

Confiscated *Emys orbicularis* (L., 1758) Dying Out in a “Temporary” Reception Facility in Serbia: a Case Study Showing the Urgency for a Regional Reptile Rescue Centre

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Abstract: In December 2012, an illegal shipment of over 1,300 live European Pond Turtles (*Emys orbicularis*) was confiscated at the border between the Former Yugoslav Republic of Macedonia (FYROM) and Serbia. All animals were housed in the Belgrade Zoo, Serbia, as a temporary measure until officials of the two countries find a way to return them to their place of origin. Turtles were placed in an enclosure of c. 300 m² with an artificial pond c. 1.3 m deep, where some European Pond Turtles and several exotic Red-eared Sliders have already been kept. Along with imposing intense stress, these circumstances are ideal for transmission of pathogens. In December 2017, the turtles are still in the zoo, with officials not having taken proactive measures. As a result of poor living conditions, many of these turtles died, and many suffer from various diseases and disorders. Therefore, they cannot be released anywhere into nature. The case we describe highlights the urgency of establishing multi-level national and regional cooperation, and one or more centres where confiscated animals and unwanted pets could be accepted and processed. Another important measure is the development of a range-wide DNA database of reptile species threatened with illegal collection and trade. In future, the proposed conservation measures could enable timely returns of such animals into their source populations.

Key words: European Pond Turtle, Balkan Peninsula, illegal trade, inadequate housing, pathology, impossible release/return to nature

Introduction

Illegal wildlife trade is “the second largest illegal trade in the world” (ZIMMERMAN 2003). In general, the rarer is the species, the higher is its price on the black market. Among chelonians, at least two extremely rare and critically endangered species are under severe illegal trade pressure, reaching prices of 60,000 USD per individual as for *Astrochelys yniphora*, the rarest chelonian in the world (LEUTERITZ & PEDRONO 2008, KIESTER et al. 2013) and for *Siebenrockiella leytensis* (ASIAN TURTLE TRADE WORKING GROUP 2000, MADAGASCAR RESEARCH AND CONSERVATION INSTITUTE 2016, TRAFFIC 2015b). In the past decades, illegal trade in various

animal species has been facilitated through the Internet (e.g. MĂRGINEAN & GHERMAN 2015).

Throughout the Balkans, several chelonian species are targeted by illegal collectors (both for individual use and for commercial operations) although, like in other European countries, many of them are protected by law (e.g. in Serbia, see ANONYMOUS 2010a, b). In previous years, much has been done concerning the education of regular and border police and customs officers, wildlife inspectors and judiciary in Serbia (e.g. AJTIĆ et al. 2011). These efforts resulted in increased number of confiscations of chelonians and various other animals. Nevertheless,

the level of knowledge is still very low regarding protected species and biodiversity in general among officials, judicature and in the general public.

Irrespective of formal protection, the European Pond Turtle, *Emys orbicularis* (L., 1758) (Testudines: Emydidae) is occasionally illegally harvested from the wild in many parts of its range (e.g. VELO-ANTÓN et al. 2008). Its international conservation status is “Lower Risk / Near Threatened”, largely due to wide distribution range; however, this IUCN assessment is from 20 years ago (TORTOISE AND FRESHWATER TURTLE SPECIALIST GROUP 2016). In numerous European countries, *E. orbicularis* is highly threatened and recognised as critically endangered or even locally extinct (FRITZ & CHIARI 2013, JABLONSKI et al. 2015). Extensive efforts and resources are devoted to its conservation (VELO-ANTÓN et al. 2008, AYRES et al. 2013, MOLLOV et al. 2013, CANESSA et al. 2016). These issues were addressed in detail in the 2015 symposium devoted to *E. orbicularis* and other European freshwater turtles (FRITZ et al. 2017). In Serbia, the European Pond Turtle is strictly protected (ANONYMOUS 2010b), but it is still Data Deficient and of Least Concern (KRIZMANIĆ & DŽUKIĆ 2015). Even basic information, such as precise data on its current distribution, were only recently published (KRIZMANIĆ et al. 2015) and further updated (GOLUBOVIĆ et al. 2017).

In the present article, we describe a case of legal rescue measures undertaken by the relevant authorities of the Republic of Serbia after the confiscation of an illegal shipment of over 1,300 European Pond Turtles at the border between the Former Yugoslav Republic of Macedonia and Serbia. The analysis of this case elucidates the inadequate level of preparation for solving such cases demonstrated by both state authorities and research community at the national and international levels.

Materials and Methods

In December 2012, on the border between FYROM and Serbia, 1,327 individuals of *E. orbicularis* were confiscated, and taken to the Belgrade Zoo, to be housed “temporarily” (SERBIAN CITES OFFICE, pers. comm.). The suspect for this smuggling attempt escaped, before the authorities could obtain information on the origin of turtles. According to expert opinion, the animals could have originated from natural habitats in FYROM, Albania and (or) Greece (SERBIAN CITES OFFICE, pers. comm.). Serbian scientific authority (herpetologist of the Institute for Nature Conservation of Serbia) identified, counted and sexed the animals: there were 674 males, 544

females and 109 juveniles. They were all placed in a shallow artificial pool (up to 1.3–1.5 m deep) where 30–50 European Pond Turtles of unknown origin have already been kept, along with several Red-eared Sliders (*Trachemys scripta elegans*). The entire enclosure where all these turtles were held (Fig. 1a) is smaller than 300 m²: this resulted in extremely high density of at least 4.5 ind./m² (Fig. 1b). This calculated density is far above those noted in natural populations (CADI et al. 2004, BALÁZS & GYÖRFFY 2006) being about six ind./300 m². A little central island exists in the pool, and along the shores there is certain amount of soil/gravel and reeds (suitable for basking, hiding, and for egg laying); several small logs near the reeds are also used for basking. There are also captive and wild aquatic birds, which can freely visit and leave the pond (this space was primarily intended for birds). In July 2014 (one and a half years after the confiscation), by the order of the Ministry of agriculture and nature conservation of Serbia, the authors checked the state of the turtles and took blood and tissue samples of live and dead individuals.

Results and Discussion

By July 2014, the zoo employees had found 105 carcasses of *E. orbicularis* in the enclosure. There is a probability that more dead animals were not found, being burrowed or sunken. The carcasses were kept in a cooler until further processing (Fig. 2): per local law, dead animals from confiscations must be checked, counted and officially written off before being eliminated.

The Ministry of Agriculture and Nature Conservation of Serbia has signed contracts with two zoos in Serbia (in Belgrade and Palić) for temporary acceptance and caring for the animals confiscated on Serbian borders. The zoos must accept confiscated animals, and the Ministry is obliged to provide subsistence for these animals if they are not publicly exhibited (SERBIAN CITES OFFICE, pers. comm.). The zoos (which often face difficulties with basic, day-to-day financing and maintenance) devote serious efforts to respond to such a difficult task. For the seized animals they must provide adequate conditions: space, food, temperature, humidity, conditions for hibernation, etc. All this is, however, sometimes not possible. Often no real quarantine is provided, and animals from various sources are housed together, often for long periods, like in our case.

One of serious complications which emerge from suboptimal housing is that animals can exchange diseases and parasites, and they can

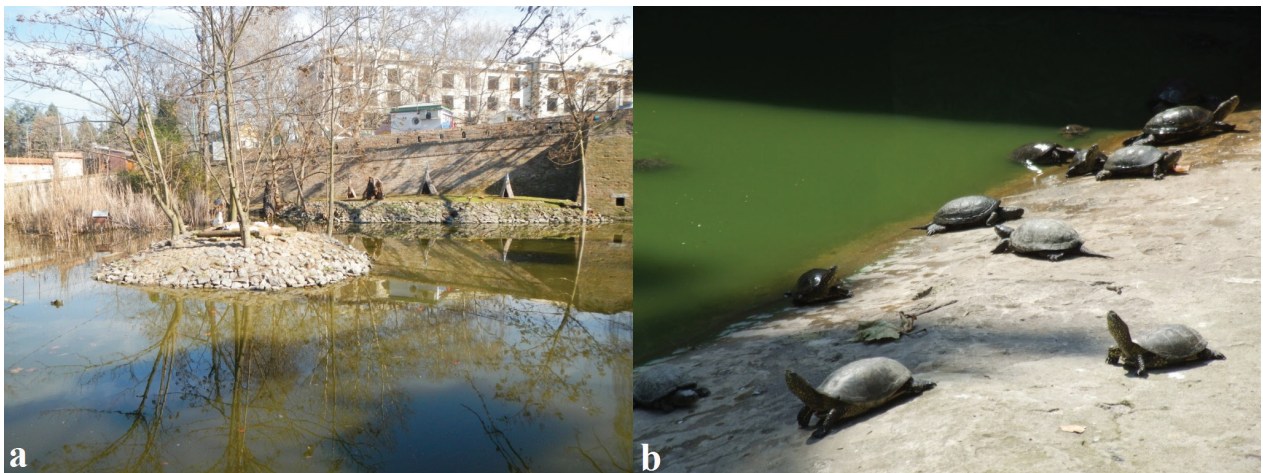


Fig. 1. (a) Part of the enclosure with turtles (picture taken on 22 February 2016, by S. N.); (b) high density of *E. orbicularis* on the shore (picture taken on 2 March 2014 by A. G.)

interbreed. These interactions “contaminate” animals in more than one way, and preclude their return into nature, even if their source population is known (i.e. confessed by the offenders). In cases of illegal collection of animals from the wild, such “contamination” problems probably start some time before shipping, given that animals have to be kept in some kind of enclosure until a satisfactory number is collected, often from several localities/populations. In the concrete case, the animals were transported in December, when they should be hibernating: their collecting from nature must have occurred several months earlier.

Approximately a year and a half after the confiscation of turtles, the zoo veterinarian and his colleagues found a number of diseases and other disorders in these animals: mycoses, bacterial and viral infections, ecto- and endoparasites, necroses, anaemia, complications with internal organs (ÖZVEGY et al. 2015, ÖZVEGY 2016). Also, they noted infestation of all sampled individuals ($n = 30$) with *Haemogregarina stepanowi* (ÖZVEGY et al. 2015, ÖZVEGY 2016). It is impossible to determine if the parasite came with the confiscated animals, or it was previously present in the captive turtles. The observed parasites and other maladies are present in natural turtle populations, including *E. orbicularis* (e.g. DVOŘÁKOVÁ et al. 2013) but at lower incidences. In Serbia, such investigations have not been performed before the study undertaken by ÖZVEGY et al. (2015). Their results confirmed our concerns regarding risks of keeping too many individuals under inadequate conditions. By the opinion of veterinarians and colleague biologists, *E. orbicularis* individuals cannot be released from the Belgrade Zoo in the given state.



Fig. 2. Dead *E. orbicularis* from the freezer in the zoo (picture taken on 18 February 2014 by A. G.)

Until the time of final preparation of this manuscript (December 2017, five years after the confiscation) no solution was found for these turtles: they are still in the zoo and there are no attempts at solving the problem. The authors have not repeated the visit to the enclosure with turtles, and no precise information exists on their current state.

The problem of illegal wildlife trade is neither unique nor uncommon in the Balkans, but is not easily documented. Actually, even in the European Union and even for the CITES-listed species it is often hard to obtain precise data on illegal wildlife trade with other parts of the world. For example, in 2013 and 2014, reptiles and their parts/derivatives comprised 19% and 18%, respectively, of “important individual seizures reported by Member States” (TRAFFIC 2014, 2015a). The numbers of unreported and “unimportant” incidents remain unknown.

Because illegal trade with wild animals is flourishing, we expect that in future more confiscations will be made on Serbian borders. This means higher demands for resources for adequate care and treatment of those animals. The problem of housing confiscated animals could be resolved if more space was provided for/in the zoos, and if acceptance programs were permanently financed by state authorities. Proper quarantine and health screening are costly in terms of both money and space, and sometimes are simply not possible. Also, interest about wildlife crime is often not among the state priorities.

Tragically, the number of individuals confiscated in our example is 2/3 the total number of captive-bred *E. orbicularis* (ca. 900) released into natural or restored habitats during costly reintroduction projects in Germany, Spain, Czech Republic and other countries, during several decades. This number was obtained from seven studies, covering much of Europe (MASCORT & BUDÓ 2017, MEESKE 2015, OTTONELLO et al. 2015, POGGENBURG et al. 2015, PUPINS et al. 2015, SCHNEEWEISS & BECKMANN 2015, ŠEBELA 2017).

Preferably, a regional centre should be built, where confiscated animals and unwanted (native or exotic) pets could be housed and cared for. However, a severe problem remains: what is to be done with confiscated animals? They cannot be kept in zoos/centres in unlimited numbers for long periods of time, nor can be released “somewhere” in a natural habitat in some Balkan or European country. Illustrative of this problem is the case of over a 1,000 individuals of *Testudo hermanni* confiscated on the border from Serbia to Hungary in 2014, which were “returned” to Bulgaria – after DNA analyses, with no consultation with Serbian experts (HUNGARIAN CITES OFFICE). The animals must not be released (returned) into nature without precise knowledge of their origin through a wide-range study of DNA profiles of natural populations. Ideally, the entire distribution ranges of the threatened species should be covered. Also,

if any health problem is detected, i.e. if captive or confiscated animals are found positive for any disease or increased load of (usually naturally present) parasites, they should not be taken anywhere to nature. Such projects are not impossible, but are time- and resources-consuming. Also, they imply constant involvement of experts from many fields (phylogeography, ecology, veterinary medicine; national and international law, etc.), from all countries covered by species ranges. A core of the best practices suggested in such occasions are summarized in “the Kiten protocol” (KORNILEV et al. 2017).

During the past few years, we made the first steps in Serbia. We managed to update distributional data and to collect tissue samples of *E. orbicularis* (and of some other species) from numerous wild populations. In future we must focus on DNA analyses and further population studies of wild European Pond Turtle populations, and on establishing cooperation with colleagues from other, primarily Balkan countries inhabited by *E. orbicularis*. Only an integrated approach can provide long-term persistence of this threatened species, which has already gone extinct in certain parts of its range.

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