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INTENSITY OF WILDLIFE TRADE FROM THIRD COUNTRIES TO THE EUROPEAN UNION

Ivanka LAZAROVA, Gergana BALIEVA

Veterinary Legislation Unit, Faculty of Veterinary Medicine, Trakia University, 6000, Stara Zagora, Bulgaria

Corresponding author email: ivanka.lazarova@trakia-uni.bg

Abstract

Wildlife trade is strictly regulated by a range of international conventions and European regulations. As a member state, Bulgaria acts as an entering point to the EU. The current study investigated the intensity of trade with wild fauna based on official data on consignments admitted to the European economic area through Bulgarian border control posts. For the period from 2020 to 2024, we identified the animals by species and categorised them into groups based on their protection status. All consignments with live animals were traced from the country of origin to their final destination within the EU. Emphasis was made on the mandatory requirements when the wildlife trade is concerned with protected species.

Key words*: border control, EU import, protected species, wildlife traffic.*

INTRODUCTION

Wildlife trade is a globally increasing activity (Harfoot et al., 2018) that involves different species from the wild flora and fauna. Due to its crucial impact on the ecological balance and biodiversity worldwide (Hughes, 2021) and the fact that many illegal activities are carried out at a large scale (Europol, 2017), there are several international legal instruments for wildlife protection (Duffy, 2016). IUCN (International Union for Conservation of Nature) produces a Red List of Threatened Species, which has become the world's most comprehensive source of information on the global conservation status of animal and plant species.

Created in 1964, the Red List is a critical indicator of the state of the world's biodiversity, a tool for informing and taking action to conserve wildlife and changing policies that are crucial for the conservation of natural resources. The Red List includes information on the range, population size, habitat and ecology, use and/or trade, threats and actions needed to conserve plant and animal species. Currently, the Red List includes more than 142,500 animal species, with about 40,000 threatened with extinction, including 41% amphibians, 37% sharks, 34% conifers, 33% reef-building corals, 26% mammals and 13% birds (IUCN, 2022).

At the same time, CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) is another international tool to regulate and prevent illegal trade in wild specimens, using the IUCN protected status of the species to include them in several appendices. For the species listed in Appendix II all trade activities are regulated and CITES certificates are issued to ensure their place of origin and permission for trade, while for those in Appendix I all interactions are prohibited. Currently, CITES monitors more than 40,900 species (including animals and plants) that should be protected from over-exploitation and illegal trade globally. However, many more species are traded that are not protected by the Convention. The effectiveness of CITES depends on the implementation of relevant legislation on national level as well, and the mandatory and strict control to determine the violations with prosecution of the reported environmental crimes (Morton et al., 2021).

Besides IUCN and CITES, the European Union also implements legal requirements and measures with regard to trade in live animals and products of them, including wildlife. In February 2016, the EU adopted an action plan against wildlife trafficking. Many years after its

adoption, many problems still exist and the EU remains a major transit region for the illegal wildlife trade, as well as one of the most important markets for trafficking in endangered species. The global legal wildlife trade is estimated to be worth over US$300 billion annually, while the value of international wildlife trade is estimated at US$20 billion (Berec et al., 2018).

Bulgaria as a member state of the EU appears as an outer border of the Union and thus plays a key role as an entry point for all consignments coming from third countries. The EU is a major transit point for the illegal wildlife trade and an important target market from different perspectives (Lemaître & Hervé-Fournereau, 2020). As the illegal wildlife trade involves many actors, such as poachers, middlemen, local communities, processing centers, networks and markets (Moreto & Pires, 2018) it is imperative all consignments with wild specimens to be subjected to official border control checks before being allowed to enter the EU. With this regard the present study focused on the official veterinary border checks carried out between 2020 and 2024 in order to determine the intensity of international trade in live wildlife. Official data given by the Bulgarian competent authority were investigated including the country of origin, respectively destination, and the protected status of traded wild animals, thus drawing conclusions on the possible effects on biodiversity and conservation.

MATERIALS AND METHODS

For the purpose of the study official data were required, given by permission of the Bulgarian Food Safety Agency for research purposes. Information recorded was provided from the BFSA database, maintained by the "Border control" Directorate for all consignments applying for entry at any Bulgarian (which serves as well as European) border inspection post. Data were given only about consignments from third countries carrying animal species originated from wild habitats.

Three identified border control posts are designated to serve as points of entry for live animals in Bulgaria, including wildlife, as determined by the EU requirements (European Commission, n.d.) - BGKAN3 Kapitan Andreevo Border Inspection Post, BGKAL3 Kalotina Border Inspection Post and BGSOF4 Sofia Airport Border Inspection Post. BGKAN3 is located on the border between Bulgaria and Turkey and is the main trade route from Asia (Syria, Iran, Turkey) to the EU. It is the BIP with the most intensive trade on land in the EU and there 9.4% of all consignments in the present study were registered.

The second land BIP for trade in live animals, BGKAL3, is located at the border Bulgaria-Serbia, on the main highway and railway road between Western Europe and Asia, passing through Istanbul. At BGKAL3 there were registered 5.0% of all consignments during the period 2020-2024.

Airport Sofia is the largest one in the country and at BGSOF4 85.6% of all wildlife consignments were subjected to border control.

After filtering the information on the main parameters subjected to investigation, data were statistically processed (IBM SPSS-Inc., 2019, SPSS Reference Guide 26 SPSS, Chicago, USA) using descriptive statistics and chi-square test.

RESULTS AND DISCUSSIONS

Intensity of wildlife trade in Bulgaria over the last 5 years has increased 5.75 times, with import of 199 consignments in 2020 to 1146 consignments in 2024 (Figure 1). This rapid trend is observed internationally, as the value of the global trade in wild specimens is estimated in hundreds of billions of US dollars (Berec et al., 2018; Hughes, 2021).

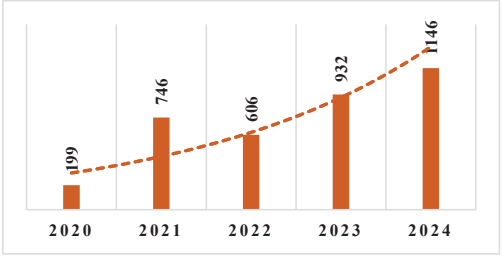

Figure 1. Dynamics in the total number of consignments with live animals subjected to border control in Bulgaria over the study period

Over the five-year study period on the international trade with wild species through

Bulgarian outer border control checkpoints, the results showed great diversity of the traded specimens and their numbers (Table 1). The species from the database varied from small marine animals to large terrestrial herbivores and carnivores, thus representing 11 different categories - Artiodactyls, Bees, Birds, Canine, Crustaceans, Equine, Feline, Fish, Other marine animals, Predatory mammals and Reptiles. Regarding the specific requirements listed in the international and European legislation on wildlife protection, all specimens were further defined by their conservation status - vulnerable (VU), protected (PR), near threatened (NT), least concerned (LC) and endangered (EN). As shown on Table 1, the largest share of the consignments, 3162 in total, were LC with a low probability of their biodiversity being threatened. In this category Fish represented most of the specimens with 2405 consignments, in contrast with the findings of Liew et al. (2021) who observed clear decline in fish and amphibians between 2013 and 2018. The other species with the same LC status were accounted for 452 consgt of Eqiunes, 129 consgt of Canines, 91 consgt of Crustaceans, 16 consgt of Other marine animals and equal number of 9 consgt for Birds and Bees. The declining number of international trades with these species could be influenced by many factors; however, some explanation could be found in the measures implemented by the EU legislation with regard to fight with the Avian influenza epidemics after 2005, which imposed ban on the birds caught from wild habitats (Reino et al., 2017).

Again, Fish appeared the most of the traded species under the groups of VU, PR, NT and EN which could be explained with their great diversity as even sharks were included in the consignments. Liew et al. (2021) reported that shark species were subjected to intensified trade during the recent years, which according to Cardeñosa et al. (2018) could be linked to the improvement in the international documentation on animal importation after updating the CITES Appendix II with inclusion of more shark species. However, for commercial trade in wild species, as investigated in the present study, Green et al. (2022) highlighted that even the joint application of both the IUCN Red List and the CITES Appendices do not provide ultimate protection to wild animals of conservation concern. Furthermore, some wild species could be downlisted in CITES Appendices, thus becoming more vulnerable to intensified trade and overexploitation (Hutchinson et al., 2022).

Although small in numbers in NT and PR when compared to the total share of wildlife trade, birds of prey also should be paid attention to as some of them were representatives of the *Falconiformes* family, subjected to many illegal activities (Zsigmond, 2020). Regarding other bird species, research showed that the extensive trade with wild species sold as pet birds could be better controlled after coordinated enforcement of conservation laws (Liang et al., 2024). Similar to the birds of prey in the study, the Reptiles were counted for only 2 consgt, falling under the VU category, but being represented by turtles this group is continuously subjected to smuggling attempts (Nijman & Shepherd, 2010).

Table 1. Distribution of traded specimens regarding their conservation status, in numbers

Consignment/ Conservation Status	Artiodactys	Bees	Birds	Canine	Crustaceans	Equine	Feline	Fish	Other marine animals	Predatory mammals	Reptiles	Total	Chi-square
EN	0	0	0	0	0	0	0	13	0	0	0	13	2405.739
LC/NEI	0	9	9	129	91	452	51	2405	16	0	0	3162	p=0.00
NT	0	13	2	0	0	0	0	172	109	0	0	296	
PR	2	0	6	0	61	0	0	62	11	3	0	145	
VU	0	0	0	0	0	0	0	11	0	0	2	13	

Traced back to the country of origin, the consignments with wild animals subjected to official control passing through the Bulgarian border come from all over the world (Table 2). The majority of all specimens originated from third countries in different continents (59 consignments being an exclusion as they were traded between member states of the European union) - 3014 consgt from Asia, 501 consgt from third countries in Europe (non-EU), 23 consgt from Australia and equal number of 11 consgt from Africa and North America. It could be argued if the legal route of importing wildlife in the EU overlaps with the illegal trade routes as Reino et al. (2017) stated that new re-routing patterns around Africa and South-East Asia emerged in wildlife trade after

banning importation to EU of some wild species for epidemiological control of contagious diseases.

Considering the large number of species coming from Asia into the EU, it could be argued that some socio-economic factors play an important role in this trade. As Zsigmond (2020) noted, many developing countries are rich in biodiversity and at the same time they have poor economics, legislative insufficiency and corruption of the public sector, which lay the foundation for black market for wildlife species demands in the developed countries. These findings correspond with the conclusions of Rosen & Smith (2010) that African and South-East Asian regions appear as the main source of the illegal operations with wildlife.

Table 2. Consignments distribution as per the country of origin and wild species

Consignment/ Origin	Artiodactys	Bees	Birds	Canine	Crustaceans	Equine	Feline	Fish	Other marine animals	Predatory ammals	Reptiles	Total	Chi-square
Africa	0	0	0	8	0	0	3	0	0	0	0	11	4750.392 / p=0.00
Asia	0	12	4	31	152	0	23	2652	136	3	1	3014	
Australia	0	0	0	13	0	0	10	0	0	0	0	23	
EU	0	0	1	2	0	56	0	0	0	0	0	59	
Europe	2	10	6	71	0	396	15	0	0	0	1	501	
N/A	0	0	0	0	0	0	0	10	0	0	0	10	
N. America	0	0	6	4	0	0	0	1	0	0	0	11	
Total	2	22	17	129	152	452	51	2663	136	3	2	3629	

Distribution of the consignments across the species groups showed once more that the most intensive trade was carried out with hydrobionts (Table 2) - 2663 consgt of Fish, 152 consgt of Crustaceans, 136 consgt of Other marine animals. Smaller shares were registered for the rest of the categories - 452 consgt of Equines, 129 consgt of Canines, 22 consgt of Bees, 17 consgt of Birds (including raptors, poultry, waterfowl), 3 consgt of Predatory mammals and equal share of 2 consgt of Artiodactyls and of Reptiles. Although the information provided did not include the purpose of the imported species, it could be assumed that some of them were intended for keeping and breeding while the others, mainly hydrobionts, were for human consumption. Similar observations were made by Morrison-Lanjouw et al. (2023) focused on the international trade with bush meat from CITES-listed wild specimens found throughout the EU and intended for human consumption. The same authors also argued on the loss of biodiversity in the habitats of the third countries of origin or even introducing invasive non-native species at the country of destination Reino et al. (2017).

Among the species included at a large scale in the global trade networks Liew et al. (2021) mentioned amphibians and wild fish, similarly to the present study, with most of them originating from South-East Asia and Africa. These findings are supported by Nijman (2010) and Lyons & Natusch (2011) who reported intensive trade with reptiles from Indonesia and small marine animals (like crabs and corals) from coastal China (Kwan et al., 2023).

The investigation on the wildlife trade between third countries and the EU showed that some member states were the main final destination and a very small number of the consignments were subjected to transit through the EU to other third countries - United Kingdom, Serbia, Georgia (Table 3).

Table 3. Intended country of destination for the wildlife consignments entering the EU at Bulgarian control checkpoints

Consignment/ Destination	Artiodactys	Bees	Birds	Canine	Crustaceans	Equine	Feline	Fish	Other marine	Predatory mammals	Reptiles	Total	Chi-square
Belgium	0	0	0	1	0	0	1	0	0	0	0	2	2803.478 / p=0.00
Bulgaria	1	22	17	94	152	449	49	2663	136	3	2	3588	
France	0	0	0	3	0	0	0	0	0	0	0	3	
Georgia	1	0	0	0	0	0	0	0	0	0	0	1	
Germany	0	0	0	2	0	0	0	0	0	0	0	2	
Greece	0	0	0	0	0	2	0	0	0	0	0	2	
Netherland	0	0	0	1	0	0	0	0	0	0	0	1	
Serbia	0	0	0	1	0	1	0	0	0	0	0	2	
UK	0	0	0	27	0	0	1	0	0	0	0	28	
Total	2	22	17	129	152	452	51	2663	136	3	2	3629	

As described by Lemaître & Hervé-Fournereau (2020), the EU market is a main target for wildlife trade operations, including large-scaled illegal activities (Mozer & Prost, 2023). The presented results revealed that the main destination point for the majority of the imported specimens was Bulgaria with a prevailing share of hydrobionts once again - 2663 consgt of Fish, 152 consgt of Crustaceans and 136 consgt of Other marine animals. Assuming that most of the mentioned imports were intended for human consumption, these

results are in line with the findings on the trade-flow at the European airports by Chaber et al. (2023) and Gombeer et al. (2021) who reported huge volumes of imported products of animal origin from wildlife species over the years. Similar results were presented for international trade in France with many CITES-listed species (Chaber et al., 2010) and Germany (Jansen et al., 2016). On the other hand, many of the species, especially fish, although with important conservation status and in need of protection, end up at the EU pet shop markets as exotic animals. Recent survey among the veterinary profession in Europe (FVE, 2023) showed an increasing trend of keeping exotic animals as pets and supposedly, due to the high demand, some of them come from illegal trade.

Very small share of the imported wildlife to the EU ended in countries like Germany, the Netherlands, Belgium, France, Greece (Table 3). Although the traded species were from categories that are not used for consumption, attention still should be paid as the non-native specimens pose risk to the biodiversity and public and animal health, being potential hosts of pathogens (Rodríguez-Lázaro et al., 2015; Morrison-Lanjouw et al., 2023).

According to the current European legislative framework all commercial consignments with live animals and products entering the EU are subjected to official border control with exclusions for the species and goods imported by passengers Gombeer et al. (2021). The official control at border control posts, their types and sequence of execution are laid down by the EU Regulation 2017/625 (European Commission, 2017). When wildlife is part of the trade between the member states and third countries, then another set of requirements should be met with the correct documentation (European Commission 2019).

The results from the mandatory checks at the point of entry at Bulgarian border posts showed that the majority of the consignments with wild species, 3598 consgt, received "satisfactory" evaluation in compliance with the EU regulations (Table 4). The subsequent physical check was also in compliance for 3620 consgt, while the assessment of animal welfare was satisfactory for 2776 consgt. Overall, the non-compliance for the traded specimens showed very low numbers and it could be assumed that the rigorous official veterinary border control on the route and at the airport in Bulgaria is a sufficient tool for preventing illegal wildlife trade. It is important as well to have the official veterinarians at the border posts working in collaboration with the customs office, as airports especially are believed to serve as global bottlenecks for black market operations with wild animals and products coming with non-European flights (Jansen et al., 2016).

Table 4. Results from the mandatory checks on wildlife consignments subjected to official border control in Bulgaria

Consignment/ Official checks		Artiodactys	Bees	Birds	Canine	Crustaceans	Equine	Feline	Fish	Other marine animals	Predatory mammals	Reptiles	Total	Chi-square
Documentary check	N/A	0	0	1	3	0	0	0	0	0	0	0	4	742.720 / p=0.00
	Not satisfactory	1	0	2	23	0	0	0	0	1	0	0	27	
	Satisfactory	1	22	14	103	152	452	51	2663	135	3	2	3598	
Physical check	Not satisfactory	0	0	0	2	0	0	0	0	0	0	0	2	
	Satisfactory	2	22	17	120	152	452	51	2663	136	3	2	3620	
Welfare check	N/A	0	5	6	32	38	40	9	681	41	0	0	852	
	Not satisfactory	0	0	0	1	0	0	0	0	0	0	0	1	
	Satisfactory	2	17	11	96	114	412	42	1982	95	3	2	2776	

However, formal reports on the member states` performance with regard to the official checks show that control practices and documentary procedures vary among some of the EU countries (European Commission, 2012). Explanation could be found in the different levels of law enforcement among the member states regarding the possession of CITES-listed species (European Parliament, 2016; Gabehart & Stefes, 2024). Signing Globally, Implementing Locally: Protecting Endangered Wildlife and the Predicament of Germany's Federalism. German Politics, 1–31. https://doi.org/10.1080/09644008.2024.2342960). Moreover, in case of illegally entering the EU, the smuggled wildlife could be afterwards circulated freely to other countries due to the

single European market with limited or non-existent customs control between the member states (Sollund & Maher, 2015).
Considering the deficiencies mentioned, it could be recommended to develop and implement joint programs for monitoring wildlife trade by customs, airlines, competent veterinary authorities and policy makers.

CONCLUSIONS

With the intensified global trade in wildlife, threatening the biodiversity, environmental balance, public and animal health, it is extremely important to raise awareness on the issue among all stakeholders. As the European Union is one of the main targets for wildlife trade, all member states should understand the importance of official border control in live animals, especially in the context of conservation measures. The findings for the executed official checks at the three border inspection posts in Bulgaria, serving as outer borders with the third countries, showed increased volume of trade in wild specimens. Most of the consignments transported different wild species, varying from Crustaceans to large mammals, and the majority of them were under protection regarding their specific conservation status.
Most imported to the EU through the Bulgarian BIPs were hydrobionts (fish, crustaceans, other small marine animals), predominantly coming from developing countries in South-East Asia and Africa. For the majority of the consignments the official veterinary control found that they were in compliance with the EU regulations for documentary procedures, physical checks and animal welfare assessment. Although the non-compliance for the imported wildlife specimens was very low, further improvement of the official control should be considered with regard to the surveillance of trade-flow with the assistance of customs, decision makers and other stakeholders.

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