POLICY BRIEF

Towards Sustainable Wildlife Trade:

THE CASE OF REPTILES AND AMPHIBIANS

THIS BRIEF

This brief is part of a series of three, being the result of a collaborative work carried out under the initiative of the Federal Public Service Health, Food Chain Safety and Environment (Belgium) within the framework of the 'One Health' initiative on the trade in exotic animal species. Its content is based on the background documents, the panel discussions, and the keynote presentations from the 'Towards a sustainable wildlife trade' conference organised in Brussels on 3 and 4 December 2019. The keynote speakers whose presentations made it possible to draw up this document are: Richard Griffiths (University of Kent), Marina Salas (Antwerp Zoo), Sonia Vanderhoeven (Belgian Biodiversity Platform), Frank Pasmans (Ghent University), Tim Adriaens (Research Institute for Nature and Forest), Véronique Servais (University of Liège) and Mark Auliya (Zoological Research Museum Alexander Koenig).

KEY POLICY RECOMMENDATIONS

- Implement a sustainable trade system for reptiles and amphibians
- Improve the legal and policy frameworks
- Invest in scientific knowledge

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CONTEXT

- Wildlife trade of animals and plants is one of the fastest growing markets internationally. With a **legal market worth €300 billion annually**[1] **and an illegal market** whose profits are estimated **between €6.5-22.3 billion per year**[2], wildlife trade has a dynamic global scope[3]. Main drivers of trade are luxury goods and food (36%), traditional medicine (25%), and pets and entertainment (22%)[4].

- The trade of wild exotic species, legal, illegal or not regulated, has become a major concern for a variety of reasons. Given that a large part of **animals are harvested in an unsustainable manner, wildlife trade is often seen as one prominent driver of animal extinction**[5,6,7]. Beside conservation issues, the uncontrolled trade of exotic species poses **a hazard to public health** through the potential spread of animal pathogens as demonstrated for the recent epidemics of **Severe Acute Respiratory Syndrome (SARS)** and highly suspected for the **Covid-19 outbreak**[9,10,26]. It can also bring high risks to wildlife health, livestock or crops[11]. In the past decade, the issue of wildlife trade has been identified as a major concern in the international policy arena. However, there are numerous constraints and limitations to monitor and successfully tackle this problem with current policy instruments[8].

- There is growing evidence of the key role that the European Union plays within the sphere of wildlife trade[5,13]. Estimates of the net value of the wildlife trade in the EU alone vary widely[18]. In 2013, Walley[1] estimated **the EU's legal share at approximately €100 billion, whereas van Uhm**[13] **estimated this in 2016 at €38 billion with 25% of it being illegal.** For decades, the EU has ranked as a top importer of wildlife[14,15], being a source, processing point and destination of wildlife trade. This includes both legal and illegal trade with a wide heterogeneity of compliance levels for the specific regulations among its Member States[16,17].

- Although reptiles and amphibians are vital components of the terrestrial and aquatic ecosystem worldwide, **their international trade is not regulated for 92% of reptiles and 98 % of amphibian species**[27].

- The increasing trade of reptiles and amphibians is a specific concern in the import of exotic species in Europe [19,20,21]. Unsustainable and unregulated trade in both live and products of reptiles and amphibians **poses several threats to the conservation of species and their habitats**[22,23]**, animal-welfare and potentially also human health and well-being**[24]. This applies to the areas of origin and the areas of importation.

KEYNOTE MESSAGES

Live trade of reptiles and amphibians: dealing with conservation, animal welfare and sustainable use

Unsustainable and unregulated trade in live reptiles and amphibians poses several threats to the conservation of species and their habitats[22]. Trade in live protected reptiles and amphibians seems to have changed during the last few years as a result of policy enforcement such as CITES[28], resulting in a decrease of wild caughts and an increase in ranched/captive bred animals[29,30,31]. This specific regulated trade, however, represents a very small portion of all reptile and amphibian species traded worldwide. Although captive breeding can reduce pressure on wild populations, it can also potentially undermine the livelihoods of people involved in legal and sustainable trade[32]. The supply-demand chain that drives the live trade in reptiles and amphibians is highly dynamic and presents challenges for conservation, animal welfare and sustainable trade and use.

Animal-welfare in the context of wildlife trade

Animal welfare is a multidimensional concept referring to an animal's nutrition, environment, health, behavior, and mental state[33]. Ensuring good animal welfare is important for ethical reasons, biodiversity conservation, public opinion, and legislation[34]. Little research has focused on the implications of wildlife trade for animal welfare. In general, wildlife welfare impacts are generally underreported[4]. This is nevertheless important as with growing wildlife trade, the associated welfare impacts are likely to increase as well. Trying to lower the stressful environment for animals kept in captivity, with more opportunities to perform varied and enriched behaviours, should be a priority. Amphibians and reptiles have cognitive capacities and the ability to experience pain[35]. **Welfare issues currently exist regarding capture, transport and keeping in captivity.**

KEYNOTE MESSAGES

Impacts of the trade and keeping of reptiles and amphibians on public health, animal health and animal welfare

Trade in reptiles and amphibians is impacting public health, animal health and welfare, and ecosystem functioning. The issues of the exotic animal industry must therefore be considered in a broader societal context[24]. The keeping of companion animals provides clear benefits for human wellbeing. Keeping pets promotes psychological, physiological and social health and development[36]. A specific positive aspect of keeping reptiles and amphibians could lie in the potential for public education, nurturing interest and dispelling prejudice on this particular group of animals. Companion animals, including reptiles and amphibians, can however also potentially adversely affect human health by inflicting trauma, transmitting infectious diseases (zoonoses), poisoning or provoking allergic responses[37]. **Captive and traded reptiles and amphibians constitute a large potential reservoir of pathogen pollution to native populations for many fungal and viral infections.** However, the epidemiology of many of these diseases is poorly understood. Regulatory measures need to be based on risk assessment criteria that are evidence-based and independent of public perceptions and pressure. They need to account for the levels of risk that the public is willing to bear and its ability to mitigate them[24].

Impacts of invasive herpetofauna on biodiversity

Invasive alien species constitute an important driver of biodiversity loss worldwide[38]. Introductions of invasive reptiles and amphibians in a territory are often linked to wildlife trade, more notably the trade in exotic pets and subsequent release or escape[39,40]. Impact mechanisms of invasive herpetofauna mainly relate to resource competition with native species, predation, food web disruption or pathogen transmission[41] such as the chytrid fungus *Batrachochytrium salamandrivorans* (Bsal), an unprecedented threat to European amphibians[42]. All these are currently affecting populations of native amphibians and reptiles in Europe, which also suffer from climate change and habitat reduction[43]. **Reliable tools such as risk assessment procedures already exist in Europe to provide scientific evidence needed to implement effective policy solutions[44].**

KEYNOTE MESSAGES

An ethnogeographic approach: who are the owners of reptiles?

Addressing the sociological context of wildlife keeping may contribute to better understanding the demand for wildlife. Recently, the University of Liège conducted an exploratory ethnogeographic study with 10 owners of reptiles through an ethnographic fieldwork[45]. The objective of this research was to collect the point of view of the owners and the significance they gave to the ownership of reptiles. The results indicate that people owning reptiles are far from the borderline stereotypical picture that is often drawn [46,47].

Challenges for a legal, sustainable and traceable trade in live amphibians and reptiles into the European Union

In 2005, the European Union was the top global importer of live reptiles for the pet trade sector as well as for reptile skins (for clothing)[14]. Europe still remains an important hub both for CITES and non CITES reptile and amphibian species, including some that are nationally protected in their country of origin [19]. In contrast with mammals and birds, assessing the value and dynamics of the trade of amphibians and reptiles is difficult given that **their international trade is mostly not regulated for more than 92% for reptile and 98 % for amphibian species[29].** National and international legislation is considered unbalanced and too weak to establish a sustainable and legal trade[11]. Lack of data on reptile and amphibian populations in the wild and lack of updated data on endangered species on the IUCN Red List lead to scientific uncertainty and knowledge gaps. This does not allow for updated and effective legal mechanisms needed to regulate the trade at international and European levels.

KEY RECOMMENDATIONS

IMPLEMENT A SUSTAINABLE TRADE SYSTEM FOR REPTILES AND AMPHIBIANS

A sustainable trade system can be implemented by:

- Discouraging trade in wild animals, while promoting sustainable captive breeding
- Establishing efficient and effective biosecurity measures minimizing the presence of pathogens throughout the supply chain
- Engaging all concerned actors towards improvement of conservation and sustainable use (researchers; hobbyists; professional keepers, breeders, importers and exporters; NGOs; civil society; government; policy-makers at national, European and international level)
- Facilitating collaborations between actors by implementing sound trade monitoring
- Encouraging knowledge exchange among actors

IMPROVE THE LEGAL AND POLICY FRAMEWORKS

Legal and policy frameworks can be improved in Europe and therefore in European Member States by:

- Ensuring current legal and policy frameworks are fit for purpose encompassing biodiversity, human health, animal health and animal-welfare concerns
- Explicitly addressing non-CITES listed amphibians and reptiles in the legal and policy frameworks
- Timely adapting the frameworks with new developments where needed, notably the adoption of a specific custom code for amphibians
- Ensuring proper enforcement by public authorities by providing adequate capacity and tools
- Ensuring proper compliance by the global supply chain

INVEST IN SCIENTIFIC KNOWLEDGE

Scientific knowledge can be improved by:

- Better characterising the volumes, sources, pathways of introduction, biological status and potential risks of traded reptiles and amphibians at national, EU and international level
- Improving data acquisition by increasing controls at borders and in pet shops taking into account sociological, economic, biological, epidemiological and legal approaches
- Establishing reliable, transparent and traceable dataflows on traded species following FAIR principles (Findable, Accessible, Interoperable and Reusable[25]) and allowing reproducible data analysis and interpretation
- Strengthening research on pathogens for consideration in risk analysis processes

For each recommendation, examples of concrete actions proposed by participants in the conference discussion groups can be found at the following link

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