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Miscellaneous

The importance of political, economic, and cultural factors in explaining fundamental ornithological problems (A case study from Bulgaria) Part II. The Old World vultures (Gypaetinae Vieillot, 1816, Aegypiinae Sclater, W. L., 1924 - Accipitriformes Vieillot, 1816)

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Abstract. The importance of political, economic and cultural factors/developments in explaining fundamental ornithological problems, one of which is the existence of vultures, is analyzed, with a special emphasis on 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 birdlife, offering surprising new solutions to the problems associated with the vulture species. The religious characteristics of the population, the organization of veterinary services, changes in animal husbandry, the distribution and extermination of wolves as important factors for the existence of vultures in Bulgaria have been analyzed along with electrocution mortality, poisonings, and mortality during migration.

Keywords: Balkan avifauna, European vultures, Human impact on bird distribution, Recent birds of Bulgaria, Species range decline

Introduction

Over the past few millennia, the vultures' diet has gradually shifted from free-roaming wild animals to farm animals, whose husbandry and care have been subject to increasingly newly defined regulations and even legislative measures, reflecting fundamental social changes, largely abandoning previous practices (Fischer, 1963). Trends such as the transition to indoor husbandry, intensified veterinary prophylaxis to reduce animal losses, and the commercial utilization of carcasses and animal by-products, among others, have gradually reduced the diet of vultures in many countries, including Bulgaria, to a degree that, along with poisoning of predators (wolves), has led to the extinction of their populations. The placement of non-selective poison baits to poison wolves and foxes had a very strong impact on the number of wolves in the

country. This can be successfully counteracted through broad-based management with systematic supplementary feeding. However, due to its ecological positioning as a processor of smaller prey, this is more difficult for the Egyptian vulture (*Neophron percnopterus* (Linnaeus, 1758)) than for the three major species - cinereous vulture (*Aegypius monachus* (Linnaeus, 1766)), Eurasian griffon vulture (*Gyps fulvus*) (Hablizl, 1783), and bearded vulture (*Gypaetus barbatus* (Linnaeus, 1758)). It should be added here that the Egyptian vulture is a migratory species and spends half of its life outside Bulgaria. Therefore, it faces unfavorable factors along its migration route and in its wintering areas that we cannot influence (Fig. 1.).

The purpose of this summary is to present the impact of certain socio-cultural circumstances on the status of vulture populations in Bulgaria without delving into the analysis of quantitative data on the impact of specific direct negative factors, which have so far been the subject of numerous and diverse specialized studies.

Vultures and social order

In Europe, Old World vultures (Gypaetinae Vieillot, 1816, Aegypiinae Sclater, W. L., 1924: Accipitridae Vieillot, 1816 - Accipitriformes Vieillot, 1816) are highly dependent on livestock raised outdoors (pasture cattle breeding in the mountains) for their food, the keeping and utilization of which is subject to diverse legal regulations by the state. The declining population of vultures in southern Europe, including Bulgaria, where all four Palearctic species were once widespread in their typical eco-functional positions (Baumgart 2000a), is usually attributed primarily to poisoning of wolves and human persecution. This is thoroughly discussed by Boev & Michev (1981), Boev (1985), Michev (1985a; b; c), Boev (2011), Marin *et al*. (2011), Iankov *et al*. (2011), Kurtev *et al*. (2011), and especially Dobrev *et al*. 2021. One of the first recorded cases of poisoned bearded vultures in Bulgaria (1903, village of Dushintsi in Erulska Mountain) was reported by Anonym. (1903).

In addition, the decreasing food sources are mentioned. Past distribution of vultures in Bulgaria, based on theit bone fossil/subfossil bone remains has been examined by Boev (2024).

It is a fortunate circumstance that W.B., as a passionate ornithologist, was given in-depth interdisciplinary insights in the veterinary medicine. Through his studies in Bulgaria, he also gained insights in this regard, which shed more light on this complex of factors and will be briefly presented here. More detailed descriptions can already be found in Baumgart (1989; 2001; 2025). Following the collapse of the Ottoman Empire and Bulgaria's attainment of independence in 1878, fundamental changes occurred in many areas, which significantly restricted the living conditions of vultures until the fall of the monarchy (1944) and led to their almost complete extinction in the subsequent socialist period.

Conditions in the Ottoman Empire and vultures

In the vast Ottoman Empire, the existence of vultures was highly secure, as Reiser (1894) vividly describes in his account of his ornithological explorations immediately before the turn of the 20th century. The numerous livestock were mostly kept outdoors year-round, and since the cultivation of forage plants was rare on small farms and contributed little to their livelihood, year-round grazing was the preferred method (Dobrev *et al*., 2021). This usually involved a seasonal shift between the lowlands and the foothills and mountains near settlements, but also developed supra-regionally within the unlimited empire and, in

Bulgaria, was largely practiced by the Karakatchans (Dimitrov, 2022), a herding ethnic group originating from the Greek Pintos Mountains. In addition, long-distance transhumance existed between the mountains of the Balkans and the Middle East, as far as the Sinai.

Animal losses were high in winter and dry summers, as well as due to a lack of knowledge about the causes of epidemics. Since veterinary services were virtually nonexistent and there were hardly any epidemic control measures, animal diseases such as rinderpest, sheep pox, anthrax, equine snot, and rabies were widespread. Dead livestock were left lying around or dragged to "horse cemeteries" near villages (Özlü, 2012).

For the needs of frequent military campaigns of the Ottoman empire, livestock had to be transported to supply the troops. For example, in 1526, Sultan Suleiman (1494-1566) requisitioned 174,200 sheep from northwestern Bulgaria for his campaign against Hungary (Káldy Nagy, 1975).

Such cattle drives, which also occurred regularly during tax collection, contributed significantly to the spread of animal diseases. In 1886, for example, an epidemic in northeastern Bulgaria, which may have been rinderpest, is said to have killed 200,000 cattle annually (Kalupov *et al*. 1959). During this period, another type of domestic animal was also widespread in Bulgaria, and was used extensively until the end of Ottoman rule, and even in the first decades of the 20th century. These were camels, mainly dromedary, the one-humped camel, *Camelus dromedarius* Linnaeus, which were usually used as draft animals, mainly in the southeastern part of the country. Camel transport was most widespread in Eastern Thrace - Edirne, Burgas, Sliven, Yambol, Haskovo, Kardzhali and Stara Zagora. In these regions, camel breeding as an economic sector existed until 1930 (Primovski, 1958).

The Post-Ottoman Period and vultures

During the process of the disintegration of the Ottoman Empire (1878–1918), several nation-states emerged in the Balkans (Albania, Bulgaria, Montenegro, Romania, Serbia), each with its own legislation. They sought trade relations with Western Europe to stabilize their economies. This primarily involved agricultural products.

The situation in the Principality of Bulgaria and the later Third Bulgarian Kingdom (until 1944)

Livestock mortality due to disease and improved veterinary care has generally decreased. But even with these changes, there were still large herds of livestock in the mountain pastures, many of which died freely while grazing (Popov, 1989).

Russian army veterinarians laid the foundation for the development of a veterinary system after 1878. For example, Bulgaria sought a veterinary convention with Austria-Hungary in 1887, but the country rejected it due to a lack of sufficient prerequisites.

Important legislative steps in further development were: 1891 – Law on the Export and Import of Livestock and Animal Raw Materials; 1894 – Law on Veterinary Meat Inspection; 1897 – Law on Veterinary Police (now known as State Veterinary Science). A network of inspection stations was established (Kalupov, 1972). The large slaughterhouses built in 1928 in Sofia, Plovdiv, Varna, Ruse, and Stara Zagora (Emanuilov, 1956) played a significant role in this regard. While previously veterinarians had to travel to Germany, Austria and other countries to study, in 1921 a separate educational institution was established with the founding of the Faculty of Veterinary Medicine.

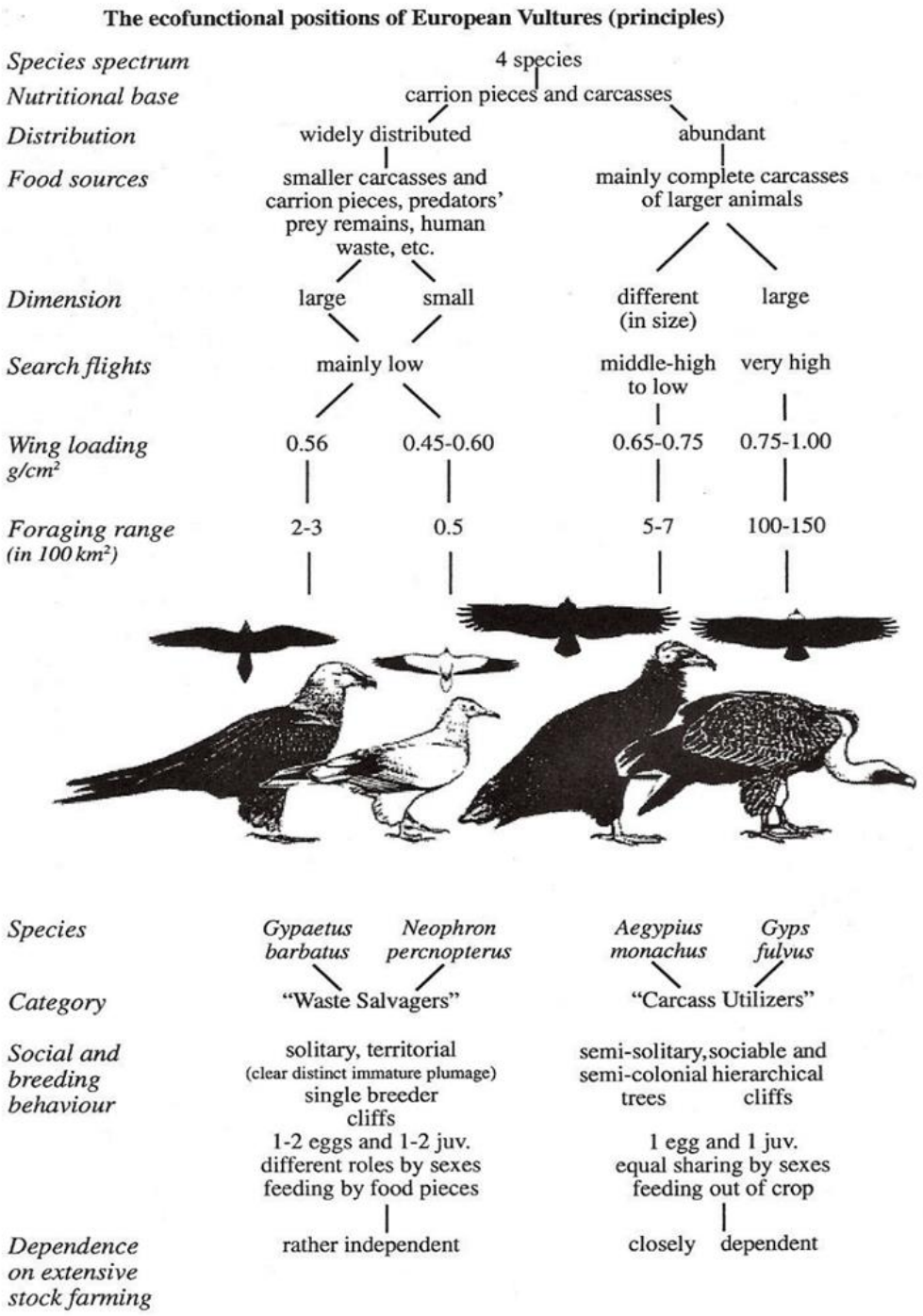

Fig. 1. Ecofunctional positions of European vultures (after Baumgart, 2000a).

While there were 42 veterinarians in the country in 1893, their number rose to 93 by 1915, 150 by 1925, and 250 by 1931 (Iliev, 1957; Kalupov *et al*., 1959).

Effective organizational structures were created to address the challenges at hand, particularly in the fight against the introduction of animal diseases from Turkey. The systemof "Social Veterinary Medicine" combined disease prevention and animal insurance. Farmers were required to join this system, but received free treatment for their animals in case of disease, ensuring an effective reporting system in case of disease outbreaks. In close cooperation with the "Office International des Épizooties" in Paris, founded in 1924, Bulgaria became a secure frontline state against epidemics imported from the Orient (Iliev, 1957).

Direct persecution was virtually non-existent because the rural population understood the role of vultures in the natural balance. The only exception was the shooting by foreign military forces during World War I (Gengler, 1920). In 1894, the first documented cases of vultures (bearded vultures *Gypaetus barbatus* (Linnaeus, 1758); Fig. 2.) dying from poison used to control wolves (*Canis lupus* Linnaeus, 1758) and brown bears (*Ursus arctos* Linnaeus, 1758) (Baumgart, 1989), and their numbers steadily increased thereafter. Thus, wolves, which were previously an important part of the accompanying fauna of vultures, became an indirect threat to their conservation.

Livestock attacks by wolves were countered with poison, which also severely decimated vultures.

The annual amount of strychnine used to control predators amounted to approximately 60 kg, and in 1943, the peak number of wolves killed was 521 (Dragoev, 1970). According to data from Boev (1997), 44% of the wolves killed in Bulgaria in 1970 were poisoned with strychnine.

Fig. 2. Bearded vulture (*Gypaetus barbatus*). Photograph: Lyubomir Hristov – Lupy.

The common raven (*Corvus corax* Linnaeus, 1758), an important sympatric scavenger for vultures, also declined significantly for these reasons. Ravens presence facilitate vultures to finding the locations of some carcasses. All of this reduced vulture populations nationwide, whose occurrence was soon limited to remote, arid and mountainous regions. Several authors reported on this from the 1920s onwards (von Boetticher 1927, Harrison & Pateff 1933, Rensch 1934, Boev & Michev 1981, and Baumgart 1989).

The founding of the People's Republic of Bulgaria following the overthrow of the monarchy on September 9, 1944, also led to fundamental changes in agriculture and veterinary medicine. Collectivization of agriculture was completed by 1958. Among themost important changes relevant to vultures were the decline in sheep farming in the mountains and the transition from coarse-wooled to improved fine-wooled breeds. Barn-keeping in winter became common practice. The Karakachans (also called Sarakatsans) were prohibited from nomadic animal husbandry for reasons of epidemic prevention (Ivanov *et al*., 1961; Kalupov, 1964), but prosperous industrialization offered them sufficient alternative sources of income, so many abandoned the way of life they had practiced for centuries. When attempts were made to revive mountain pasture farming in the 1970s, they were only rarely willing to move from comfortable lives in residential areas back to the mountains.

The development of a modern veterinary system progressed rapidly. From 2,500 veterinarians in 1963, their number rose to 4,036 by 1985 (Ivanova, 1986). Animal losses due to epidemics were significantly reduced (Wilke, 1967). In addition, animal carcass processing plants were established in all districts. While in 1961 just 1.2% of carcasses were recorded, by 1966, aided by an increasingly developed road network, this figure had risen to 55.1%. To prevent acts of sabotage, dead animals had to be reported within twelve hours, and from 1961 onwards even within one hour, under threat of severe penalties (Kühnast 1986). According to a historical review of meat control and official inspection systems, after World War II, national networks of official inspections for the control of livestock and meat developed, including ante- and post-mortem inspections of animals, as well as regulated control of slaughterhouses to ensure the safety and quality of meat products (Delchev & Mladenov, 1978).

Wolves, which had increased significantly during World War II, were now intensively controlled. While 22,300 head of livestock were killed in 1951, according to relevant reports, this number had fallen to just 1,052 in 1968. During World War II and in the first post-war years, an increase in the number of wolves killed in the country was observed - 500 and 700 individuals per year. A second maximum was reached in 1953/1954, when about 1,000 wolves were shot. The peak number of wolves killed was 1,079 in 1954. In the period 1970 - 1978, about 90 wolves were killed per year (Boev, 1997). After that, their population declined steadily, and by the 1980s, it had reached 150-200 nationwide. They became strictly protected (Dragoev, 1970, Spiridonov & Spasov, 1985).

The extinction of vultures cannot therefore be attributed solely to poisoning and shooting. The increasing food shortage caused by the aforementioned developments appears to be of greatest importance. These suggest that from the 1950s onward, there were virtually no continuously available food sources for large vultures throughout Bulgaria. Only occasional sporadic incursions occurred, especially in border regions. During this period, in the semi-mountainous and mountainous regions of the country, dead domestic animals continued to be thrown out into the open outside the villages.

Large herds continued to graze in the open and dead animals were abandoned in the open. Therefore, it is believed that the lack of food is not the main negative factor in the decline of vulture populations. Poisoning, shooting and incidents of electric shock from the power grid are now at the forefront of their mortality.

Data from the 1960s and 1970s are extremely scarce. Donchev (1974) reported indirect evidence of a pair of *G. fulvus* breeding near the town of Kotel. In Ludogorie (NE Bulgaria) a non-breeding pair was observed around a nest on a rock as early as 1983 (Spiridonov, 1988). As a result, Demerdzhiev *et al*. (2007) and Demerdzhiev *et al*. (2014) suggest that the species in the Eastern Rhodopes did not become extinct in Bulgaria.

Some extremely rare records after 1960: In August 1961, Simeon Dimitrov saw an adult Bearded vulture between the peaks of Chatalka and Kutelka in the Sinite Kamani Nature Park (Eastern Stara Planina; Michev, 1968). In the autumn of 1980, a Bulgarian Red Cross and Red Crescent Society employee found a half-alive young bearded eagle near the village of Vranino, Dobrich Region, poisoned with pesticides through mouse-like rodents that it had been feeding on (Michev, 1982). This juvenile Bearded vulture probably drifted here with the autumn migration of Steppe buzzard (*Buteo buteo vulpinus* (Gloger, C.W.L., 1833)) from the Caucasus, just as young bearded vultures regularly arrive in Central Europe with the spring migration of European honey buzzards (*Pernis apivorus* (Linnaeus, 1758) from the Pyrenees and Alps (Baumgart 2001b). On the other hand, there is an equal probability that this bird originated in the Balkans, since at that time the species was still breeding in neighboring Greece and Macedonia. This may also apply to other immature bearded vultures recorded in the Bulgarian Black Sea coastal region in autumn.

Fig. 3. Cinereous vulture (*Aegypius monachus*). Photograph: Georgi Gerdzhikov.

On 13.02.1983, a juvenile *G. barbatus* was observed in the western part of Devnya Lake (Michev, 1983). In the period 1980-1990, 147 observations of Cinereous vulture (*Aegypius monachus* (Linnaeus, 1766); Fig. 3.) were recorded in the country (Iankov *et al*., 1992). On 13.06.1981, an inhabited nest (occupied by 2 birds and abandoned) of *G. fulvus* (Fedtke, 1984) was discovered near the town of Kardzhali. In 1978, between May 19 and June 20, a total of 9 adults, 4 young birds with transitional plumage and 15 juveniles of *G. fulvus* were observed in the Eastern Rhodopes (Michev *et al*., 1980). Observations of the Egyptian vulture (*Neophron percnopterus* (Linnaeus, 1758); Fig. 4.) after 1960, although sharply decreasing, are relatively numerous. In the Bulgarian part of the Strandzha Mountains, the species was last observed on 16.08.2000 by Boev (2008) near the town of Malko Tarnovo.

Fig. 4. Egyptian vulture (*Neophron percnopterus*). Photograph: Georgi Gerdzhikov.

From the end of the 1990s onward, spontaneous resettlements of the Eurasian griffon vulture (*Gyps fulvus* (Hablizl, 1783); Fig. 5.) occurred in the Eastern Rhodopes in connection with populations in Greece, and individual breeding of black vultures was also recorded. This was facilitated by the high proportion of the Muslim population there, who have a positive attitude towards vultures. There is a shortage of veterinarians, and the animal rendering plant in the Kardzhali Province was closed due to lack of profitability (Baumgart, 2025). However, the greatest importance for the restoration of the breeding population of *G. fulvus* and *A. monachus* in Bulgaria was the several large-scale projects of environmental non-governmental organizations, which, through imported (mainly from Spain) birds, managed to breed them in captivity and reintroduce them to their former habitats. managed to breed them in suitable areas (Vrachanski Balkan, Kresna Gorge, Kotlenski Balkan) and through regular

feeding by taking out carrion to the so-called "vulture restaurants" they successfully multiplied them. Thus they gradually occupy some of their former habitats. In Bulgaria there is no captive breeding of Griffons and Cinereous vultures so far. Many of the birds resettled in the country originate from released birds that were bred in captivity in Spain.

Developments after the fall of communism in 1989

After the fall of communism in 1989, which led to a significant population decline and a reduction in livestock numbers, because the livestock was distributed to presumed former owners upon the dissolution of the TKZS, who, no longer able to keep them, then largely slaughtered them. The spectrum of both positive and negative effects is broad. The orientation towards the West modernized nature and species conservation, and vultureprojects with international support and funding have led to a considerable increase in the griffon vulture population, and the black vulture has also regained a foothold (Bearded Vulture LIFE, 2024; Baumgart 2025). Preparations for the reintroduction of the bearded vulture are underway. On May 17, 2025, the first 3 young male birds were released in the Sinite Kamani Nature Park, one of which died soon after.

Fig. 5. Eurasian griffon vulture (*Gyps fulvus*). Photograph: Georgi Gerdzhikov.

In contrast to the larger vultures, the lesser Egyptian vulture remained widespread throughout the country (Michev, 1986; Baumgart, 1991). After 1960, it was still found in several locations where eagle owls were present. It even profited from the remains of their prey. In July 1977, Z.B. observed Egyptian vultures and Eagle owls coexisting on the rocks near the village of Reselets (Pleven Province). The same thing was observed in August of the same year on the rocks near village of Krivnya (Ruse Province) in the Beli Lom Nature

Reserve. Close connections in terms of the feeding of the two species were mentioned by Professor Nikolay Burchak-Abramovich (1902-1997) for the rocks on the hills in the city of Tbilisi in Georgia in the 1950s (oral comm.).

However, it was vital for it that in remote settlements with poor transport links, there was often no connection to the electricity grid, which also meant a lack of refrigeration. This made it impossible to store perishable food in the summer. For the settlers there, a balanced diet included meat once a week, usually provided by a freshly slaughtered chicken. For Egyptian vultures, the esophagus, crop, glandular stomach, intestinal tract, head, and legs were removed, allowing it to easily meet its basic needs within one or more settlements. This insight also provided us with a solution to the question, which our ancestors had been asking at the time: why the Egyptian vulture is missing from Crete. During our explorations in 1994 (Baumgart & Baumgart, 1995), we noticed that grain is scarce on the island and is mostly grown as an undercrop in citrus plantations. This is insufficient for chickens, so their weekly meat needs are met by rabbits. Their slaughterhouse waste, however, offers little to the Egyptian vulture. However, another hypothesis is possible: the rapid decline in the population in recent years is also related to the very high risk of migration to Africa, mainly due to the long flight over the Mediterranean Sea. It is not at all excluded that the species may have bred there in the past. According to data provided by Handrinos (1985), it is possible that this vulture may have bred on the island.

In Bulgaria, it has now become extremely rare. North of the Balkan Mountains, the species is on the verge of extinction, but there are still 5-7 breeding pairs. In the south, it is mainly found in areas with a high Muslim population, such as the Eastern Rhodopes.
There, the reintroduction of large vultures is very successful (Stoynov, 2018; Kmetova-Biro *et al*., 2021; Stoyanov *et al*., 2023; Baumgart, 2025) and it benefits locally from the feeding grounds established for them.

Bulgaria's rapprochement with the EU appears to have played a significant role in its decline after 2000. After applying for membership in 1993, Bulgaria became a candidate for accession and received funding even before accession in 2007 (e.g. pre-accession aid for the rehabilitation and expansion of the road network, including electrification). The isolation and thus self-sufficiency of residents in remote villages is significantly reduced, as is waste generation. They are no longer dependent on self-sufficiency. There are now shops, refrigeration systems, and access to the labor market in the wider area. This largely eliminates the livelihood of Egyptian vultures. This may also have contributed to the rapid decline of 32% between 2003 and 2007.

The "National Action Plan for Conservation of the Egyptian Vulture in Bulgaria" (Kurtev *et al*., 2007) has been in place since 2007. It identifies a multitude of factors responsible for the decline of the Egyptian vulture. These factors are particularly complex because the Egyptian vulture is a migratory bird and can likely suffer significant losses even in its wintering grounds. The effects of poison are considered particularly important in this regard. The "vulture poison" diclofenac has also been speculated about in personal conversations, especially with W.B. However, based on studies in India, a definitive statement can be made on this issue, as it is an event limited primarily to the Hindu cultural sphere, in which “sacred cows” play a special role (Baumgart, 2017).

The widespread use of poisons and its detrimental impact on vultures (and other scavengers) and the lack of good monitoring in Bulgaria has been extensively documented by Kostadinova & Gradinarov (2019). In addition to poisons, the Egyptian vulture suffers greatly from electric shocks from power lines, including in its winter range (Sudan - Angelov *et al*., 2012; Qaneer & Demerdzhiev, 2023) and during the seasonal

transcontinental migrations (Bounas *et al*., 2023). During migrations, vultures also die from poisoning, habitat loss, and poaching along the migration route (Peshev *et al*., 2022).

Egyptian vultures can also visit some of the supported additional feeding stations for vultures on a daily basis, such as the one near the village of Potochnitsa (Kardzhali Province). In recent years, the station in the new aviary for the reintroduction of black vultures has been visited almost daily by different pairs. Up to 30 individuals of this vulture have been counted there.

Maintaining Egyptian vulture populations in southern Europe is so difficult because of their territorial nature. In the worst case scenario, each pair would need its own feeding ground with small portions of carcasses - replenishment several times a week - that would quickly dry out and become unusable. This is easier with larger vultures. One feeding ground, which needs to be replenishment with large carcasses once or twice a week, is sufficient to support a large number of them.

Despite the numerous difficulties arising from the specific biological characteristics of this species of vulture, in recent years conservation efforts have been crowned with positive results, some of which are presented in detail by Arkumarev *et al*. (2020).

Decline of the vulture population in India and Diclofenac and parallels with EU

In connection with the diclofenac disaster in India, which almost completely wiped out the population of *Gyps* vultures (Indian vulture *Gyps indicus* (Scopoli, 1786), slender-billed vulture *G. tenuirostris* Gray, 1844), and Bengal vulture, *G. bengalensis* (Gmelin, 1788)) was almost completely wiped out – according to BirdLife International (2016; 2016b), 99.9% of Bengal vultures died – there was repeated criticism of the approval of this painkiller in the EU. There were fears that this would pose a threat to European vulture populations. However, research conducted on site in India (Baumgart, 2017) showed that this risk is extremely low.

Diclofenac was purchased here from wholesalers by intermediaries (pharmacists, veterinarians, etc.), mostly as bulk goods in large packages, and then sold in bags to livestock owners without any controls, who administered it to their animals with their drinking water when they were ill, especially in cases of mobility disorders. Diclofenac is very stable and accumulates in the digestive tract, especially in the rumen. If a cow dies despite treatment—slaughter is rarely carried out for religious reasons, as cows are sacred—and is left out for vultures, this poses an acute threat, especially to *Gyps* vultures, which consume large amounts of entrails. Due to its high toxicity to vultures, with an LD50 of 0.1-0.2 mg/kg body weight, even an intake of 1.5 mg leads to fatal kidney failure in these birds. The ingestion of just 1.5 mg of this drug by a vulture can lead to death from kidney failure. With a population of 300 million cattle and an assumed annual mortality rate of 10%, 30 million cattle carcasses represent a difficult disposal and hygiene problem. Meloxicam, which is harmless to vultures but significantly more expensive, is recommended as a replacement for diclofenac, which has been banned in India since 1995.

In the EU, diclofenac is approved in some countries for veterinary medicine only as an injectable preparation, but not for oral administration, with controlled dosing. It is rapidly excreted, partially metabolized in the animal body. Consequently, there is little sign of a threat to European vulture populations from this phenomenon, which is limited to the Hindu cultural area.

Conclusions

It turns out that the study of vultures is important for the final assessment of the consequences of political, economic and cultural developments for solving fundamental ornithological problems. This is because it sometimes encompasses these three complex factors in a rather hidden way, and in this way it clarifies what needs to be taken into account for their conservation.

This opens up a previously largely untouched area of action and research that is becoming increasingly important in the Anthropocene. The problems addressed here only became relevant because the relevant knowledge was assigned to other disciplines and thus hardly available to ornithologists. Bulgaria, with its eventful history, offers impressive examples as well as further approaches to solutions. Bulgaria has undergone diverse political, economic, and cultural upheavals over the past 150 years, which have directly or indirectly impacted the bird population and thus offered surprisingly new approaches to solving the problems associated with the species mentioned here.

In southeastern Europe, large vultures (*G. fulvus*, *A. monachus*, and *G. barbatus*) depend almost exclusively on the carcasses of free-range farm animals for food. These animals, in turn, are subject to regulations resulting from husbandry practices (pasture grazing with transhumance or stable housing with feed crops) and veterinary care.

In addition to the control of predatory animals with poison, fundamental developments arose that led to population limitations. From the time of Ottoman rule, through the monarchy, and into the socialist era, these developments led to a steady reduction in the food supply. It may have almost disappeared around the mid-1950s, but since then and to this day, there have always been large dead animals for vultures to eat in the wilds of Bulgaria. Since 1989, projects have ensured the mostly limited, feed-dependent existence of local populations.

However, for the Egyptian vulture, which was still relatively widespread throughout the country but has declined sharply in recent decades, relevant projects are proving more difficult due to a series of infrastructure changes. However, the threat posed by the "vulture poison" diclofenac is negligible for both this species and the others, as it depends on specific conditions in Hindu culture that are irrelevant for Europe.

Over the past decade, vulture mortality has been driven by electrocution, poisoning and migration incidents. These factors have had a decisive impact on vulture populations in Bulgaria and the Balkans.

This analysis shows 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 perspective. The use of medicines for livestock, the organization of slaughterhouses, rendering plants, the use of poisons in nature, engineering solutions for the country's electricity grid, supporting feeding in nature, the upbringing and education of the population and dozens of other activities turn out to be related to the conservation of vulture populations in the country. Despite the negative experience at times, Bulgaria undoubtedly offers a number of good examples and promising approaches in this regard.

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