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Synurbization of the Common Wood Pigeon, *Columba palumbus* Linnaeus, 1758 in Prešov city (Slovakia)

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Abstract: In recent decades there has been an increased tendency of colonization of cites. This phenomenon posed the need for a new term – synurbization. The Common wood pigeon (*Columba palumbus*) is a Palearctic species that has a predominantly European distribution. Although it is the typical woodland species, it has adapted to urban habitats, colonising cities of Western and Central Europe. A total of 32 individuals (i.e., 12 pairs (24 inds.) and 8 inds.) of *C. palumbus* were documented over the four years (2019 – 2022) in Prešov city (Slovakia). The obtained faunistic data from the monitored areas contribute to overall knowledge about the occurrence of the species in urban environment from Slovakia.

Key words: Common wood pigeon, *Columba palumbus,* urban environment, East Slovakia

Introduction

In recent decades there has been an increased tendency of colonization cites (Luniak 2004). A new term was coined for this phenomenon – synurbization, introduced by terrestrial ecologists (Andrzejewski *et al.* 1978, Babińska-Werka *et al.* 1979 etc.). The term "synurbization" denotes more precisely the phenomenon of the adjustment of animal populations to the urban environment in connection with regular existence (often breeding) there in the wild state. This phenomenon was described mainly for birds and mammals, but it is known also in other animal and insect groups as well. In some cases, animals seem to be attracted to urbanized areas by abundant, unexploited resources such as food or nest sites. On the other hand, they subsequently suffer increased mortality rates due to collisions with anthropogenic obstacles or novel diseases (Luniak 2004, Rutz 2008). Evans *et al.* (2010) showed three stages of the urban colonisation process: arrival in urban areas; adjustment to the urban environment and spread within urban areas and to neighbouring towns and cities. Several authors (Luniak 2004, 2008, Babińska-Werka & Malinowska 2008, Briedik & Šípkovský 2012, Krišovský 2021) confirmed that adaptation to urban ecological niches requires changes in the behaviour and ecology of synurbic populations, in comparison with non-urban (rural) ones. Luniak (2004) also summarized several important characteristics of adaptation to urban environments.

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The Common wood pigeon, *Columba palumbus* Linnaeus, 1758, is a Palearctic species that has a predominantly European distribution. It is one of the largest species of pigeon, which is found almost all over the territory of Slovakia, from the lowlands to the upper border of the forest. Individuals migrate to the Mediterranean during September and October, where they overwinter, and flocks fly back to their breeding grounds in late February and early March. It uses all types of forests in our territory for nesting (Darolová 2002).

In the past a typical woodland species, it has adapted to urban habitats, colonising cities of Western and Central Europe since the early 19th century (e.g., Saari 1997, Darolová 2002, Luniak 2004, Witt *et al.* 2005, Šťastný *et al*. 2006, Jędro *et al.* 2008, Bea *et al.* 2011).

The process of synurbization in Slovakia started already at the turn of the 1980s and 1990s. The first data on nesting of the species in the intravillage of towns in Slovakia (e.g., Michalovce, Trebišov, Košice, Piešťany) date back to the early 1990s (Darolová 2002, Dravecký 2003, Kočí 2008, Danko & Riník 2008, Mošanský & Pačenovský 2014, Mošanský *et al.* 2014, Krišovský 2021).

The aim of the present paper is mainly to supplement faunistic data from the Prešov city and thus contribute to overall knowledge about the occurrence of the species in urban environment.

Material and Methods

Monitoring of *C. palumbus* occurrence, breeding and nesting was carried out in 2019 – 2022 in urban green areas (parks, cemetery, and roadside trees) of Prešov city. Data were collected mainly in 2022 and were associated with visual and acoustic observations coupled with photo documentation. Several data on date, location, time and some biological (ethological) observations were collected. Simple observation is not a substitute for ecological and biological research based on the use of appropriate methodologies. Nevertheless, the collection of basic faunal data is an important step for future more detailed ecological studies.

Results and Discussion

A total of 32 individuals (i.e., 12 pairs (24 inds.) and 8 inds.) of the Common Wood Pigeon were documented over the four years (2019 – 2022). It should be noted that it was not possible to record all individuals. Therefore, the total number of observed individuals could represent only part of the urban population. Even though data cannot be used to estimate the population size, it confirmed only the penetration of species into the urban environment of Prešov city. Kočí (2008) stated that during research of *C. palumbus* in the

urban environment of Piešťany, a significant loss of shyness of individuals to the presence of humans was recorded. The author reported an escape distance of less than 10 m. These observations agree with my own findings (this study and own unpublished data). Similarly, the sitting of individuals on streetlight lamps was consistent with data on atypical locations outside the tree canopy. Thus, these abovementioned data suggest gradual urbanization and adaptation to new environmental conditions. Evidence is also provided by unusual nesting of a museum building in Košice city located below windowsill of the second floor (Krišovský 2021). Nesting attempts in buildings and halls was reported previously by Briedik & Šípkovský (2012). Similarly, in the case of larger parks and cemeteries it indicates also breeding and nesting as well.

In addition, own unpublished observation of an individual feeding on bread (12 July 2012 in Brussels), which was presumably found as waste or offered by the feeding public (a common phenomenon in *Columba livia* forma *urbana* Gmelin, 1789), confirms a high capacity for adaptation to anthropogenic environment. All mentioned findings were in accordance with observations stated by several authors (e.g., Saari 1997, Darolová 2002, Šťastný *et al.* 2006, Jędro et al. 2008, Bea *et al.* 2011).

In conclusion, the common wood pigeon and its settlement of towns and villages has not received much attention in Slovakia so far (Dravecký 2003, Kočí 2008, Mošanský & Pačenovský 2014, Mošanský et al. 2014, Krišovský 2021). Therefore, this trend of synurbization of common wood pigeons will need to be intensively monitored in the future.

The obtained data:

- **April 16, 2019** – 1 ind., visually observed at 14:00 hour, Duchnovič Square – 48°59'38"N 21°13'54"E, 245 m a.s.l.
- **July 28, 2021** – 1 ind., visually observed at 13:00 hour, Bernoláková 5, Sekčov housing estate – 48°59'31"N 21°16'31"E, 274 m a.s.l.
- **April 25, 2022** – 1 ind., visually observed at 12:05 hour, near the Faculty of Humanities and Natural Sciences of the University of Prešov, 17 November 1 – 48°59'45"N 21°14'13"E, 242 m a.s.l. *Note: Pigeon was observed moving on the lawn.*
- **April 29, 2022** – 1 ind., visually observed at 10:22 hour, Požiarnická 16, Duklianských hrdinov housing estate – 48°59'41"N 21°13'57"E, 249 m a.s.l. *Note: The pigeon was sitting on a Thuja sp., under which was observed eggshell (high probability of the presence of a nest and thus the occurrence of 1 pair).*

- **April 29, 2022** – 2 inds. (1 pair), visually observed at 11:40 hour, FNsP J.A. Reiman hospital park, Jána Hollého 14, old town (Táborisko) – 48°59'19"N 21°15'19"E, 283 m a.s.l. *Note: Individuals were observed on a spruce tree, later flew away. Probability of occurrence of nest and chicks.*
- **April 29, 2022** – 1 ind. (another individual besides the observed pair), visually observed at 11:49 hour, FNsP J.A. Reiman hospital park, old town (Táborisko). *Note: The individual was observed on the lawn foraging for food. Probability of another pair of pigeons, i.e., at least 2 pairs of pigeons were present in the hospital park.*

❖ A total of 1 pair (2 inds.) and 2 inds., were observed on April 29, 2022. Thus, a total of 4 inds. of common wood pigeons were observed.

- **May 06, 2022** – 2 inds. (1 pair), visual observation at 16:30 hour, overflight near ZOC MAX, Vihorlatská 2, Sekčov housing estate – 49°00'01"N 21°16'10"E, 243 m a.s.l.
- **May 12, 2022** – 4 inds. (2 pairs), visual observation at 12:00 hour and 12:30 hour, the Municipal Cemetery, Krátka 4, Old town (Táborisko) – 49°00'06"N 21°14'50"E, 274 m a.s.l. *Note: one pair sitting (and probably nested) on Thuja sp. the second pair on a spruce tree in another part of the cemetery*.
- **May 13, 2022** – 1 ind., visual observation at 10:10 hour, Kmeťovo stromoradie 9, old town (historical city centre) – 49°00'01"N 21°14'35"E, 265 m a.s.l. *Note: the pigeon was collecting twigs (nesting behaviour) under a linden tree (Tilia sp.).*
- **June 02, 2022** – 2 inds. (1 pair), visual observation at 07:34 hour, Pavla Horova 1, Sekčov housing estate – 48°59'02"N 21°15'53"E, 242 m a.s.l.
- **June 02, 2022** – 2 inds. (1 pair), visual observation at 07:47hour, Laca Novomeského 22, Sekčov housing estate – 48°59'16"N 21°16'11"E, 259 m a.s.l. *Note: Pigeons were sitting on a silver birch (Betula pendula Roth) and cleaning themselves (comfortable behaviour).*
- **June 02, 2022** – 6 inds. (3 pairs), visual observation from 08:20 to 08:40 hours, along Smreková and Višňová streets in the tree line near Šalgovický potok stream, Pod Šalgovíkom, Sekčov housing estate – 48°59'24"N 21°16'27"E, 266 m a.s.l.
- **June 02, 2022** – 2 inds. (1 pair), visual observation at 08:30 hour, Jurkovičová 11, Sekčov housing estate – 48°59'37"N 21°16'08"E, 246 m a.s.l. *Note: Pigeons were sitting on a street light lamp and cleaning themselves (comfort behaviour).*

- **June 02, 2022** – 2 inds. (1 pair), visual observation at 09:00 hour, Čergovská 6, Sekčov housing estate – 48°59'49"N 21°16'18"E, 245 m.a.s.l. *Note: Pigeons were nesting on a silver birch (Betula pendula Roth). It was observed an exchange of individuals on the nest.*
- **June 02, 2022** – 1 ind., visual observation at 09:05 hour, near ZOC MAX, Vihorlatská 2, Sekčov housing estate – 49°00'01"N 21°16'10"E, 243 m a.s.l. (cf. 06 May 2022).
- A total of 7 pairs (14 inds.) and 1 inds., were observed on June 02, 2022. Thus, a total of 15 inds., of *C. palumbus* were observed.

- **June 08, 2022** – 2 inds. (1 pair), visual observation at 09:22 hour, near Eperia Shopping Mall, Sekčov housing estate – 48°59'26"N 21°15'43"E, 237 m a.s.l.
- **June 17, 2022** – 1 ind., visual observation at 11:20, Volgorodská 44, Sídlisko III.A housing estate – 49°00'22"N 21°13'17"E, 252 m a.s.l. *Note: A pigeon broke off a branch from a spruce tree (Picea abies L.) and flew with it to another spruce tree.*

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