 2025 – Ludność. Stan i struktura ludności oraz ruch naturalny w przekroju terytorialnym – GUS, Warszawa. Available online: <https://stat.gov.pl/obszary-tematyczne/ludnosc/.../ludnosc-stan-i-struktura-ludnosc-i-ora-z-ruch-naturalny-w-przekroju-terytorialnym-w-2025-r-stand-niu-30-czerwca%2C6%2C39.html> (accessed: 20 December 2025). (In Polish)
- Hordowski J. 2009 – Gawron *Corvus frugilegus* na Podkarpaciu. Monografia gatunku i znaczenie gospodarcze. Arboretum i Zakład Fizjografii, Bolestraszyce. (In Polish)
- Jerzak L., Piekarski R. 2001 – Rozmieszczenie i liczebność kolonii gawrona *Corvus frugilegus* w województwie lubuskim w 2001 r. – W: Bioróżnorodność i ekologia populacji zwierzęcych w środowiskach zurbanizowanych, red. P. Indykiewicz, T. Barczak, G. Kaczorowski – Wyd. NICE, Bydgoszcz: 263-267. (In Polish)
- Jerzak L., Piekarski R. 2005 – Rozmieszczenie i liczebność kolonii gawrona *Corvus frugilegus* w województwie lubuskim w 2004 r. – W: Ptaki krukowate Polski, red. L. Jerzak, B.P. Kavanagh, P. Tryjanowski – Bogucki Wyd. Nauk., Poznań: 599-611. (In Polish)
- Jerzak L., Szurlej-Kiełańska A., Beuch S., Frankiewicz J., Kołodziejczyk P., Matacz L. 2017 – Rozmieszczenie i liczebność kolonii lęgowych gawrona *Corvus frugilegus* na Śląsku w latach 2013-2014 – *Ptaki Śląska*, 24: 75-88. (In Polish)
- Jermaczek A., Czałga T., Jermaczek D., Nowak A., Stańko R., Schneider G., Żegliński G. 1992 – Ptaki lęgowe miasta Gorzowa w roku 1989 – W: *Lub. Przegl. Przyr.*, 3(2-3): 41-69. (In Polish)
- Jermaczek A., Czałga T., Jermaczek D., Krzyśków T., Rudawki W., Stańko R. 1995 – Ptaki Ziemi Lubuskiej. Monografia faunistyczna – Wydawnictwo Lubuskiego Klubu Przyrodników, Świebodzin. (In Polish)
- Józefik M. 1976 – Występowanie gawrona, *Corvus frugilegus* L., w Polsce. I. Struktura przestrzena i mechanizmy samoregulacyjne populacji – *Acta Ornithol.*, 15(7): 339-482. (In Polish)
- Kondracki J. 2013 – Geografia regionalna Polski – Wydawnictwo Naukowe PWN, Warszawa. (In Polish)
- Kuźniak S., Lorek G., Maćkowiak S., Kosicki J.Z. 2005 – Gawron *Corvus frugilegus* na Ziemi Leszczyńskiej – W: *Ptaki krukowate Polski* – red. L. Jerzak, B.P. Kavanagh, P. Tryjanowski – Bogucki Wyd. Nauk., Poznań: 641-654. (In Polish)
- Marchant J.H., Gregory R.D. 1999 – Numbers of nesting Rooks *Corvus frugilegus* in the United Kingdom in 1996 – *Bird Study*, 46: 258-273.
- Neubauer G., Sikora A., Chodkiewicz T., Cenian Z., Chylarecki P., Archita B., Betleja J., Rohde Z., Wieloch M., Woźniak B., Zieliński P., Zielińska M. 2011 – Monitoring populacji ptaków Polski w latach 2008-2009. *BiMonit. Przyr.*, 8(1): 1-40. (In Polish)
- Orłowski G., Czapulak A. 2007 – Different extinction risks of the breeding colonies of Rooks *Corvus frugilegus* in rural and urban areas of SW Poland – *Acta Ornithol.*, 42: 145-155.

- Pawlak S. 2022 – Populacja gawrona *Corvus frugilegus* na terenie Wieruszowa (województwo łódzkie) w latach 1986-2020 – Przegł. Przynr., 33(3): 61-77. (In Polish)
- Tobółka M., Szymański P., Kuźniak S., Maćkowiak S., Kaczmarek S., Maliczak J., Michalak W., Ratajczak J., Sieracki P., Stępniewski J. 2011 – Spadek liczebności populacji lęgowej gawrona *Corvus frugilegus* na Ziemi Leszczyńskiej – Ornis Pol., 52: 107-116. (In Polish)
- UM Gorzów Wielkopolski 2016 – Program ochrony środowiska miasta Gorzowa Wielkopolskiego na lata 2016-2020 z perspektywą do 2024 r. Available online: https://bip.um.gorzow.pl/system/obj/11671_POS_Gorzow_Wielkopolski_na_lata_2016-2020_z_perspektywa_do_roku_2024_-aktualizacja.pdf (accessed: 20 December 2025). (In Polish)
- UM Gorzów Wielkopolski 2021 – Program ochrony środowiska dla miasta Gorzowa Wielkopolskiego na lata 2021-2030. Available online: <https://um.gorzow.pl/542-program-ochrony-srodowiska.html> (accessed: 20 December 2025). (In Polish)
- Wachecki M. 2021 – Zmiany liczebności populacji lęgowej gawrona *Corvus frugilegus* w śródmieściu Kielc w latach 2006-2015 – Naturalia, 7: 98-104. (In Polish)
- Wardecki Ł., Chodkiewicz T., Beuch S., Smyk B., Sikora A., Neubauer G., Meissner W., Marchowski D., Wylegała P., Chylarecki P. 2021 – Monitoring Ptaków Polski w latach 2018-2021. BiMonit. Przynr., 22: 1-80. (In Polish)
- Wilk T., Chodkiewicz T., Sikora A., Chylarecki P., Kuczyński L. 2020 – Czerwona lista ptaków Polski – OTOP, Marki. (In Polish)
- Wylegała P., Kujawa D., Batycki A., Krąkowski B., Białek M. 2013 – Populacja lęgowa gawrona *Corvus frugilegus* w północnej Wielkopolsce – stan aktualny i zmiany liczebności – Ptaki Wielkopolski, 2: 101-110. (In Polish)
- Zbyryt A., Czastkiewicz D., Menderski S., Szymkiewicz M. 2018 – Populacja lęgowa gawrona *Corvus frugilegus* na Warmii i Mazurach – Ornis Pol., 59: 171-182. (In Polish)
- Zbyryt A., Zbyryt M., Siwak P., Kasprzykowski Z. 2013 – Rozmieszczenie i liczebność gawrona *Corvus frugilegus* w województwie podlaskim w 2012 roku – Ornis Pol., 54: 25-39. (In Polish)

SHORT NOTE

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**MANEUVER BY INDIAN HOUSE CROWS (*CORVUS SPLENDENS*)
IN URBAN HABITAT – PERCHING AND FEEDING ON MOVING VEHICLES:
OBSERVATIONS FROM PUNE, INDIA**

The Indian House Crow (*Corvus splendens* Vieillot, 1817) is a common bird in India representing the family Corvidae of the order Passeriformes (Ali and Ripley 1972). The literature describes the House Crow as an opportunistic bird, scavenger that feeds on plant and/or animal sources, including human refuse and animal carrion (Koul and Sani 2013, Kumar and Ojha 2021). They provide valuable services by consuming refuse and carrion (Anjum et al. 2022).

Benmazouz et al. 2021 reported that Corvids have positively adapted to urban environments with easy access to food sources, nesting and roosting sites, resulting in an increased population. Additionally, dumping or garbage sites have become its habitat, as evident in Khyber Pakhtunkhwa, Pakistan (Anjum et al. 2022). We observed a similar situation in Pune.

In this note, an account of the feeding maneuver of House Crows observed in areas connected to the garbage ramp in the Kothrud area of Pune city, Maharashtra, India (18.5246° N, 73.8786° E) is presented (Figure 1). In multiple visits from April to October 2025, we noted at least 24 free-ranging House Crows exhibiting the ability to perch on moving open-waste-transport vehicles (<https://www.pmc.gov.in/en/b/vehicles-solid-waste-management>) to access edible waste, primarily wet waste from hotel industry. These observations were made in the first half of the day on the open public roads (Figure 2). A two-wheeler scooter was used to pursue the municipal waste transporting vehicles, maintaining a safe distance to avoid disruption of the ongoing House Crow activity. It was observed that the House Crows could travel from a few meters to a few hundred meters of distance in one go. At least a House Crow was seen perched—traveling on the truck continuously for a maximum distance of 1110 meters at a speed of an average of 30 kilometers per hour. This noteworthy behavior demonstrates their feeding strategy and adaptability. Further, a question arises. Does their ability to perch and forage from trucks in motion suggest an adaptation to resist and stabilize against air flow and vehicular turbulence?

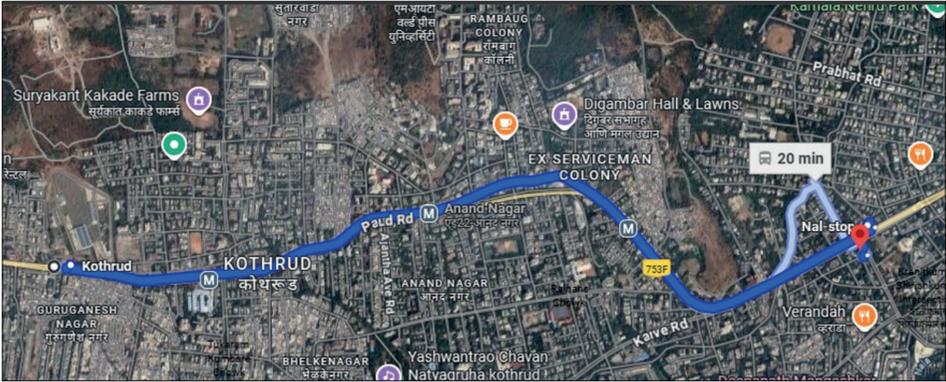


Fig. 1. The map of the public road in Kothrud area of Pune city where observations were noted (© Google Maps).



Fig. 2. The pictures of House crows (*Corvus splendens*) perched on moving open-waste-transport vehicles to access edible waste (© Tanay Deodhar and Rushikesh Sankpal).

The Corvids are considered intelligent among bird taxa (Emery and Clayton 2004). Mukherjee et al. (2013) validated that American Crows (*Corvus brachyrhynchos*) were able to judge vehicular traffic flow. Nevertheless, House Crow's seafaring behavior and voluntarily traveling on ships has significantly contributed to their distribution to faraway areas (Cheke 2008). Such behavior (and smartness) may have ecological consequences of species distribution, and potential public health concerns related to

pathogen transmission (Benmazouz et al. 2021, Kumar and Ojha 2021). Our observations about the maneuvers shown by the House Crows from Pune will not only interest general ornithologists but also ignite the minds of ecologists and evolutionary biologists.

REFERENCES

- Ali S., Ripley S.D. 1972 – Handbook of the Birds Of India And Pakistan: Together with those of Bangladesh, Nepal, Bhutan and Sri Lanka. Vol. 5, Larks to the Grey Hypocolius, Synopsis Nos 872-1063, Colour Plates 55-64, Second edition, Oxford Univ. Press: PP 244.
- Anjum S., Ahmad A., Bibi F., Ali H. 2022 – Ecology of House Crow (*Corvus splendens*) in Dil lower, Khyber Pakhtunkhwa, Pakistan. Pak J Zool 54(1): 447-450. <https://dx.doi.org/10.17582/journal.pjz/20190716190702>.
- Benmazouz I., Jokimäki J., Lengyel S., Juhász L., Kaisanlahti-Jokimäki, M.-L., Kardos G., Paládi P., Kövér L. 2021 – Corvids in Urban Environments: A Systematic Global Literature Review. Animals 11(11): 3226. <https://doi.org/10.3390/ani11113226>.
- Cheke A. 2008 – Seafaring behaviour in House Crows *Corvus splendens*—a precursor to ship-assisted dispersal? Phelsuma 16: 65-68.
- Emery N.J., Clayton NS. 2004 – The mentality of crows: convergent evolution of intelligence in corvids and apes. Science 306: 1903-1907. doi: 10.1126/science.1098410.
- Kumar P., Ojha A. 2021 – Feeding resource utilization strategies of *Corvus splendens* in urban habitat of Prayagraj (U.P.), India. Uttar Pradesh J Zool 42(23): 55-61.
- Koul S., Sahi D.N. 2013 – Feeding ecology of House Crow (*Corvus splendens*) in open agricultural fields in Jammu (J&K), India. International Research Journal of Environment Sciences 2(6): 85-87.
- Mukherjee S., Ray-Mukherjee J., Sarabia R. 2013 – Behaviour of American Crows (*Corvus brachyrhynchos*) when encountering an oncoming vehicle. The Canadian Field-Naturalist 127(3): 229-233.
- Vehicles for solid waste management, <https://www.pmc.gov.in/en/b/vehicles-solid-waste-management>, accessed 02 Oct 2025.

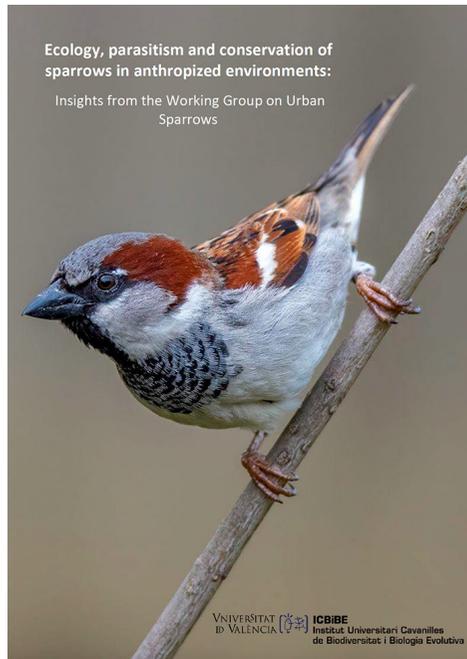
REVIEW

Bernat-Ponce, S., Mestre, A., Gil-Delgado, J. A., & Bernat-Ponce, E. (2025). *Ecology, parasitism and conservation of sparrows in anthropized environments: Insights from the Working Group on Urban Sparrows*. Universitat de València. <https://doi.org/10.7203/PUV-OA-9788491338444>

This volume is the proceedings of the *7th Meeting of the Working Group on Urban Sparrows*, held on 27-28 October 2023 in Valencia, Spain. The editors have compiled abstracts of the conference presentations together with six full-length chapters, focusing on the ecology, parasitism, and conservation of sparrows in human-dominated landscapes.

The book opens with a motto that immediately captures the heart – a passage from Miguel Hernández’s unfinished short story *El gorrión y el prisionero* (1941). It is worth quoting in full, for it is simply breathtaking: “Sparrows are the children of the air, the kids of the suburbs, squares and small squares of space. They are the poor people, the working class that has to heroically solve the problem of existence on a daily basis. Their struggle to exist in the light, to fill the grim silence of the world with chirps and fluttering, is a joyful, determined, unwavering struggle. They go to places where no other bird goes to get the crumbs of bread they need. They can be seen in the most remote corners. They can be heard everywhere. They take all the risks and dangers with the grace and confidence that their perpetual childhood has given them.”

The entire publication is available in open access (see above), which greatly facilitates its dissemination among researchers, conservationists, educators, and the wider public. The international flavour is evident from the very first pages: the list of contributors includes authors from Spain, Belgium, India, Finland, Mexico and beyond. The abstract section covers topics that did not develop into full chapters, among them conservation strategies in India (Mohammed Dilawar), the house sparrow invasion in North America (Ian MacGregor-Fors et al.), and the influence of urban park management on parasite loads (Eva Banda



et al.). Even these short contributions clearly illustrate global population declines and the search for innovative conservation approaches.

The six main chapters explore key issues in greater depth:

- Jéssica Jiménez-Peñuela examines the combined impact of urbanisation and avian malaria on fatty acid profiles and oxidative stress in house sparrows in southern Spain, revealing significantly higher oxidative damage in urban environments.
- Cristina de Bonilla Maas and co-authors investigate the prevalence of avian malaria (11.9%) in eastern Iberia, finding no marked differences between urban and rural habitats.
- Ashutosh Singh and colleagues describe the challenges faced by sparrows in Indian megacities, highlighting a preference for old buildings and a narrower ecological niche during summer.
- Marta Monfort-Calatayud et al. demonstrate that 100% of examined Eurasian tree sparrow nests contained anthropogenic material – particularly black fibrous plastic – an alarming testament to the ubiquity of plastic pollution.
- Jenny De Laet and co-workers (Belgium) position house sparrows and great tits as valuable bioindicators; long-term citizen-science data reveal smaller sparrow flocks in cities and reduced breeding success of tits with increasing urbanisation.
- Francisco Atiénzar presents an inspiring schoolyard project that integrates catching, ringing, and data analysis, successfully reconnecting children with nature through the humble sparrow.

The book's greatest strength lies in its practical orientation: field studies are seamlessly combined with laboratory, genetic, and behavioural analyses, yielding concrete recommendations (nest boxes, pesticide regulation, preservation of old buildings). The broad geographic coverage – from India to Belgium – enriches the discussion of both shared challenges and locally tailored solutions. A minor shortcoming is the rather limited engagement with historical literature. Many of the issues addressed – population declines, effects of urbanisation – were thoroughly studied decades ago (e.g. by J. Denis Summers-Smith in the 1970s-1990s or by Jan Pinowski and co-workers in Poland). Greater reference to these classic works would have provided deeper context and helped avoid the occasional impression of rediscovering well-established findings.

In summary, this is a timely, valuable, and genuinely inspiring volume that demonstrates how even the most “ordinary” bird can serve as a key to understanding profound environmental change. Warmly recommended not only to Passer specialists and ornithologists, but to anyone concerned with urban biodiversity and the future of nature in an increasingly human-shaped world.

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INSTRUCTIONS AND INFORMATION FOR AUTHORS

GENERAL INFORMATION

INTERNATIONAL STUDIES ON SPARROWS is a journal publishing publications on **general ornithology** but with preference for papers about granivorous.

INTERNATIONAL STUDIES ON SPARROWS accepts only papers written in English. Submission of a manuscript implies that the paper has not been published before (except in abstract form or incorporated into reviews and lectures etc.) and is not being considered for publication elsewhere. A cover letter verifying these points must accompany the manuscript. The Author is also asked to give his postal address (in English) and e-mail address for further correspondence. Approximately three months following manuscript submission, the Author will receive comments and remarks of anonymous reviewer and editors. At that time, authors will also be informed of the Editor's decision concerning publication of the manuscript. If publication is recommended the Author will receive specific instructions for correcting and improving the manuscript. The revised manuscript should be returned to the Editor within three months of the time of receipt

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INSTRUCTIONS FOR MANUSCRIPT PREPARATION

Manuscripts should contain 30 lines per page and wide left margins. Right margin should leave unjustified. Small print is unacceptable. **Regular research papers**, including illustrations and references etc., should not exceed 30 pages. **Notes** or **short research contributions** should be limited to 3-4 and 5-8 pages respectively. **Comments** should not exceed 6 pages. Text and tables should be edited in Word for Windows (7.0 or higher) and figures should be edited in Corel Draw. The papers sent only in an electronic form will be accepted!

Regular research papers should be arranged according to the following manner:

- **Author name(s)** and surname(s)
- **Institution(s)** and the postal address
- **Title of the paper** – should be an accurate indicator of the contents of the paper and should stimulate interest in the reader. It is recommended that titles be composed of two parts (separated by a colon). Part 1 should indicate the general problem, process, or method and Part 2 should indicate specific topic of the paper e.g. case studies, application of results etc.

- **Abstract** – should be informative and concise, not longer than 1 page. For most papers it functions as the summary. One or two sentences should describe the general context of research and the Authors aim and hypothesis. Two sentences should describe methods, study area etc., and the final sentences should present the main results and conclusions referring to the hypothesis. It is desirable to include selected data. Long, purely descriptive sentences should be omitted.
- **Key words** – no more than 5-7 characterising the paper as to the problem, environment and object considered.
- **Running page headline** – should be suggested by Author (no more than 50 characters).
- **Introduction** – should present the general ecological context of the Author's research, then his hypothesis and aim of the studies should be presented and related to previous literature. Cited literature should include the most recent papers. Introductions based only on old (60s and 70s) and/or local literature will be not accepted.
- **Study area** – geographical names of localities (for instance to indicate the study sites) should be omitted. Names of regions, mountains, lakes and districts should be given together with their geographical coordinates. Copies of topographical maps are not acceptable. Maps should be professionally drawn and should contain only these geographical names which are cited in the text and are necessary to understand the paper. A country outline with the study area marked with a point is desirable.
- **Material and methods** – all indices, coefficients, etc., used to describe the material should be fully explained here, including also symbols, components, units, etc. Statistical procedures adopted in the paper should be explained. Units should follow the International System of Units (SI).
- **Tables and figures** – should be set out on separate sheets with titles, numbered by Arabic numerals and signed with Author name. The numbers of tables and figures should be minimized. Figures should not contain data already given in tables. The total number of illustrations should not exceed 40% of total paper length. Tables should contain no more than 5 columns and 8 lines and be fit to one typed page. The width of figures (base) should be adjusted to 7 cm (one column wide) or 14.5 cm (double column wide); other dimensions planned accordingly. Thickness of lines at least – 0.3 mm, coordinates – 0.2 mm, descriptions (numerals, letters, symbols etc.) at least – 10 points. Please remember that the captions in tables and figures should be self-explanatory. In other words, the reader should not have to read the manuscript text in order to understand the figures content!
- **Results** – should be described according to appearance of tables and figures in the text. Please indicate in the manuscript margin the place to insert the relevant table or figure. Reported data should include no more significant digits than the precision of the used methods warrants! Species names are to be typed with italics. Author's name of species must be given at the first citing of the species.

- **Discussion and Conclusions** – could be presented in one section or separate sections. The discussion of results and conclusions should be arranged in the context of the aims of the study and the hypotheses presented in the Introduction. Additionally, the results of the study may be discussed in the context of recent knowledge presented in the literature. Clear statements about what new ideas, data, methods etc. have resulted from the Author's studies are highly desirable!
- **Summary** – is not necessary (see **Abstract**) except for longer papers. It should be limited to two pages and should refer to all tables and figures.
- **References** – should be listed in alphabetic order. Titles of papers written in Latin alphabet should be given in their original version. Papers in Cyrillic alphabet should be translated into Latin according to international rules (ISO Recommendations). The titles of papers or books written originally Cyrillic alphabet, in Polish, Slovakian etc. should be translated into English and given in brackets. Titles of journals should be abbreviated according to the Word List of Scientific Periodicals. References should be in following form:
 1. Barkowska M., Pinowski J., Pinowska B. 2003 – The effect of trends in ambient temperature on egg volume in the Tree Sparrows *Passer montanus* – Acta Ornithol., 38: 5-13.
 2. Radkiewicz J. 1989 – (Distribution and number of the White Stork in Zielona Góra Province in 1985) – Przyn. Środk. Nadodrza 1: 47-66 (in Polish).
 3. Anderson T.R. 2006 – Biology of the ubiquitous House Sparrow from genes to population – Oxford Univ. Press, Oxford, New York.
 4. Indykiewicz P. 2006 – House Sparrow *Passer domesticus*, Starling *Sturnus vulgaris*, Tree Sparrow *Passer montanus* and other residents of nests of the White Stork *Ciconia ciconia* – In: The White Stork in Poland: studies in biology, ecology and conservation, Eds. P. Tryjanowski, T.H. Sparks, L. Jerzak, – Bogucki Wyd. Naukowe, Poznań.

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Short research contributions, research notes and comments should have title, authors name and address, a short abstract (composed as above) and the main text with tables and/or figures as well as references. Contributions, Notes and Comments can be typed without division into sections, but they should follow the logical progression described above.

Authors are obliged to prepare the final version of their text, illustrations and references after all corrections required by reviewers and editors. Text and tables should

be prepared in Word for Windows. Figures should be prepared in Corel Draw (cdr) (version-below and 11 included); formats: Tiff and Jpg (resolution 300-600 DPI). Please, save the text and figures as separate files.

The papers as well as all correspondence should be mailed on the address:
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