



Miscellaneous

The importance of political, economic, and cultural factors in explaining fundamental ornithological problems (A case study from Bulgaria)

Part I. The range expansion of the Eurasian collared dove (*Streptopelia decaocto* (Frivaldszky, 1838))

Wolfgang Baumgart¹, Zlatozar N. Boev^{2*}

1 - 13435 Berlin, Guhllener Zeile 9A, Germany

wolfgang.baumgart1@freene.de

2 - National Museum of Natural History, Bulgarian Academy of Sciences,
1, Blvd. Tsar Osvoboditel, 1000 Sofia, Bulgaria

*E-mail: boev@nmnhs.com, zlatozarboev@gmail.com
<https://orcid.org/0000-0002-8049-7509>

Abstract. The process of the range expansion of *Streptopelia decaocto* in Bulgaria, the Balkans, Central and Western Europe and North America is explained by the cultural-religious and economic-political characteristics of the population. The main importance of the place of the Eurasian collared dove in the religious world of Muslims and the technology of collecting, storing and transporting the grain harvest are emphasized. It is assumed that in Europe and North America the process of the spread of the species was subject to the similar regularities.

Keywords: Balkan avifauna, Collared doves, Human impact on bird distribution, Recent birds of Bulgaria, Species range extension

Introduction

Political, economic, and cultural factors, which are almost exclusively anthropogenically determined, are usually given little or no consideration when solving relevant ornithological problems. As a rule, efforts are made to resort to "modern methods" and employ statistical or molecular procedures. They are often ignored due to a lack of prior knowledge.

During the professional development of W.B., he was involved in a variety of fields and was thus able to acquire a wealth of knowledge that is unusual even for a veterinarian. Of particular importance were a previous apprenticeship in the pharmaceutical industry, the study of veterinary medicine in Bulgaria (1960-1965), later activities in the administration and inspection of veterinary medicine, development aid assignments in other cultural circles (Mongolia, Syria), and extensive travel, especially after the fall of communism in 1990. In addition to the primary focus on birds of prey, these activities also involved gathering insights into these problem areas, some of which were not always comprehensible to conventionally minded ornithologists.

This publication breaks new ground, not only for Bulgaria, which inspired W.B. to

The importance of political, economic, and cultural factors...

collaborate. Bulgaria has experienced several major upheavals in these areas since the end of the 19th century. This not only provides the key to explaining the expansion of the Eurasian collared dove (*Streptopelia decaocto* (Frivaldszky, 1838; Fig. 1.), which was first described based on a type specimen from Plovdiv (Bulgaria). This is the only species of the modern World's avifauna, described from that country (Boev, 2022). However, three subspecies have also been described from Bulgaria, which are today considered invalid: *Phasianus colchicus europaeus* Hachisuka, 1937, *Picus canus caesaris* Steinbacher, 1938 and *Prunella modularis meinertzhageni* Harrison & Patev, 1937 (Mlíkovský & Boev, 2025).

The Eurasian collared dove's expansion from Bulgaria to Central Europe before WW2

The Eurasian collared dove came to Bulgaria with the Ottoman conquest and annexation of large parts of the Balkans.

According to sources found by Boev (1963), as early as the mid-16th century, the species was widespread on some of the Greek islands. According to other sources, by that time it had already been brought to Europe by Dutch sailors from Central Asia. By that time, it had already come under the protection of the Turks in the Ottoman Empire.

Due to the Muslim sympathy for doves, Muhammad, on his flight from Mecca to Medina during the Hijra in 633, hid in a cave at the entrance to which, according to tradition, Allah placed a nesting dove and cobwebs, which deterred his pursuers from searching it. Thus, the Collared Dove was tolerated and protected wherever it settled as part of the "garden ornithological fauna". Like the Laughing Dove (*Spilopelia senegalensis* (Linnaeus, 1766)), it was part of harem culture and, for its food, was highly dependent on the feeding of the ethnic Turkish population, which Boev (1963) describes in further detail.



Fig. 1. Eurasian collared dove (*Streptopelia decaocto*), Lovech (CN Bulgaria), 05.04.2016. Photo: Z. Boev

With the gradual liberation of the Balkans from Turkish rule, the collared dove also disappeared, as feeding ceased after the departure of large parts of the Turkish population. In Bulgaria, this occurred in 1878. Its presence in other states, such as North Macedonia, which only achieved independence in 1912, remained undiminished probably because it did not achieve independence. For a good two decades, it had apparently largely disappeared from Bulgaria (Kasperek, 1996). Reiser (1894) encountered it only in Stara Zagora on his Balkan travels between 1890 and 1893, but retrospectively noted (Reiser, 1939) that it reappeared in many places around 1907. Floericke (1918), on the other hand, does not mention it at all.

More historical data are provided by Boev (1963): *S. decaocto* nested in vicinity of Sofia (1890), in Stara Zagora (1893), Ruse and Vidin along Danube river (about 1899), settlements in Dobrudzha (about 1926) and Varna (1943).

Subfossil finds of *S. decaocto*, proving its subrecent distribution, are extremely scarce. Only four non-anthropogenic localities are known, all with inaccurate dating (Late Holocene) and located in Northeastern Bulgaria (Boev, 2019).

The comeback of the collared dove is, as already explained (Baumgart, 2000; 2001; Fig. 2.), probably primarily a result of the developments that began after the country's liberation. A land and tax reform, which simultaneously marked the transition from the feudal Ottoman agrarian society to an early capitalist industrial society, led to significant increases in yields. The large land holdings of Turkish beys who had left Bulgaria were distributed among local village communities and peasants. The tax reform consisted of a shift from the previously often arbitrarily determined tithe to a land tax. The levies remained constant in relation to land ownership; whatever was harvested above this amount remained available to the peasants for their own use. This created significant incentives for increased yields. The expansion of the transport network facilitated trade in surplus agricultural products, especially grain. The first Bulgarian railway line between Ruse and Varna had already been put into operation in 1866. Since the isolation of the former Ottoman territories from Europe was lifted, trade routes to Central Europe were open, which primarily benefited Austria-Hungary, which soon established bank branches in many places in the Balkans.

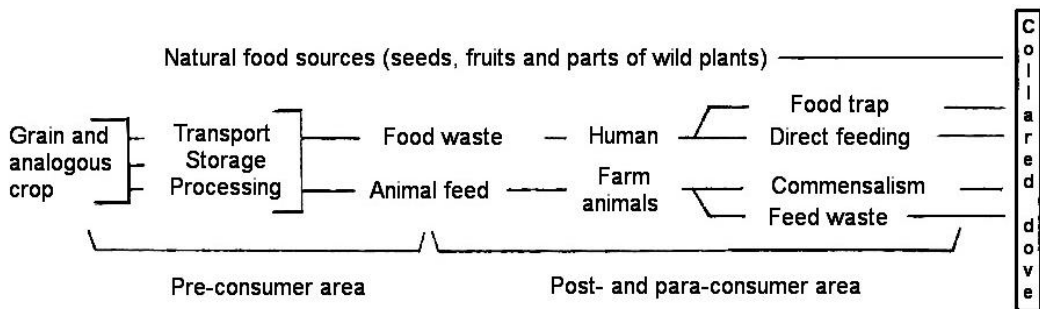


Fig. 2. Scheme of the Human - Eurasian collared dove food interactions: From the Eurasian collared dove to usable resources for food (after Baumgart, 2000)

Grain storage facilities and transshipment points were established along the transport routes, providing the Eurasian collared dove with a rich food supply along the railway lines. This is also where the collared dove's repeatedly postulated niche shift took place, although it has never been fully identified. Previously dependent on grain and similar crops from the post-consumer and para-consumer sectors in the form of human-derived food waste and direct

feeding, as well as feed waste and commensalism in the livestock sector, the collared dove now derived its livelihood primarily from the pre-consumer sector, which included the transport, storage, and processing of grain.

The distribution of the Eurasian collared dove in Europe after WW2

In preparation for World War II, the integration of the Balkans into Hitler's Germany was promoted to ensure the supply of food to the population in the event of war, a supply that had collapsed during World War I. In 1910, only 12% of the already low exports went to Germany, compared to 65.5% in 1939. Many seemingly insignificant factors were taken into account. Since soldiers who lack tobacco become unmotivated, Adolf Hitler (1889-1945) ordered the return of Southern Dobrudzha (7,412 km²), which had been lost to Romania in the Second Balkan War. There was now room here for grain cultivation, while the freed-up areas in the interior of Bulgaria (southern regions of the country) could be used for tobacco cultivation. All this included the expansion of transport links from the Balkans to Central Europe and paved the way for the collared dove to advance northwestward into the local economic and cultural area.

It was first sighted in Vienna in 1943, and in the 1950s, it spread explosively across Germany and neighboring countries, as documented in detail by Glutz & Bauer (1980). The species entered England in 1952, and Scandinavia and the Iberian Peninsula in 1970 (Lever, 2005). Populations declined again in the late 1960s and 1970s, giving rise to a variety of speculations. In our experience (W.B.), however, the main reason lies in the low-loss transition to containerized transport of grain and other similar food and feed products. We were personally involved in this to a certain extent, because in 1972, as a member of the Berlin State Veterinary Medical Examination Institute, W.B. responsible for drafting hygiene regulations for the containerized transport of animal feed products, which included specifications for declaration, sampling, container cleaning, and other procedures.

The previously common, wasteful open shoveling or reloading using blowers was thus eliminated, not only at railway stations, in storage facilities, or production sites. It deprived the collared dove of its food source in many places. However, it persisted in reduced numbers in the post- and para-consumer areas and became dependent again on human-derived food waste and direct feeding, as well as on feed waste and commensalism in the livestock sector. The species persisted primarily in villages where private chicken farming was still practiced. However, since this now mostly takes place in large, isolated facilities, the Eurasian collared dove's livelihood is significantly restricted. The natural food supply available in the environment is apparently insufficient. However, further developments of this flagship species of anthropogenic ecology cannot be ruled out.

Distribution of Eurasian collared dove in North America

In North America, it was introduced to the Bahamas (1970) and reached eastern Florida (1974), from where its rapid spread throughout the Midwestern United States began in the 1990s (Lever, 2005). In Texas and North Carolina *S. decaocto* entered in the early 1990s. It soon reached the Pacific coast and Canada. In the densely forested eastern United States, it is rare or largely absent (Alderfer, 2006).

Due to its explosive spread in some parts of the world, the species is recognized as invasive (Downs & Hart, 2020). In the last decade, it has been recorded apart from the USA and Canada, but also in Mexico, reaching as far south as Central America and even the

northern part of South America (Downs & Hart, 2020).

The maintenance of the northwestward dispersal direction already recorded in Europe could be considered evidence of corresponding genetic fixation (Kasperek, 1996). However, as Fujisaki *et al.* (2010) found, it also follows human-made environmental structures such as transport routes and agricultural land, as well as general geographical trajectories such as coastlines or thermal cliffs.

Conclusions

The importance of political, economic and cultural factors/developments in solving fundamental ornithological problems (one of which is the distribution of the Eurasian collared dove) has so far been unjustifiably underestimated. In this case, this is proven for Bulgaria.

Over the past 150 years, Bulgaria has undergone a variety of political, economic, and cultural upheavals that have had a direct or indirect impact on bird life, offering surprising new solutions to the problems associated with the species mentioned here.

The Eurasian collared dove came to the Balkans with the Ottomans as part of harem culture, earning its keep through direct feeding and food and feed waste in the protected human environment. With the collapse of the Ottoman Empire and the withdrawal of the Turks from Bulgaria (after 1878), the collared dove lost these food sources in the post- and para-consumer sector and disappeared in most regions of the country, where the natural food sources are apparently not sufficient to meet its needs.

Early capitalist development at the turn of the 20th century, with increases in agricultural yields and the expansion of transport routes, now offered it sources of sustenance in the pre-consumer sector (storage, transport, and processing of cereals). On its way to Central Europe, where it arrived in the 1940s, it followed the supply routes expanded by Hitler's Germany in preparation for World War II. The decline that began in the 1960s occurred in parallel with the introduction of low-loss grain transport (containers), which again left it with mainly sources of sustenance in the post- and paraconsumption sectors. When it spread to North America from Florida in 1970, it also followed mainly man-made environmental structures and has reached the Atlantic coast of Canada.

This analysis demonstrates how political, economic, and cultural developments in the Anthropocene are becoming increasingly significant for bird life, and how the framework for scientific research approaches needs to be significantly expanded from this point of view. Bulgaria offers a number of good examples and promising approaches in this regard.

Note

The present manuscript was composed by W.B. in German. Its translation into English, some additions, and its layout were made by Z.B.

References

- Alderfer J. 2006. *Field Guide to Birds of Arizona and New Mexico. Field Guide to Birds.* National Geographic. ISBN: 9780792253129. 200 p.
- Baumgart W. 2000. Die Ausbreitung der Türkentaube (*Streptopelia decaocto*) als Folge politischer und wirtschaftlicher Entwicklungen auf dem postosmanischen Balkan – Retrospektive und Wertungen. *Berliner ornithologische Berichte*, 10: 3–34.
- Baumgart W. 2001. Betrachtungen zur Türkentauben-Frage (*Streptopelia decaocto*). *Mitteilungen des Vereins Sächsischer Ornithologen*, 8: 671–682.

- Boev N. 1963. Matériaux sur l' de l'habitat et la biologie de la „Tourterelle turque“ (*Streptopelia decaocto* Frivaldszky en Bulgarie. *Bulletin de l'Institut de zoologie et Musée, BAS*, 13: 5-32. (in Bulgarian, French summary)
- Boev Z. 2019. The Eurasian Collared Dove (*Streptopelia decaocto* Frivaldszky, 1838) – a subrecent invasive species of the avifauna of Bulgaria (subfossil records). *ZooNotes*, 141: 1-3.
- Boev Z. 2022. History of the Bulgarian ornithology (A review of the research fields and achievements for 277 years with complete bibliography). *Bulletin of the Natural History Museum, Plovdiv*, Supplement 3: 1-55.
- Downs, C. T. & Hart, L. A., eds. 2020. *Invasive Birds: Global Trends and Impacts*. 1st edn. Wallingford, UK: CAB International. ISBN 978-1-789242-06-5. 384 pp.
- Floericke K. 1918. *Forscherfahrt in Feindesland*. Stuttgart. Kosmos, Gesellschaft der Naturfreunde Geschäftsstelle: Franckh'sche Verlagshandlung. Stuttgarter Vereins-Buchdruckerei, 128 p.
- Fujisaki I., Pearlstine, E. V., Mazzotti, F. J. 2010. The rapid spread of invasive Eurasian Collared Doves *Streptopelia decaocto* in the continental USA follows human-altered habitats. *Ibis*, 152 (3): 622-632.
- Glutz von Blotzheim U. & K. Bauer 1980. *Handbuch der Vögel Mitteleuropas. Band 9. Columbiformes-Piciformes*. Frankfurt am Main, Akademische Verlagsgesellschaft, 1148 p. ISBN: 3400004529
- Kasperek M. 1996. Dismigration und Brutarealexpansion der Türkentaube *Streptopelia decaocto*. *Journal für Ornithologie*, 137 (1): 1-33.
- Lever C. 2005. *Naturalised Birds of the World*. T & A D Poyser. London, 352 p.
- Mlíkovský J. & Boev Z. N. 2025. Type Specimens of Recent Birds in the National Museum of Natural History, Sofia, Bulgaria. *Acta zoologica bulgarica*, 77.
- Reiser O. 1894. *Materialien zu einer Ornithologia Balcanica. II. Bulgarien (einschliesslich Ost-Rumeliens und der Dobrudscha)*. Bosnisch-Herzegovinisches Landesmuseum in Sarajevo. Carl Gerold's Sohn, Wien, 204 p.
- Reiser, O. 1939. *Materialien zu einer Ornithologia Balcanica. I Bosnien und Herzegovina*. Bosnisch-Herzegovinisches Landesmuseum in Sarajevo. Wien. pp. 662-688.

Received: 07.09.2025

Accepted: 23.12.2025

Published: 26.12.2025