



STOLEN WILDLIFE III



THE EU – A MAIN HUB AND DESTINATION FOR ILLEGALLY CAUGHT EXOTIC PETS

A report by Dr. Sandra Altherr & Katharina Lameter



1	SUMMARY	6
----------	----------------	----------

2	INTRODUCTION	7
----------	---------------------	----------

3	CASE STUDIES	8
----------	---------------------	----------

MEXICO	8
CUBA	10
COSTA RICA	12
BRAZIL	14
NAMIBIA & SOUTH AFRICA	16
OMAN	19
SRI LANKA	20
JAPAN	22
AUSTRALIA	24
NEW CALEDONIA	26

4	LEGAL SOLUTIONS FOR THE EUROPEAN UNION	28
----------	---	-----------

HOW MANY CITES-LISTINGS ARE REALISTIC?	28
WOULD CITES APPENDIX III LISTINGS SOLVE THE PROBLEM?	29
WHY AN EU LACEY ACT IS NEEDED	29

5

CONCLUSIONS AND RECOMMENDATIONS

32

CONCLUSIONS

32

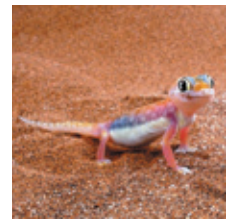
RECOMMENDATIONS

33

6

REFERENCES

34



GLOSSARY

AOO: Area of Occupancy

CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora

EFFACE: European Union Action to Fight Environmental Crime (EU-funded research project)

EOO: Extent of Occurrence

EU: European Union

F1: At least one of the parents is wild-caught

IUCN: International Union for Conservation of Nature

LCES: Law for the Conservation of Endangered Species of Wild Fauna and Flora

UNEP-WCMC: United Nations Environment Programme's World Conservation Monitoring Centre

UNODC: United Nations Office on Drugs and Crime

1. SUMMARY

The present report is the third edition of Pro Wildlife's "Stolen Wildlife" series and illustrates how wildlife traffickers are targeting a broad range of rare species from a variety of different geographic regions.

Almost three quarters of reptile species and more than 80 % of amphibian species in the European exotic pet trade are not listed under CITES. Nonetheless, many of these species are threatened in the wild and are consequently afforded a high level of national protection in their countries of origin.

Chapter 2 briefly describes how wildlife traffickers will often specifically target species that are not protected through CITES, given that their importation into most countries is poorly regulated. **Once animals have been successfully smuggled out of their country of origin, traffickers face no legal consequences, while their profits are often very high.**

In Chapter 3, we document the exploitation of more than 120 nationally protected reptile and amphibian species and present recent examples of this commercial black market trade, giving updates from Australia, Brazil, Costa Rica, Japan, Mexico, Oman, Sri Lanka, and new case studies from Cuba, New Caledonia, Namibia and South Africa. These case studies clearly indicate that:

- The demand of European "enthusiasts" for species, whether rare in the wild or seldom available on the market, remains high, making nationally protected species and new species, which have only recently described, especially attractive
- Capture of adult specimens, sexually mature or pregnant females, enables the smugglers to soon offer "captive-bred" offspring
- **To this day, the EU remains a major hub and consumer market for illegally exported wildlife, with European citizens regularly being involved in smuggling events and European trade shows serving as meeting points for smugglers and clients**

- Traders openly offer animals on the European exotic pet market, which are clearly of illegal origin, and bluntly justify higher prices by praising their rare availability

- **In the absence of legal consequences for importing, selling or keeping of species within the EU, which were illegally caught in their range state, the smuggling of amphibians and reptiles, which command prices of several hundred or thousand Euros, remains highly profitable.**

Chapter 4 summarises the different legal options that the EU has to combat this special type of wildlife crime. It reflects on whether CITES listings are appropriate or sufficient and what alternative measures should be considered. **It becomes evident that the protection of species through CITES and EU legislation is only reactive and limited to a fraction of the species found in commercial trade.** Moreover, the expansion of CITES Appendix III requested by range states would not solve the problem, leaving the sale, purchase or ownership of illegally-sourced animals listed in EU Annex C unpunished.

Chapter 5 provides conclusions and recommendations. **It is imperative that any new strategies and plans to fight the current extinction crisis and to conserve biodiversity should encompass new legislation banning the import, sale, purchase and possession of illegally-sourced wildlife.** Institutions and experts, including the European Parliament, EFFACE, the UNODC and the former CITES General Secretary John Scanlon, have been calling for such legislation to combat this special type of wildlife crime. **The US Lacey Act, which prohibits the import, transport, sale, and purchase of wildlife taken, possessed, transported, or sold either in violation of U.S. or foreign law, could provide a useful model.**

2. INTRODUCTION

Rarity sells – this is the golden rule of wildlife traffickers (Chen 2016; Lyons & Natusch 2013; Hall *et al.* 2008; Brook & Sody 2006). The high demand for rare species can drive targeted populations to extinction (Holden & McDonald-Madden 2017; Courchamp *et al.* 2006). Much of the trade takes place via online-platforms and social media, which facilitates global connection, communication and exchange between traders and clients, whether for legal or illegally-sourced wildlife (Di Minin *et al.* 2019; Lockwood *et al.* 2019; Runhovde 2018; EU Commission 2016a; Sollund 2016). The direct handover of animals is often arranged via international trade shows, such as the Terraristika in Hamm, Germany, which is the largest event of its kind in Europe (Hruby 2019; Jensen *et al.* 2019; Neslen 2015). Several studies on the international exotic pet trade show that the European Union is a key hub and destination for rare and often illegally-caught animals (Altherr *et al.* 2020; Janssen & Shepherd 2019; Musing *et al.* 2018; Auliya *et al.* 2016a,b; Nijman & Stoner 2014; Flecks *et al.* 2012).

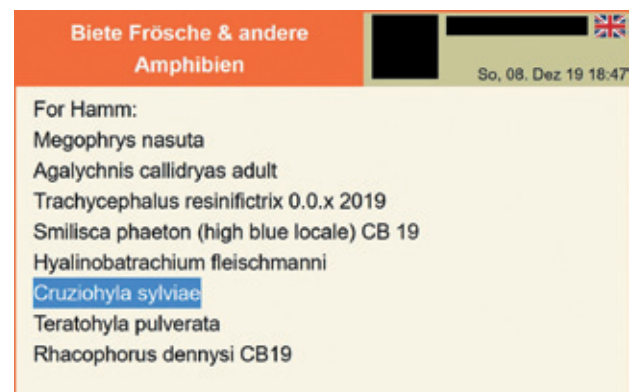
Reptiles are easy to smuggle. They are silent goods in suitcases and parcels, can often survive over long periods of confinement and rare species may fetch prices of hundreds or even thousands of Euros (Herr *et al.* 2020; Janssen & Krishnasamy 2018; Auliya *et al.* 2016a; Altherr 2014; Nijman & Stoner 2014). Although amphibians have higher mortality rates during transport, their smuggling from distinct biodiversity hotspots can also be very lucrative (Auliya *et al.* 2016b).

Of particular interest to collectors are animals that are uncommon in the commercial pet trade, including species, which are strictly protected by national law, though not internationally protected via CITES (Altherr *et al.* 2019; Janssen & de Silva 2019; Janssen & Leupen 2019; Nijman & Stoner 2014). These animals are poached and trafficked from their range states in order to feed a destructive commercial trade. Poachers

and smugglers often target gravid females, which enables them to falsely declare the offspring to have been bred in captivity (Allott 2018; Auliya *et al.* 2016a; Auliya 2003). Species that were only recently described or re-discovered are highly sought after among so-called “enthusiasts” due to their rarity. An increasing number of scientists are therefore warning that the details on a new species’ location should not be published, as those data would facilitate exploitation (Lindenmayer & Scheele 2017; Litzgus 2017; Neme 2011). Often such species, especially those with intense colours, striking patterns or particular biological features, are showing up in the European pet trade shortly after their scientific description has been published: For example, the colourful Sylvie’s tree frog (*Cruziohyala sylviae*), which was only described in 2018 (Gray 2018), was offered for sale at the Terraristika Hamm (Germany) in 2019 (Figure 1). Additional examples are given in chapters 3.1., 3.2. and 3.8.

The present report clearly illustrates how range states’ efforts to protect their native species continue to be undermined by traffickers and weak European laws.

Figure 1: New species *Cruziohyala sylviae* and other Latin American amphibians, offered at www.terraristik.com; trader from UK



3. CASE STUDIES: MEXICO



Biodiversity: With currently 962 recognised reptile and 397 amphibian species, Mexico is one of the world's champions in terms of biodiversity (AmphibiaWeb 2020; Uetz *et al.* 2019). 539 reptile and 274 amphibians are endemic to Mexico (Living National Treasures 2019), many of them are thought to be in a precarious conservation situation (Wilson *et al.* 2013), including those that are illegally caught for the pet trade.

National legislation: The "NORMA Oficial Mexicana NOM-059" identifies and lists threatened native species and populations, (SEMARNAT 2010). In accordance with Article 420 of the Código Penal (Criminal Code) capture of and commercial activity with wild animals and plants, which are endemic, in danger of extinction, threatened, rare or subject to special protection, is prohibited without proper permit. Legal commercial exports for species covered by NOM-059 are exceptional and limited to few species and specimens.

Illegal trade: Mexico's unique herpetofauna is regularly targeted by poachers (Mares 2019; Petrossian *et al.* 2018; Fitzgerald *et al.* 2004). In reaction to the massive illegal trade, Mexico, together with the EU, successfully proposed the CITES-listing of *Abronia* spp. at CoP17 in 2016 and *Ctenosaura* spp. at CoP18 in 2019. However, many more Mexican species are still exploited in violation of national legislation (Altherr *et al.* 2019; Auliya *et al.* 2016a):

According to official seizure records in Mexico (2000–2017) horned lizards (*Phrynosoma* spp.) and spiny lizards (*Sceloporus* spp.) are species, which are frequently traded illegally: *Phrynosoma* spp. is the most dominant genus, followed by *Sceloporus* spp. Furthermore, knob-scaled lizards (*Xenosaurus grandis* and *X. platyceps*), collared lizards (*Crotaphytus* spp.), and alligator lizards (*Mesaspis* spp.) appear in the official seizure records, most of them not identified on species level (PROFEPA 2019).

Online surveys of Mexican species offered in Europe mirror many of the species in Mexico's official seizure records. In addition, the following lizards were recorded on sale in Europe: the Critically Endangered San Martin fringe-limbed treefrog (*Ecnomiohyla valancifer*; Lee & Flores-Villela 2004), *Barisia imbricata* (Figure 2 & 3), *Diploglossus ingridae* (Figure 3), *Mesaspis gadovii*, *Petrosaurus thalassinus*, *Sauromalus hispidus*, *Xenosaurus newmanorum* and *X. platyceps*; among turtles several endemic species of *Kinosternon*, *Rhinoclemmys rubida* and *Trachemys yaquia*, as well as the snakes *Crotalus basiliscus*, *C. culminatus*, *C. polystictus*, *Mixcoatlus melanurus*, and Dunn's hognosed pitviper (*Porthidium dunnii*; Figures 2 to 5). Many of these species are threatened according to the IUCN Red List. Prices in Europe may reach 500 Euro per individual, with *C. culminatus* even offered for up to 1.500 Euro.

Besides the obviously illegal origin of species, which are nationally protected, online offers for newly described and obviously threatened species are of additional concern, as these are not yet covered by Mexican legislation, but would meet the criteria for inclusion.

• For example, the Emerald horned pitviper (*Ophryacus smaragdinus*) has only been described in 2015 (Grünwald *et al.* 2015) and has been recorded at a European pet market in 2018 (Altherr *et al.* 2020).

Figure 2: Several Mexican endemic species, offered at www.terrарistik.com; trader from Spain

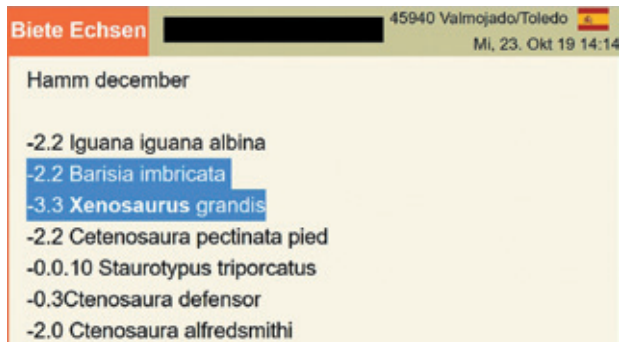


Figure 3: *Phrynosoma orbiculare*, *Xenosaurus grandis*, *Barisia imbricata*, and *Diploglossus (= Celestus) ingridae*, offered at www.terrарistik.com; trader from Spain

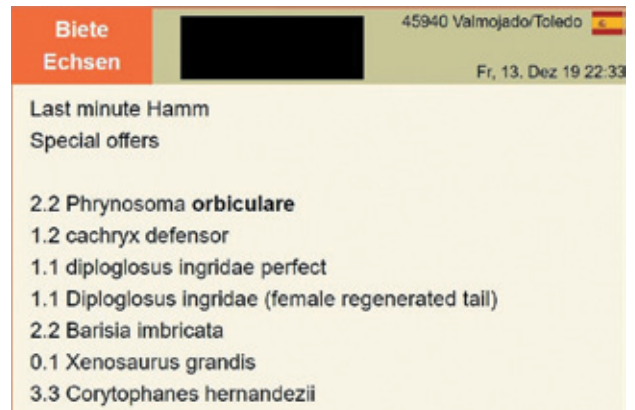


Figure 4: Several adult Mexican turtles of the genus *Kinosternon*, offered at www.terrарistik.com; trader from Italy

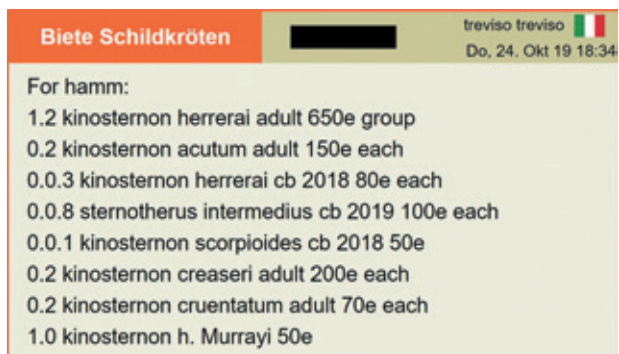
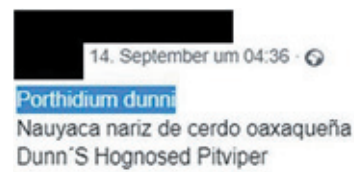


Figure 5: *Porthidium dunnii*, offered in Facebook Group "Rare Reptiles – Europe" (2018); trader from Germany



CUBA



Biodiversity: Cuba is part of the Caribbean Islands Biodiversity Hotspot with a high level of species endemism (Fong *et al.* 2015; Myers *et al.* 2000): The insular state is home to 173 reptile species, of which about 135 are only found in Cuba; 71 amphibians are native and 65 endemic (AmphibiaWeb 2020; Living National Treasures 2019; Uetz *et al.* 2019).

National legislation: Via Resolución No. 160/11 Cuba is protecting threatened species at national level that have a special role for biological diversity. Annex I lists species that are listed in CITES Appendix I, protected by the CMS or classified in Cuba's national Red List (González *et al.* 2012) as Endangered or Critically Endangered. Capture or export of Annex I species is only authorised for scientific purposes. Annex II lists, for example, CITES Appendix II or III species and all species considered as Vulnerable; any capture or export requires a permit by the environment authorities.

Illegal trade: Although several Caribbean species have been traded as pets for decades, there appears to be a recent surge in demand for endemic Caribbean reptiles (Noseworthy 2018). An online survey of the pet trade in Europe identified 23 reptile species endemic to Cuba, with at least 18 of them covered by Resolución No. 160/11 (Altherr *et al.* 2019). The survey recorded prices for Cuban species ranging from 10 to 3,000 Euro, with higher prices often correlating to a higher protection level.

All species of the genera *Chamaeleolis* spp. (now integrated in the genus *Anolis*), *Amphisbaena* spp., and the snakes of the genus *Arrhyton* spp., as well as most *Sphaerodactylus* species are listed in Annex I and therefore strictly protected. Nevertheless, those highly attractive species – some with a chameleon-like appearance, others with striking colours or patterns – are regularly found on sale in Europe (Figures 6 to 8), e.g. western bearded anole (*Anolis barbatus*), *A. chamaeleonides*, short-bearded anole (*Anolis guamuhaya*) or oriente bearded anole (*A. porcus*) – all of them protected under their old taxonomic affiliation to the genus *Chamaeleolis*. A new species of *Chamaeleolis* (Zahradníčková *et al.* 2017), offered in Figure 7, is also strictly protected by national legislation.

The Santiago de Cuba geckolet (*Sphaerodactylus dimorphicus*), Guantanamo Bay geckolet (*S. ruibali*) and Siboney gray-headed geckolet (*S. siboney*), all classified as Endangered in Cuba's national Red List, are strictly protected. Various offers of different adult pairs are therefore likely to indicate an illegal origin (Figure 9). Guantanamo coastal geckolet (*Sphaerodactylus armasi*), North Coast banded geckolet (*S. intermedius*) and Cuban broad-banded geckolet (*S. torrei*) were also recorded in online surveys of the European pet trade (Altherr *et al.* 2019). Further examples of Cuban Annex I species in European trade are Cuban worm lizard (*Amphisbaena cubana*) and Oriente brown-capped

racerlet (*Arrhyton redimitum*). The Cuban conservation authorities were not aware of the large range of Cuban endemic species being offered for sale in the European pet trade (Alvarez 2018).

Finally, the legal origin of many traded Cuban endemic species, which are nationally listed in Annex II, is dubious, e.g. for *Anolis argenteolus*, *A. baracoae*,

A. bartschi, *A. guafe*, *A. homolechis*, *A. imias*, *A. loysiana*, and *A. rejectus*.

In response to the ongoing sale of endemic and nationally protected lizards, Cuba requested the listing of nine *Anolis* (formerly *Chamaeleolis*) and 15 *Sphaerodactylus* species in CITES Appendix III, which came into force in September 2019.

Figure 6: Subadult *Anolis porcus* and adult *Anolis barbatus*, offered at www.terrarium.com; trader from Italy

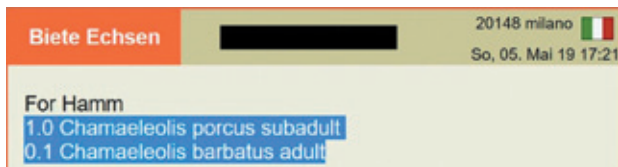


Figure 7: *Anolis guamuhaya* and new related species, offered at www.terrarium.com; trader from Czech Republic

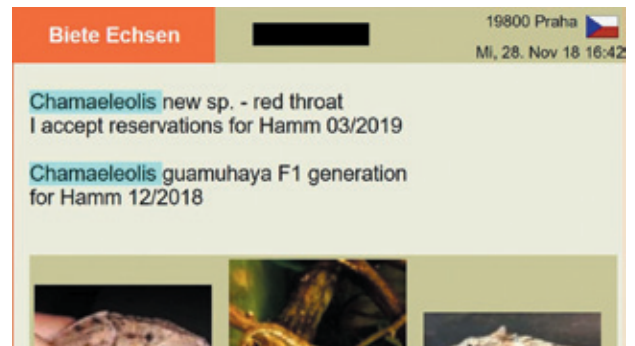


Figure 8: F1 specimens of strictly protected Cuban endemic species, Facebook Group "Rare Reptiles Europe"; trader from Czech Republic

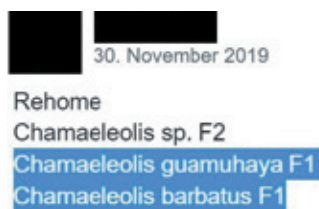
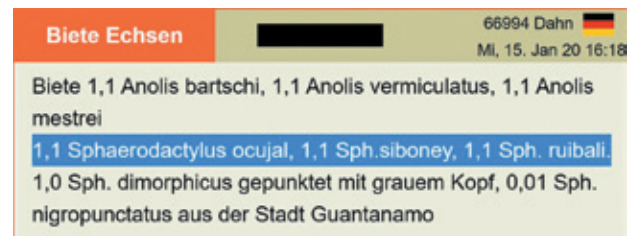


Figure 9: Several lizards, endemic to Cuba and strictly protected, offered at www.terrarium.com; trader from Germany



COSTA RICA



Biodiversity: Costa Rica has been considered to possess the highest density of biodiversity of any country worldwide (Obando Acuña 2002). It is home to 264 reptile and 211 amphibian species (AmphibiaWeb 2020; Uetz *et al.* 2019), of which 25 and 59, respectively, are considered to be endemic (Living National Treasures 2019).

National legislation: Costa Rica's native species are protected by the Wildlife Conservation Law No.7317 of 1992 (Ley de Conservación de la Vida Silvestre) and Regulation 40548 of 2017, which prohibit the removal of wild animals without special authorization from the government. Export of wildlife for scientific purposes requires a permit, while export for commercial purposes is prohibited.

Illegal trade: Many species native to Costa Rica can be found in the European pet trade; only few of them are endemic, most are also native to other Latin American countries with restrictive legislation. Costa Rica is regularly targeted by wildlife traffickers, as evidenced by seizures (Altherr *et al.* 2016; Fendt 2014a,b; Laufer 2010).

In 2017, a Dutch trader offered spiny cochran frogs (*Teratohyla spinosa*) as “farmbred import” from Costa Rica (Figure 10). However, Costa Rica's authorities confirmed that there is no commercial breeding farm for this species in the country (Vasquez 2017). This case illustrates how some traders are trying to conceal the wild-caught origin of animals. However, so far those traders do not risk any penalties in the EU, when selling non-CITES species that were illegally taken from

their country of origin. It is therefore no surprise that the same trader is still offering frogs that are native to Costa Rica. In Nov 2019, the grainy cochran frog (*Cochranella granulosa*) – referenced to Costa Rica – and other native amphibian species were put up for sale (Figure 11). In Dec 2019, he sold adult females of the powdered glass frog (*Teratohyla pulverata*), which is highly uncommon in captivity (Figure 12). One week later, he advertised specimens of the meadow treefrog (*Isthmohyla pseudopuma*) as “first time in the hobby”, while, at the same time, claiming that they had been “captive-bred” (Figure 13).

In reaction to the increasing indications for illegal off-takes of glass frogs from Costa Rica and other Latin American countries, Costa Rica submitted a listing proposal for CITES CoP18 to include four genera of glass frogs in CITES Appendix II (CoP18 Prop. 38). The proposal failed in a close vote. Accordingly, traders can still legally sell these species in Europe, even if they were illegally caught in the range state.

Not only amphibians from Costa Rica are targeted by collectors and traders. In 2017, a US trader offered a range of adult snakes from different Latin American and Caribbean locations for sale at the trade show in Hamm (Germany), including three pairs of ringed tree boas (*Corallus annulatus*) “from Costa Rica” (Figure 14). Other species in trade with explicit reference to Costa Rica include Picado's pit viper (*Atropoides picadoi*) and blotched palm-pit viper (*Bothriechis supraciliaris*).

Figure 10: *Teratohyla spinosa*, "farm-bred import" from Costa Rica, offered at www.terrарistik.com; trader from the Netherlands

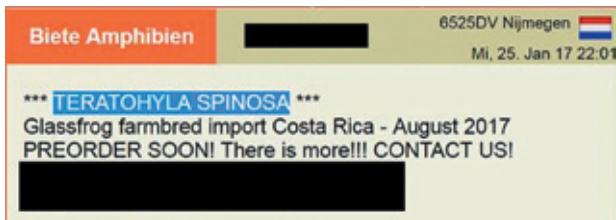


Figure 11: Same trader as in Figure 10, offering several frog species, reference to Costa Rica, offered at www.terrарistik.com

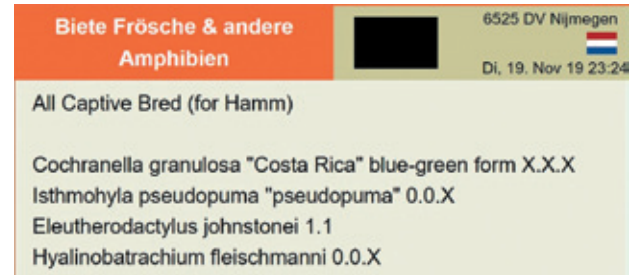


Figure 12: Adult females of *Teratohyla pulverata*, offered at www.terrарistik.com; same trader as in Figure 10 & 11

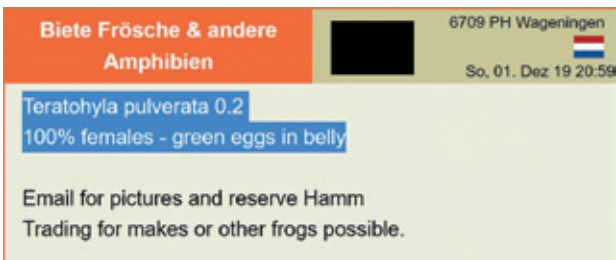


Figure 13: *Isthmohyla pseudopuma*, "first time in the hobby", offered at www.terrарistik.com; same trader from the Netherlands (as in Figure 10 to 12)

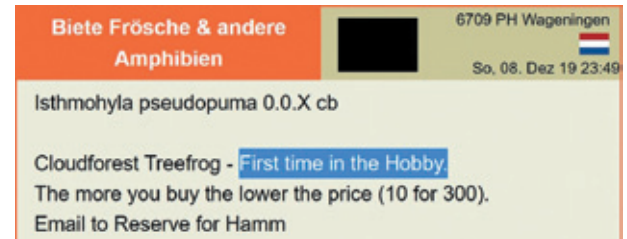
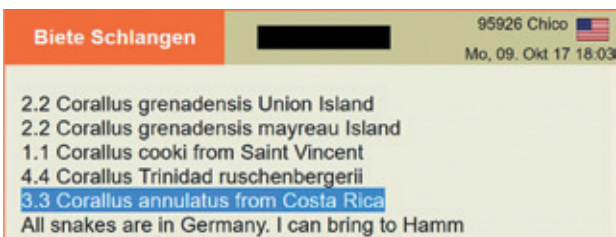


Figure 14: *Corallus annulatus* "from Costa Rica", offered at www.terrарistik.com; trader from the US



BRAZIL



Biodiversity: Brazil is at the top of the megadiverse countries, hosting 15 to 20 % of the world's biological diversity (UN ENVI 2019). The country is home to 826 reptile and 1,100 amphibian species, making it the richest country in the world in number of amphibian species (AmphibiaWeb 2020; Uetz *et al.* 2019). At least 364 of its reptiles and 759 of its amphibians are endemic (Living National Treasures 2019).

National legislation: According to Art. 29 of the Brazilian Environmental Crimes Law (Law 9, 605 as of 1998) "killing, chasing, hunting, capturing or using specimens of wild animals, whether native or on a migratory route, without proper permission, license or authorization from the authorities" is a crime. However, according to Guynup (2015) this is poorly enforced, and a legal loophole, allowing licensed wildlife breeders to operate, results in animals being captured illegally and then "laundered" as "captive bred".

Illegal trade: According to Art. 29 of the Brazilian Environmental Crimes Law (Law 9, 605 as of 1998) "killing, chasing, hunting, capturing or using specimens of wild animals, whether native or on a migratory route, without proper permission, license or authorization from the authorities" is a crime. However, according to Guynup (2015) this is poorly enforced, and a legal loophole, allowing licensed wildlife breeders to operate, results in animals being captured illegally and then "laundered" as "captive bred".

The reticulate leaf frog (*Pithecopus* (= *Phyllomedusa*) *ayeaye*) is classified by the IUCN Red List as Critically Endangered, being known from only one location (Caramaschi *et al.* 2016). In recent years, this extremely rare species has repeatedly been on sale in Europe, e.g. offered by a German trader, who also sold Burmeister's leaf frog (*Phyllomedusa burmeisteri*), another frog endemic to Brazil (Figure 15). The same trader had been arrested in 2014 in Costa Rica, with almost 400 reptiles and amphibians in his luggage (Fendt 2014a,b). Another trader praises *P. burmeisteri* as an "absolute rarity", (Figure 16). Both advertisements refer to alleged "captive bred" specimens. However, published reports on captive-breeding for both species are lacking.

In November 2015, a paper on the geographic distribution of the two-lined fathead anole (*Enyalius bilineatus*), a lizard endemic to Brazil, was published (Dantas Sales *et al.* 2015). Only few months later, three adult pairs of this species, were to be sold at Europe's largest reptile trade show in Hamm, allegedly "captive-bred" – and again offered by the trader, who has been convicted of reptile smuggling in Costa Rica (Figure 17).

During a twelve month online survey (Sep 2017-Sep 2018), the authors of the present report recorded many more herpetological species endemic to Brazil, for which the legality of offered species or their breeding parents is unclear. Among those species are, for

example, the Brazilian horned frog (*Ceratophrys aurita*), rufous toad (*Rhinella rubescens*), Brazilian snake-necked turtle (*Hydromedusa maximiliani*), Brazilian Galliwasp, sold for 1,200 Euro per pair (*Diploglossus lessonae*; Figure 18), tuberculate toadhead turtle

(*Mesoclemmys tuberculata*), Caatinga lancehead (*Bothrops erythromelas*), golden lancehead (*B. insularis*, classified as Critically Endangered by IUCN, Marques *et al.* 2004), Marajó lancehead (*B. marajoensis*), and Matogrossen hognose (*Xenodon matogrossensis*).

Figure 15: *Phyllomedusa burmeisteri* and *Phyllomedusa ayeaye*; offered at Terraristik.com; trader from Germany

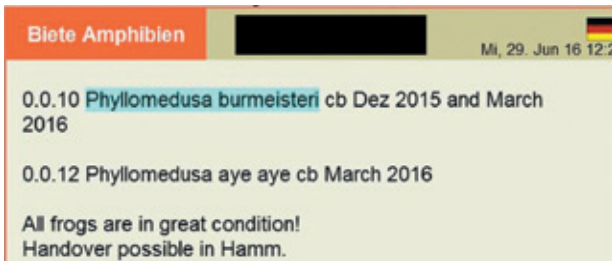


Figure 16: *Phyllomedusa burmeisteri*, advertised as 'absolute rarity'; Facebook Group "Rare Reptiles – Europe", trader from Germany

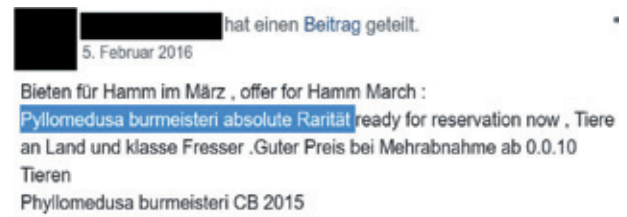


Figure 17: Three adult pairs of *Enyalius bilineatus*, Facebook Group "Rare Reptiles – Europe"; trader from Germany

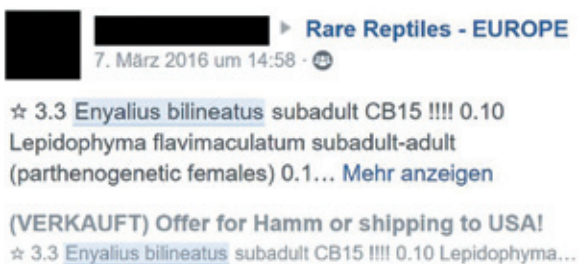
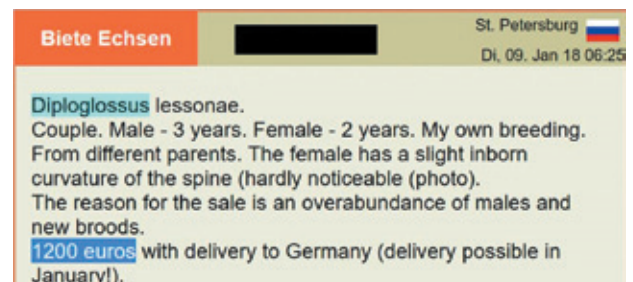


Figure 18: Adult pair of *Diploglossus lessonae* for 1,200 Euro; offered at Terraristik.com; trader from Russia



NAMIBIA & SOUTH AFRICA



Due to the fact that Namibia and South Africa share many threatened species, both countries are included in one case study:

Biodiversity: 45 of Namibia's 276 reptile species and three of its 45 amphibian species are endemic (AmphibiaWeb 2020; Living National Treasures 2019; Uetz *et al.* 2019). Species diversity is especially high in the Namib region (Herrmann & Branch 2013). South Africa is home to 480 reptile and 132 amphibian species, with at least 141 and 66, respectively, being endemic (AmphibiaWeb 2020; Living National Treasures 2019; Uetz *et al.* 2019). In the National Red List for reptiles of South Africa, Lesotho and Swaziland (2014), the reptile regional endemism was even calculated at 54 %, noting that the country has the richest national diversity of several lizard families in Africa (Bates *et al.* 2014).

National legislation: In accordance with Section 83 (2) of Namibia's legislation (Ordinance 4 of 1975) all wildlife resources are protected and cannot be taken from the wild without an appropriate permit (MET 2020). In South Africa, the capture of native wild animals requires a permit, to be issued by the relevant province in line with its provincial Nature Conservation Ordinance or Act (Endangered Wildlife Trust *et al.* 2018). On the national level, species can be listed as threatened or protected in terms of section 56 of the National Environmental Management Biodiversity Act (NEMBA) of 2004, which can prohibit capture and export. However, fragmented, outdated and unclear legislation is hampering clear proof of illegal activities (Pinnock 2018; Herbig 2010).

Illegal trade: According to experts from South Africa and Namibia many native reptiles are in high demand in the international pet trade because of their uniqueness, rarity, and/or threatened conservation status. Wild-caught animals are smuggled out of the country and often laundered as "captive-bred" (Bega 2020; Rasmeni 2020; NSPCA 2019; Parusnath 2019; SARATAG 2019; Warner 2009). Media reports confirm such illegal activities (Nombembe 2019; TRAFFIC 2019; Cruise 2018; Steyn 2015). Endemic threatened species, with no records of captive breeding, are showing up in European pet trade, while their legal origin is at least dubious, such as the western leopard toad (*Sclerophrys pantherina*), endemic to Western Cape Province in South Africa and classified by IUCN as Endangered (IUCN SSC ASG & SA-FROG 2016).

The Namib chirping gecko (*Ptenopus carpi*), not yet assessed by IUCN, is endemic to the Namibian part of the Namib Desert. Adult pairs of this species recently showed up in Europe (Figure 19). In the absence of captive-breeding reports for this rare species, it seems likely that these animals have been caught in the wild. Prices for a pair of chirping geckos range between 1,000 and 1,500 Euros.

Similar cases are the Namib sand gecko (*Pachydactylus rangei*) and the Namib Desert gecko (*P. vanzyli*), both not yet assessed by IUCN. *P. rangei* is endemic to the Namib Desert, with 80 % of its range within Namibia and the remaining area in the Namib region of South Africa and southern Angola. South African populations have been assessed as Critically Endangered (Bates *et*

al. 2014), the species is nationally protected. Nevertheless, both species are collected for the international pet trade and occasionally offered for sale in Europe (Figures 20 & 21); the same applies to the common banded gecko (*Pachydactylus mariquensis*) from Northern Cape, Prince Albert, Colesburg or Springbok.

Especially for dwarf adders, included in the genus *Bitis* spp., traders specifically name localities in Namibia (e.g. Keetmanshoop, Lüderitz, Mariental, Namaqualand, Rosh Pinah, Ruimte, Windhoek) and in South Africa (e.g. Lekkering, Limpopo, Mpumalanga, and Springbok; Figures 23 to 25). While some of those species do regularly breed in captivity, ongoing wild-caught sourcing is obvious. Following reports on intense illegal offtakes of reptiles from both Namibia and South Africa, a workshop was held in September 2019 in Cape St. Francis, South Africa (SARATAG 2019).

In Namibia, Peringuey's adder (*Bitis peringueyi*) is threatened with local extirpation due to collection for the international pet trade (Herrmann & Branch 2013). According to whistle-blowers, a group of citizens from different EU Member States is regularly visiting South Africa in the autumn, during the breeding season for snakes, aiming to collect gravid females from different species of *Bitis*. A few weeks later, they offer alleged "captive-bred" offspring of, for example, berg adder (*Bitis atropos*), southern adder (*B. armata*, classified as Vulnerable, Maritz & Turner 2019), desert mountain adder (*B. xeropaga*) and many-horned adder (*B. cornuta*) at the trade show in Hamm, naming exact localities, which may indicate respective collection points (see above).

While for several South African species the IUCN classification recognises the impact of exploitation for the pet trade – e.g. the speckled dwarf tortoise (*Chersobius signatus*) – for others this risk factor may be underestimated. For several species documented in the European pet trade, the IUCN assessments neglect trade (e.g. Bates 2018; Bates & Bauer 2018). Online surveys illustrate that adult specimens of, for example, the Transvaal gecko (*Pachydactylus affinis*) and Wahlberg's velvet gecko (*Homopholis wahlbergii*) are

on sale in Europe and the USA (Figure 26). In addition, the Maripi flap gecko (*Afroedura maripi*; Jacobsen *et al.* 2014), has since its description in 2014, been recorded in the pet trade. A timely IUCN assessment of this range-restricted species is required.

Finally, the ring-necked spitting cobra (*Hemachatus haemachatus*) is native to South Africa, Zimbabwe, Lesotho, and Swaziland. Most specimens in European pet trade obviously originate from South Africa, indicated by the named locations, e.g. Kokstad, Western Cape or Kwazulu Natal (Figures 22, 24 & 27). Prices range from 275 to 450 Euros per individual.

Figure 19: Adult pairs of *Ptenopus carpi*; offered at www.terrarakistik.com; trader from Germany

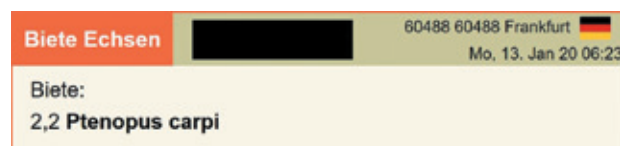


Figure 20: Six adult *Pachydactylus rangei*, Facebook group "Rare Reptiles - Europe" (dated 16 Jan 2020); trader from Germany



Figure 21: Three adult *Pachydactylus vanzyli*, Facebook Group "Rare and Uncommon Reptile Discussion Group"; trader from Germany (2020)



Figure 22: Adult *Hemachatus haemachatus*, offered at www.terrарistik.com, British trader

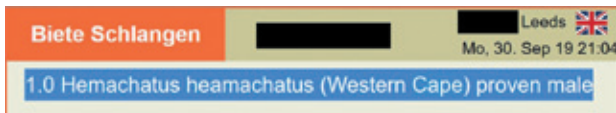


Figure 23: Adult *Bitis arietans*, with location from Namibia, offered at www.terrарistik.com; trader from Germany

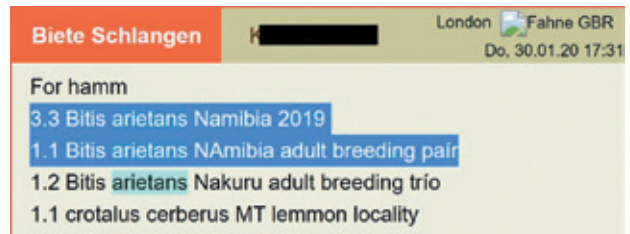


Figure 24: *Bitis xeropaga*, *B. cornuta*, *B. armata*, *B. atropos* and *Hemachatus haemachatus*; Facebook Group "Rare Reptiles – Europe"; trader from Croatia



Figure 25: Several *Bitis* sp.; including *B. cornuta*, with locations from Namibia and South Africa, offered at www.terrарistik.com; trader from Germany

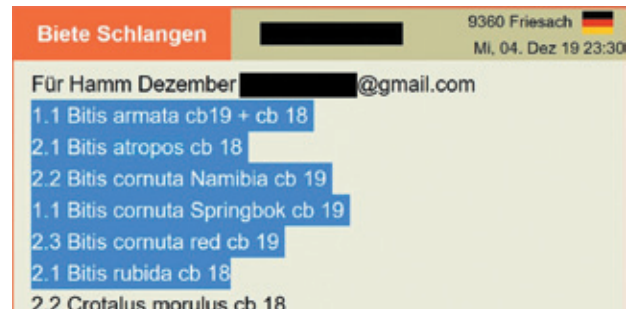


Figure 26: Several species from South Africa, to be sold in Hamm; offered at www.terrарistik.com; trader from Russia

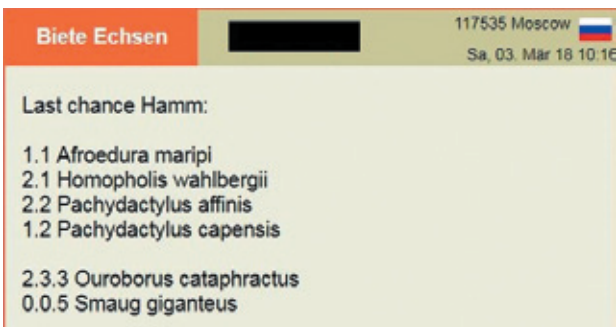
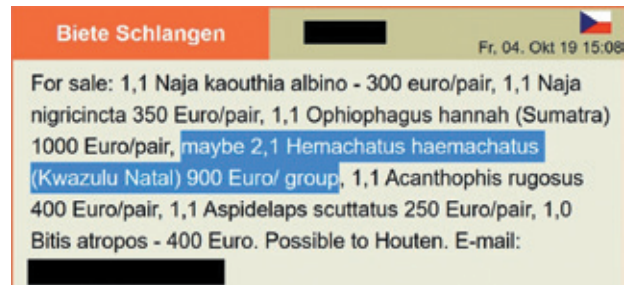


Figure 27: *Hemachatus haemachatus*, linked to Kwazulu Natal, South Africa; offered at www.terrарistik.com; trader from Czech Republic



OMAN

Biodiversity: The Arabian Peninsula with its diversity of desert and mountain habitats is well known for its richness in reptile species, especially in the regions Dhofar, Hajar, and Barr al Hikman in Oman (Cox *et al.* 2012; Gardner 2009). Oman is home to at least 242 reptile species, of which 18 are endemic (Living National Treasures 2019; Uetz *et al.* 2019). Due to the arid conditions only two frog species naturally occur in the country (AmphibiaWeb 2020).

National legislation: In accordance with “Royal Decree No. (6/2003) Issuing the Law on Nature Reserves and Wildlife Conservation” a permit by the Ministry of Regional Municipalities, Environment and Water Resources is required to collect live or dead wildlife or their parts for scientific research, economic or trade purposes. For a variety of species, e.g. Carter’s rock geckos (*Pristurus carteri*), commercial exports are fully banned (Sindaco *et al.* 2012).

Illegal trade: Although commercial export of *P. carteri* is prohibited specimens from different locations are regularly offered in the European pet trade and fetch high prices (Altherr *et al.* 2016; T. Wilms, cited in Sindaco *et al.* 2012). For most animals on sale Salalah and Masirah Island are named as localities, but recently new localities were also given, including Dhofar, Hallaniyat, Qairoon Hairiti, Thumrait, Sur, and Hijj (Figures 28 & 29). Specimens in trade are adults – likely indicating wild-caught animals – as well as offspring, often marked as “captive-bred”. However, the species is hard to keep and breed in captivity, with a low reproduction rate. Individuals occasionally found at reptile fairs are presumed to be illegally collected (T. Wilms, cited in Sindaco *et al.* 2012).

Recently, more species of this genus showed up in the European trade, such as the Wadi Kharrar rock gecko (*Pristurus gallagheri*), endemic to northern Oman, and the rock semaphore gecko (*P. rupestris*), with specimens offered in Europe being linked to localities in Oman, such as Djebel Shams and Saiq. The Gallagher’s rock gecko (*P. gallagheri*) is classified in the IUCN Red List as Near Threatened, despite its small area, but assuming “it is not currently subject to any threats” and “this species is not traded or used” (Sindaco & Mohammed 2012). However, the species has entered the

European pet trade. Furthermore, a German trader offered adult specimens of the birdhead rock gecko (*P. ornithocephalus*) and a new *Pristurus* species. On his website, he stated that these animals originate from Oman and that he would present details on exact localities only to his clients, to not encourage further collections from the wild. The same trader also sells adult Arabian sand skinks (*Scincus mitranus*) with reference to Oman.

During a twelve month online survey, more species native or even endemic to Oman were recorded in the European pet trade, including the mountain leaf-toed gecko (*Asaccus montanus*) and the Tawi Atair half-toed house gecko (*Hemidactylus alkiyumii*; Altherr *et al.* 2020). *A. montanus* is classified in the IUCN Red List as Vulnerable, due to its small distribution area (Al Rasbi *et al.* 2013) – and this might be underestimated, given the fact that the assessors were not aware that this species is in trade. *H. alkiyumii* has only been described in 2012 (Carranza & Arnold 2012), but is already on sale in Europe.

Figure 28: Twelve adult *Pristurus carteri*, with reference to two locations in Oman; offered at www.terrartistik.com; trader from Germany

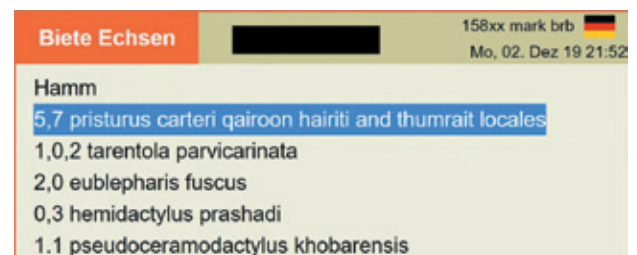
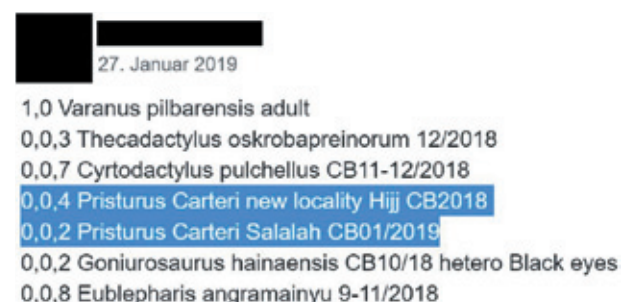


Figure 29: Offspring of *Pristurus carteri*, reference to Salalah and new locality Hijj in Oman; Facebook (2020); trader from Czech Republic



SRI LANKA



Biodiversity: Sri Lanka is well known for its species diversity (Erdelen 2012; Weerakoon 2012; Gunatilleke *et al.* 2008). The country is home to 236 reptile species, of which about 62.6 % are considered to be endemic (Gibson *et al.* 2020; Uetz *et al.* 2019). Sri Lanka's 6th National report to CBD (2019) revealed the distinct zonations of terrestrial and marine reptiles, indicating their range limitations.

National legislation: In accordance with Section 30 of the Fauna and Flora Protection Ordinance of Sri Lanka (FFPO), all reptiles are protected, and thus must not be collected, including outside of protected areas. Section 40 of the FFPO completely prohibits the export of any reptile from Sri Lanka, including eggs or parts, without a permit from the Director General of the Department of Wildlife Conservation. Such exceptional permits are only possible for the promotion of scientific knowledge and research.

Illegal trade: In recent years, several studies and news articles have illustrated an ongoing trade in adult and sub-adult reptiles endemic to Sri Lanka, despite strict national legislation (Gibson *et al.* 2020; Hettiaarachchi 2020; Janssen & de Silva 2019; Malsinghe *et al.* 2017; Rodrigo 2012; Figure 30). In response to the alarming trade levels, Sri Lanka's Government in 2019 proposed the inclusion of ten endemic agamid species in CITES Appendix I. For five species, this request was confirmed at CITES CoP18 (*Ceratophora erdeleni*, *C. karu*, *C. tennentii*; *Cophotis ceylanica*, *C. dumbara*), three were listed in CITES Appendix II with a zero quota for wild-caught specimens (*Ceratophora aspera*, *C. stoddartii*;

Lyriocephalus scutatus), while for two *Calotes* species the proposal was withdrawn (CITES 2019; Rodrigo 2019).

However, trade in *Calotes* remains a matter of concern. A twelve month online survey by Altherr *et al.* (2020) recorded at least six *Calotes* species in the European pet trade, of which four are endemic to Sri Lanka: Ceylon bloodsucker (*C. ceylonensis*), morningside lizard (*C. desilvai*), black-lipped lizard (*C. nigrilabris*; Figure 31) and Pethiyagoda's crestless lizard (*C. pethiyagodai*). According to the country's national Red List, *C. desilvai* is classified as Critically Endangered, *C. nigrilabris* as Endangered (MOE 2012); *C. pethiyagodai* was described in 2014 and has not yet been assessed (Amarasinghe *et al.* 2014). Recent trade in *Calotes* sp. with mostly adults on sale is an indicator for repeated smuggling events. While in the meantime some captive offspring is offered, the legal origin of the breeding stock must be doubted.

Other species that are endemic to Sri Lanka, but not yet internationally protected and occasionally sold in Europe are, for example, the Sri Lankan kangaroo lizard (*Otocryptis wiegmanni*; Figure 32), the blotch bowfinger gecko (*Cyrtodactylus yakhuna*, formerly *Geckoella yakhuna*) and Bahir's fan-throated lizard (*Sitana bahiri*), which was only acknowledged as a distinct species in 2015 (Amarasinghe *et al.* 2015). *C. yakhuna* is classified as Vulnerable in Sri Lanka's national Red List (MOE 2012). Furthermore, the Ceylon pit viper (*Trimeresurus trigonocephalus*) is regularly sold in Europe (Figure 33; Janssen & de Silva 2019).

Figure 30: Adult pair of *Lyriocephalus scutatus*, 1,000 Euro each; Facebook group "Rare Reptiles - Europe" (2018), trader from Czech Republic

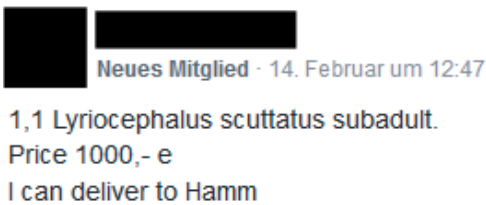


Figure 31: Several endemic species, including adult *Calotes nigrilabris* from Sri Lanka, Facebook group "Rare Reptiles – Europe", offered for Hamm; Spanish company

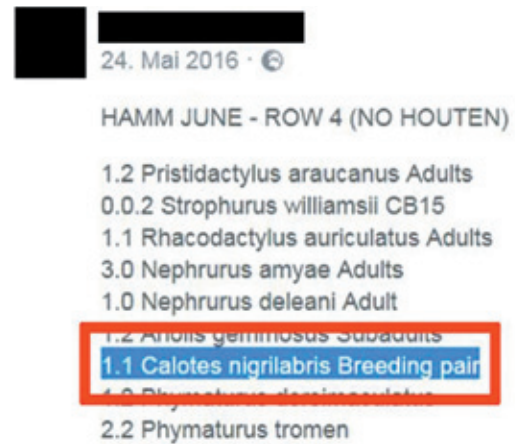
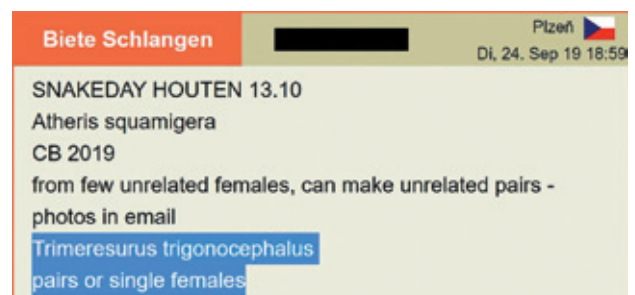


Figure 32: *Otocryptis wiegmanni*, marked as "F1", indicating wild breeding stock. Facebook group "Rare Reptiles - Europe" (2018), trader from Germany



Figure 33: Unknown number of *Trimeresurus trigonocephalus*, offered at www.terrarium.com, trader from Czech Republic



JAPAN



Biodiversity: The reptile database currently lists 97 valid species in Japan (Uetz *et al.* 2019), of which about 46 are endemic (Living National Treasures 2019). The country is home to 93 amphibian species, with 45 frog and 48 salamander species (AmphibiaWeb 2020) and at least 63 endemic amphibian species (Living National Treasures 2019).

National legislation: The Law for the Conservation of Endangered Species of Wild Fauna and Flora (LCES; Act. No. 75, 1992) mainly applies to CITES Appendix I species, but it also covers non-CITES species that are classified as Critically Endangered in Japan's national Red List. More native species may be designated as protected under Japan's national legislation for ecological or cultural reasons, i.e. as "National Natural Monument" under the Law for the Protection of Cultural Properties (Act No. 214 of 30 May 1950), which prohibits captures. Furthermore, local authorities can protect them as a "Prefectural Natural Monument".

Illegal trade: Several threatened reptile and amphibian species, which are endemic to Japan and nationally or regionally protected, regularly show up in the international exotic pet trade. While those species were also recorded in China and USA (Kanari & Xu 2012), many traders and clients are based in Europe, with Czech Republic, Germany, France, and the United Kingdom being the most predominant countries (own records; Janssen & Shepherd 2019).

The Toyama's ground gecko (*Goniurosaurus toyamai*) is limited to a tiny distribution range of only about 20 km² at Iheyajima Island in Okinawa Province, where it is protected as Prefectural Natural Monument. Due to its classification as Critically Endangered in both the IUCN's global and Japan's national Red Lists (MOE 2019; Kidera & Ota 2017a), it is nationally protected by the LCES. The species is regularly offered in Europe, for 800 to 1,000 Euro per individual, "true F1 hatchlings" indicate that parents originated in the wild (Figure 34). The Yamashina's ground gecko (*Goniurosaurus yamashinae*) is confined to the island of Kumejima in Okinawa Province and covered by the Prefectural Natural Monument. Due to its EOO of only about 60 km², it is classified as Critically Endangered in the global IUCN Red List and Japan's national Red List 2012 (MOE 2019; Kidera & Ota 2017b). Nevertheless, Janssen & Shepherd (2019) found it was the most frequently encountered Nansei Island endemic species in their online survey. Also, online offers in the EU for adult specimens are regularly observed (Figure 35), with prices ranging from 70 to 220 Euro each.

The Japanese warty newt (*Echinotriton andersoni*), classified by the IUCN Red List as Endangered (Kaneko & Matsui 2004), is protected as Prefectural Natural Monument in Okinawa and Kagoshima. This species is regularly available in international trade, including the European market, reaching prices of up to 180 Euro (Janssen & Shepherd 2019; UNEP-WCMC 2016). While

part of the trade may derive from captive-breeding, illegal activities are ongoing. For example, in 2016, nine specimens, illegally caught in Okinawa and smuggled to Belgium, were returned home (Kyodo 2016).

In other cases, the origin of species in European trade is more difficult to identify. The Miyako grass lizard (*Takydromus toyamai*) is classified by the global IUCN

- Red List as Endangered and until recently was only locally protected in Miyakojima city (Kidera & Ota 2017c;
- Kanari & Xu 2012). Due to its new classification in the
- Japanese national Red List as Critically Endangered,
- this lizard is now nationally protected via LCES (MOE 2019). The species is regularly found on sale for about
- 200 Euro (Figure 36; Janssen & Shepherd 2019), while
- breeding reports are absent.

Figure 34: *Goniurosaurus toyamai*, "F1", indicating wild-caught parents, 1,000 Euro each. offered at www.terrarium.com, trader from UK

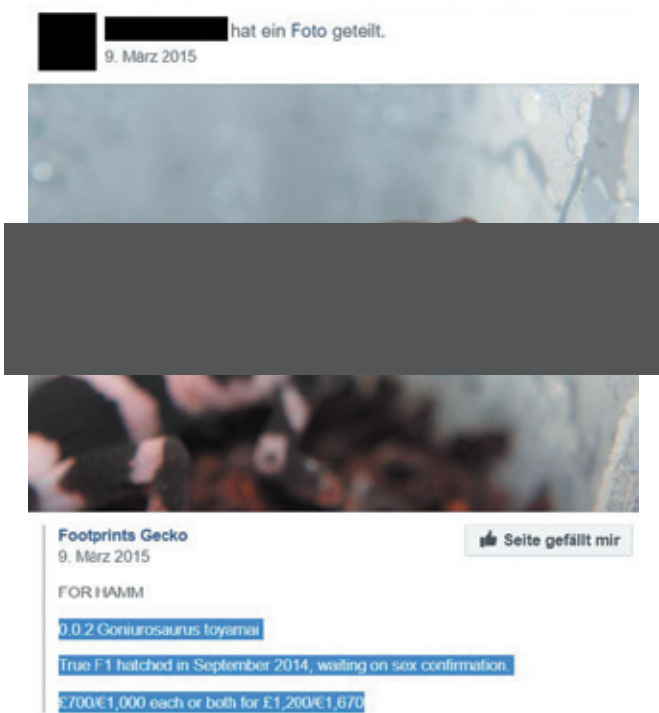
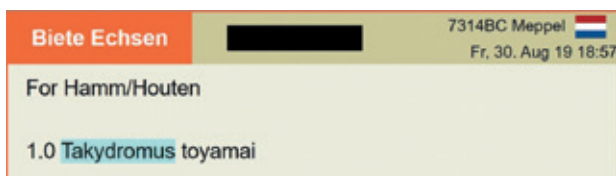


Figure 35: Online advertisement in the Facebook group "Rare Reptiles - Europe" for *Goniurosaurus yamashinae*, trader from Czech Republic



Figure 36: Adult *Takydromus toyamai*, offered at www.terrarium.com, trader from the Netherlands



AUSTRALIA



Biodiversity: Australia is one of the 17 mega-diverse countries and known for its enormous herpetological diversity: With at least 1,096 recognised reptile and 245 amphibian species Australia's herpetofauna is outstanding (AmphibiaWeb 2020; Uetz *et al.* 2019), with 963 and 226, respectively, being endemic (Living National Treasures 2019; Mittermeier & Mittermeier 2004).

National legislation: In Australia, export of live native Australian mammals, birds, reptiles and amphibians for commercial purposes is prohibited (DOE 2020) – in accordance with the Environment Protection and Biodiversity Conservation Act 1999, which came into force in July 2000. Native wildlife was previously protected by the Wildlife Protection (Regulation of Exports and Imports) Act 1982.

Illegal trade: Australia's unique herpetofauna is highly sought-after in the international pet trade, as indicated by regular seizures (Drevikovskiy 2020; Herr *et al.* 2020; Beniac-Brooks 2019; Parke 2018; Dean 2015; Menagh 2015; Fettes 2014; Towie 2009). However, seizures represent only the tip of the iceberg and a variety of Australian endemic species that recently appeared in the European pet market raises questions about their legal origin. A recent online study identified 66 lizard species that were offered at European websites and Facebook groups, with some species of the genera

: *Nephrurus*, *Saltuarius* and especially *Tiliqua* and *Egernia*, among the most expensive (Altherr *et al.* 2019). Specimens of these species are often sold as adults, sometimes naming localities, such as "Tasmania" (Figures 37 to 40).

: The IUCN Red List classified pygmy blue-tongue lizards (*Tiliqua adelaidensis*) as Endangered and states in its assessment: "This species is not legally available in the pet trade" (Fenner *et al.* 2018). The species was thought to be extinct until its rediscovery in 1992 (Hutchinson *et al.* 1994), resulting in a national recovery plan (Milne *et al.* 2000). It showed up in the European pet trade for the first time in 2018. At that time, all specimens on sale were obviously adult, some even gravid (Figure 39), with interim record prices of about 1,000 Euro per animal. A few months later "captive-bred" offspring were offered.

: Eight frilled-necked lizards (*Chlamydosaurus kingii*), offered by a Swedish trader in 2018, were also clearly of illegal origin. The species is restricted to southern New Guinea (Indonesia & Papua New Guinea) and Australia. While Indonesia allows legal exports, the Facebook advertisement explicitly stated "those are NOT new guinea dragons and the price is therefore higher" (Figure 41) – confirming the illegal source as justification for a higher price. The species is highly sought after in the pet trade (O'Shea *et al.* 2017).

For several Australian endemic snakes, which are reaching record prices, the legal origin is at least doubtful. For example, the Kimberley death adder (*Acanthophis cryptamydros*) was only described in 2015 for the first time, but has already been offered on

the European pet market. Furthermore, for common death adders (*Acanthophis antarcticus*) traders request 1,200 Euro per individual, naming specific localities such as Djarra or Sydney. Smuggling events for this species are reported, e.g. by Towie (2009).

Figure 37: Two adult *Saltuarius salebrosus*, offered on Facebook; trader from Russia



Figure 38: Two adult pairs of *Tiliqua nigrolutea*, with reference to Tasmania, offered at www.terrarium.com; trader of unknown origin

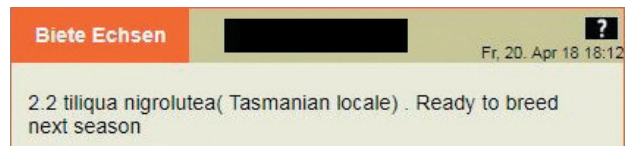


Figure 39: Two adult pairs of *Tiliqua adelaidensis*, one "possibly gravid", plus offspring, offered at www.terrarium.com; UK trader

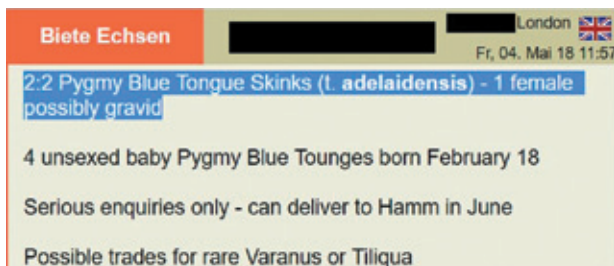


Figure 40: Three adult *Egernia pilbarensis*, "only ones in captivity (??)", 7,500 Euro; offered at www.terrarium.com; trader from the Netherlands

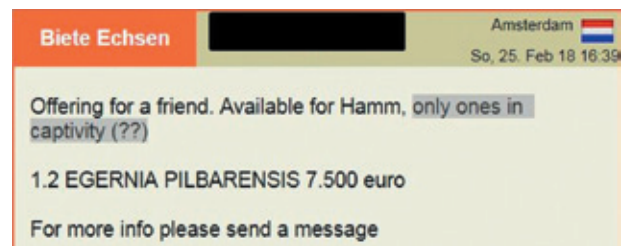
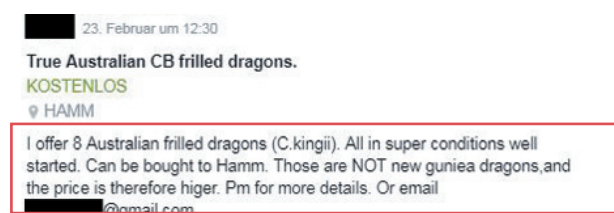


Figure 41: Eight *Chlamydosaurus kingii*; illegal origin from Australia highlighted, Facebook (2018); trader from Sweden



NEW CALEDONIA



Biodiversity: The IUCN describes New Caledonia as the “smallest single biodiversity hotspot in the world” (IUCN 2012). At present, 131 reptile species are considered native (Uetz *et al.* 2019), with 99 of them being endemic (Living National Treasures 2019), and a remarkable diversity of geckos (Bauer *et al.* 2012, 2009). There are no amphibians native to New Caledonia.

National legislation: The New Caledonian Provinces Nord and Sud strictly protect all their native animal species against capture, transport, usage or sale: Province Nord via its Code de l’environnement (Délibération n° 2016-98/BPN /APN, 10 June 2016), and Province Sud via its Code de l’environnement de la Province Sud (Délibération n° 333-2019/BAPS, 23 April 2019).

Illegal trade: Several New Caledonian species with a precarious conservation status are highly sought-after in the exotic pet trade, especially since they are not yet protected by CITES (Auliya *et al.* 2016; UFZ 2016) and reach high prices (Figure 43). Smuggling events of New Caledonian reptiles have been reported since the 1990s (de Vosjoli 2012; Manzano 1998). While illegally sourced animals became the breeding stock for some species, for others illegal offtake obviously continues until today.

A German trader offered individuals of five endemic species (Figure 42), naming distinct locations of the New Caledonian gecko (*Mniarogekko jalu*) and the mossy New Caledonian gecko (*M. chahoua*) (Ile Art, in Province Nord, and Kotomo, in Province Sud) and

highlighting the rarity of specimens from Ile Kotomo as “Super rare. Maybe the only pair available worldwide.” Nevertheless, he declares all animals to have been “captive-bred”. Several other species in his advert are true rarities, too.

The symmetrical gecko (*Eurydactylodes symmetricus*) is classified by IUCN as Endangered (Whitaker *et al.* 2010a) and the western chameleon gecko (*E. occidentalis*) as Critically Endangered, due to its tiny AOO of about 2.5 km² (Figure 42; Whitaker & Sadlier 2011). Prices for such rare chameleon geckos may reach up to 1,000 Euro per individual (Figure 43). In 2014, the same German trader was arrested for reptile smuggling in Costa Rica (Fendt 2014a,b), but he continues to regularly offer endemic and nationally protected species from all over the world.

In Figure 44, offspring of wild-caught specimens (F1) of Gunther’s New Caledonian gecko (*Bavayia cyclura*) and Sauvage’s New Caledonian gecko (*B. sauvagii*) are offered, naming locations. The Nehoué River is located in Province Nord, the Mount Koghi in Province Sud – in both Provinces collection of native species is prohibited. Accordingly, the breeding stock of those animals is likely of illegal origin. In January 2020, offspring of wild-caught specimens (F1) of sclerophyll bavayias (*B. exsuccida*) was presented in the Facebook group “New Caledonian Endemics” as “some of the first ever captive-bred specimens” (Figure 45). This species is endemic to and protected in Province Nord and is classified as Endangered by the IUCN Red List (Whitaker *et*

al. 2010b). Nevertheless, the species has been repeatedly found in the European pet trade (Altherr *et al.* 2020).

While captive breeding of the New Caledonia giant gecko (*Rhacodactylus leachianus*) from several locations has been successfully established (with Pine Island and

Mt. Koghi the most often named locations), specimens with new colours and patterns from new sites are highly attractive for collectors. In Figure 46, an adult pair from the location Houailou in Province Nord is offered, praised as “the only pair available worldwide”. Other species of this genus found in trade are *R. auriculatus* and *R. trachycephalus*.

Figure 42: Several species of *Eurydactylodes* and *Mniarogekko*, different locations; Facebook (2019); trader from Germany

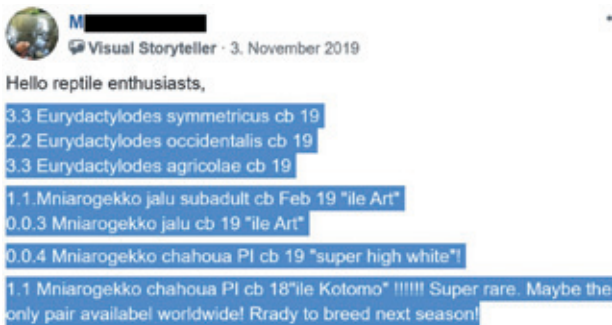


Figure 44: Several species of *Bavayia*, prices up to 1,000 Euro per animal; offered at www.terrарistik.com; trader from Germany

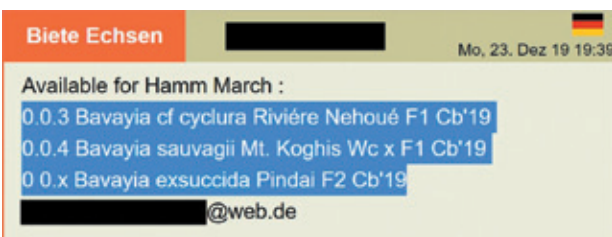


Figure 46: Pair of *Rhacodactylus leachianus*, “only pair available worldwide”; offered at www.terrарistik.com; trader from Germany

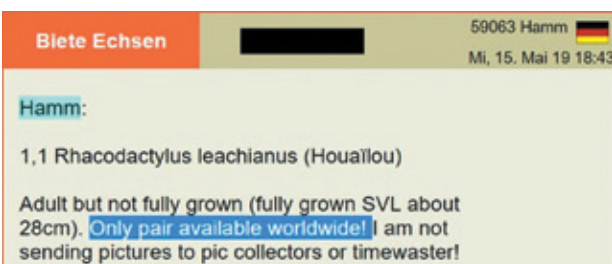


Figure 43: Several species of *Eurydactylodes* and *Rhacodactylus*, up to 1,000 Euro per animal; offered at www.terrарistik.com; trader from Czech Republic

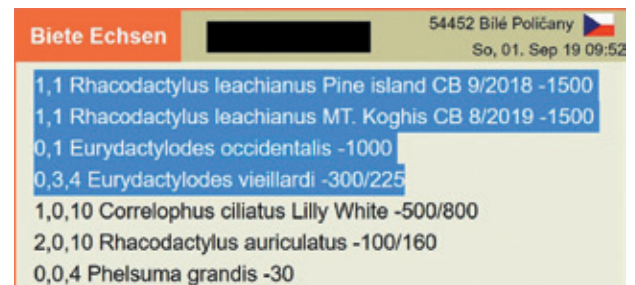


Figure 45: Three adult *Bavayia exsuccida*, “some of the first ever captive-bred specimens”; Facebook; trader from Germany



4. LEGAL SOLUTIONS FOR THE EUROPEAN UNION

Pro Wildlife's report "Stolen Wildlife" documented the systematic trade in non-CITES-species taken illegally from their country of origin for the first time (Altherr 2014). A second report followed two years later, illustrating more cases of this specific form of wildlife trafficking from several range states (Altherr *et al.* 2016). An increasing number of studies and seizures continues to confirm not only the ongoing trade in nationally protected reptiles and amphibians, but also the leading role of the EU as a main hub and destination for these species (Rasmeni 2020; Altherr *et al.* 2019; Janssen & de Silva 2019; Janssen & Shepherd 2019; Rodrigo 2019; Shepherd *et al.* 2019; Noseworthy 2018; Auliya *et al.* 2016; Kyodo 2016).

These publications have caught the attention of various CITES Parties, different EU institutions and the wider conservation community and have ultimately led to the inclusion of several dozens of taxa in the CITES Appendices. However, fundamental questions still remain:

- Are the listings of individual species on CITES enough to prevent illegal trade in an almost unlimited number of species from a steadily changing range?
- Is the protection of just a fraction of traded species sufficient to meet the precautionary principle to which the EU is obliged to abide in its environmental policy by Article 191 of the Treaty on the Functioning of the European Union?
- And finally, what legal options does the EU have at its disposal to combat this type of wildlife crime?

4.1 How many CITES-listings are realistic?

The process of including species in Appendix I of CITES (which prohibits international commercial trade in wild specimens) or Appendix II (which requires permits and the prior making of Non-Detriment and Legal Acquisition Findings) is slow. Meetings of the Conference of the Parties take place only every three years, the Parties often have a limited capacity to develop proposals and listings are sometimes hampered by lack of data or by

commercial interests. Accordingly, highly threatened species, including even those protected in their country of origin, may remain without international protection from trade or CITES-listings may come too late to prevent large-scale trafficking and the decimation of endemic populations (Frank & Wilcove 2019; Janssen & Shepherd 2019, 2018). In particular for threatened species with small wild populations, even the removal of low numbers of individuals may have detrimental consequences (Meiri *et al.* 2018; Auliya *et al.* 2016a,b; Leitao *et al.* 2016).

After Pro Wildlife's first Stolen Wildlife report in 2014 and a follow-up analysis by UNEP-WCMC (2015), which was commissioned by the EU, the EU in cooperation with several range states, successfully proposed the listing of several reptile species in the CITES Appendices (e.g. *Abronia* spp., *Cnemaspis psychedelica*, and *Lygodactylus williamsi*). Furthermore, Guatemala, Malaysia, and Kenya submitted proposals for CITES CoP17 to list some of their nationally protected reptile species under CITES.

In its Progress Report on the Implementation of the EU Action Plan against Wildlife Trafficking, the EU Commission explained its engagement for the CITES-listing of exotic pet species: "The EU market should not fuel demand for species that have been harvested illegally or unsustainably. This is why the EU, in close cooperation with range states, has been playing a proactive role in extending the scope of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) to new species threatened by international trade, thereby awarding them international protection. This is especially the case for exotic pets, for which the EU is an important market, [...]" (EU Commission 2018).

For the 18th CITES Conference in 2019, the EU together with range states once again submitted five proposals to include exotic pet species in CITES Appendix I or II, many of which are being traded in contravention of national legislation (Ngo *et al.* 2019; Shepherd *et al.* 2019; Rowley *et al.* 2016; Altherr 2014). Sri Lanka proposed Appendix I for ten endemic and nationally protected agamids, Iran for its endemic *Pseudocerastes*

urachnaoides, and St. Vincent & The Grenadines for its endemic gecko *Gonatodes daudini*, while Costa Rica aimed to list four genera of glass frogs in CITES Appendix II. While the EU initiatives and support for a series of CITES listing proposals is highly commendable, this approach alone will not be sufficient to solve the much more far-ranging systemic problem:

- Only a fraction of species traded in the EU are protected through CITES and a large number of non-CITES species are in illegal trade, with a continuous shift in species range (Altherr *et al.* 2020, 2019; Auliya *et al.* 2016a). A limited number of listing proposals will, therefore, not impact the ongoing illegal trade in many other species.
- While CITES can be a useful instrument and is currently the only existing international convention dedicated to reducing or halting the international trade in listed species, it is mostly a reactive measure, when offtakes have already reduced and threatened the survival of wild populations. Listings are often hampered by the lack of solid field and trade data, the capacities of range states, and the political will of Parties.

4.2 Would CITES Appendix III listings solve the problem?

In 2016, the EU submitted CITES CoP17 Doc. 80 “CITES Appendix III – an added-value for the conservation of threatened wildlife with restricted distribution” to encourage range states to include more species in CITES Appendix III “being subject to regulation within its jurisdiction for the purpose of preventing or restricting exploitation, and as needing the cooperation of other Parties in the control of trade. However, many problems remain:

- Range states can request the inclusion of their nationally protected species in CITES Appendix III without the consent of other countries. However, the EU neither prohibits nor imposes penalties for the sale, purchase and ownership of illegally-sourced

animals listed in CITES Appendix III (Annex C in EU wildlife trade legislation); only imports or exports without an appropriate certificate can be penalized. Given this and the often massive profit margins for rare species, Appendix III creates no deterrent and will not stop illegal trade into the EU.

- Appendix III listings continue to be used by few countries and, if so, they are only applied to a limited number of species. Amongst others, one reason for this may be that often range states are not even aware of the extent of trafficking in their nationally protected species. Even in the IUCN Red List classifications information on trade is lacking for many species, resulting in an underestimated of threats and Red List status (Altherr *et al.* 2020; Auliya *et al.* 2016).
- Appendix III listings shift the task to act to countries of origin that are often under-resourced, while destination countries assume no obligation to support foreign national conservation efforts, even if it is their own citizens, who are engaged in smuggling and buying such species.

4.3 Why an EU Lacey Act is needed

Article 191 of the Treaty on the Functioning of the European Union states that the EU’s policy “shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source”. By failing to prohibit trade in all nationally protected species, the EU is not living up to these obligations.

In 2015, the United Nations General Assembly – for the first time and unanimously – passed a resolution on “Tackling illicit trafficking in wildlife”, which among others, urges its Member States (including importing countries) to strengthen their national legislation to prevent, investigate and prosecute wildlife trafficking (United Nations 2015). This request was affirmed by two follow-up resolutions (United Nations 2019, 2017).

Legislation, such as the “US Lacey Act”, which has already been in force since 1900, would prohibit the import, sale, and possession of all species that were illegally caught, transported, sold or exported in their range state and can provide a precautionary and practical tool to combat this type of wildlife crime (Altherr *et al.* 2019; Janssen & de Silva 2019; Auliya *et al.* 2016; Vinke & Vinke 2015). While the initial development and adoption of supplementary EU legislation would require time, it would provide a framework that could

be applied to all nationally protected species taken and traded in violation of the laws of their country of origin, within the EU. A legal analysis by Client Earth (2018) has confirmed that such legislation would not conflict with existing EU wildlife trade regulations (Council Regulation (EC) No 338/97). Considering the EU’s central role as a consumer of illegally source wildlife, similar legislation for the EU is recommended by an increasing number of experts and institutions, as summarised in Table 1:

TABLE 1: AWARENESS AND SUPPORT FOR AN EU LACEY ACT-LIKE LEGISLATION

WHO?	WHAT WAS STATED?
UNODC July 2020	WORLD WILDLIFE CRIME REPORT 2020: „[...]„while global research on wildlife crime has mainly focused on internationally protected species, little comparative analysis is available on wildlife crime affecting nationally protected species, including illegal domestic trade. With criminals taking advantage of any loophole, there is a need to better understand the trafficking of non-CITES listed species within and across borders to support law enforcement and criminal justice practitioners to define national and international tools that can protect the biodiversity of each country from criminal threats.”
John Scanlon (CITES General Secretary, 2010 - 2018) March 2020	SPEECH ON THE OCCASION OF THE WORLD WILDLIFE DAY 2020: “[...] The time has come for a new global agreement on wildlife crime. One that is placed under the UN Convention against Transnational Organised Crime [...] What is needed is a new agreement that obliges countries to criminalise importing illegally sourced wildlife, as we already see in some country’s domestic laws, such as in the US under the Lacey Act, and to criminalise serious wildlife crimes [...] ”
United Nations Sep 2019	RESOLUTION A/73/L.120 –TACKLING ILLICIT TRAFFICKING IN WILDLIFE: “[...] 4. Urges Member States to take decisive steps at the national level to prevent, combat and eradicate the illegal trade in wildlife, on the supply, transit and demand sides, including by strengthening their legislation and regulations necessary for the prevention, investigation, prosecution and appropriate punishment of such illegal trade; 5. Calls upon Member States to make illicit trafficking in protected species of wild fauna and flora involving organized criminal groups a serious crime [...] ”.
Janssen & de Silva May 2019	THE PRESENCE OF PROTECTED REPTILES FROM SRI LANKA IN INTERNATIONAL COMMERCIAL TRADE: “[...] Whereas the European Commission states that the “EU market should not fuel demand for species that have been harvested illegally or unsustainably” (European Commission, 2018), the lack of legal protection for nationally protected species makes the EU a key player in the illegal trade in such species. [...] In order to combat illegal trade in species protected in their range states, it is essential that the EU recognises their status and provides the legal framework required for law enforcement to seize such specimens.”
DNR July 2018	ENVIRONMENTAL DEMANDS WITH REGARD TO THE 2019 EUROPEAN ELECTIONS: “[...] Stand up for a European and global ban on ivory trade and for an EU Lacey Act, a EU regulation prohibiting the import, possession and sale of animals illegally caught in their home country and exported. Currently animal smugglers can openly and legally sell such animals, insofar as they are only protected nationally in the country of origin but not by CITES or the EU wildlife trade regulations [...]”
European Parliament March 2017	RESOLUTION ON EU COMMON COMMERCIAL POLICY IN THE CONTEXT OF WILDLIFE SUSTAINABILITY IMPERATIVES: “[...] 23. Considers that in the existing domestic legal framework the key challenge and priority for EU Member States, at this stage, is implementation of the existing rules; recognises, however,

	<p><i>that supplementary provisions taking into account those rules existing in other states should be examined in order to prohibit the making available and placing on the market, transport and acquisition of wildlife that has been illegally harvested or traded in third countries, according to that country's own legal framework; [...]</i></p> <p>31. Recommends that EU Member States consider policy solutions that would allow for the elimination of all remaining legal loopholes that could facilitate the 'laundering' of illegally sourced wildlife and wildlife products; [...]"</p>
<p>European Parliament Oct 2016</p>	<p>RESOLUTION ON EU ACTION PLAN AGAINST WILDLIFE TRAFFICKING: <i>"EU Member States should introduce fixed and harmonious penalties for convicted wildlife traffickers. The EU must explore the possibility of introducing legislation to prohibit the import, trade and re-export of species that are protected in their countries of origin. The US Lacey Act is an example of such legislation. While CITES is a useful tool for regulating wildlife trade and protecting endangered species, it does not encompass all critical species, nor is it able to react to changing circumstances quickly enough and therefore provides criminals with easy opportunities to exploit loopholes."</i></p>
<p>European Parliament Sep 2016</p>	<p>RESOLUTION ON KEY OBJECTIVES FOR THE CITES COP17 MEETING IN JOHANNESBURG: <i>"[...] 11. Encourages the EU and its Member States to promote and support initiatives to increase protection against the impact of international trade on species for which the European Union is a significant transit or destination market; [...]</i></p> <p>13. Urges the EU to adopt legislation to reduce illegal trade by making it illegal to import, export, sell, acquire or buy wild animals or plants which are taken, possessed, transported or sold in violation of the law of the country of origin or transit; [...]"</p>
<p>EU Commission, DG Environment Feb 2016</p>	<p>STAFF WORKING DOCUMENT – ANALYSIS AND EVIDENCE IN SUPPORT OF THE EU ACTION PLAN AGAINST WILDLIFE TRAFFICKING: p. 24: <i>"The illegal trade in exotic pets, especially in live reptiles, has received increased attention, with the EU appearing as an important consumer region and thus driver of this trade. This includes species which, though not covered by the CITES Convention, are protected nationally. Exporting them thus breaks the law of their country of origin. But in the absence of an appropriate legal basis through a CITES listing, EU Member States are not always able to seize these species once they are on the EU market."</i></p>
<p>European Parliament, Policy Dept A March 2016</p>	<p>STUDY "WILDLIFE CRIME": p. 109, item 6.2.8: <i>"The EU should consider measures to curtail activities involving wildlife species protected by laws of their countries of origin (only); this may include new legislation, making import, sale, purchase and re-export of specimens, which have been captured, traded or exported in violation of laws in the country of origin a criminal act within the EU [...]"</i></p>
<p>EFFACE Apr 2016</p>	<p>CONCLUSIONS AND RECOMMENDATIONS, EFFACE RESEARCH REPORT p. 32: <i>"For example, one of the recommendations that came up at the final conference considered the introduction in Europe of legislation similar to the US Lacey Act which would facilitate the fight against transboundary crime."</i></p>
<p>UNODC May 2016</p>	<p>WORLD WILDLIFE CRIME REPORT: TRAFFICKING IN PROTECTED SPECIES: p. 12: <i>"There are millions of species for which international trade is not regulated, and certain cases reviewed for this report suggest that these species can be legally traded internationally, even when harvested or exported contrary to national law."</i> p. 13: <i>"Illegal trade could be reduced if each country were to prohibit, under national law, the possession of wildlife that was illegally harvested in, or illegally traded from, anywhere else in the world."</i> p. 37: <i>"Outside CITES, most destination countries lack a legal basis for refusing wood that was harvested or exported contrary to source country regulations. The US Lacey Act, the EU Timber</i></p>
<p>United Nations July 2015</p>	<p>RESOLUTION 69/314: TACKLING ILLICIT TRAFFICKING IN WILDLIFE <i>"[...] 3. Urges Member States to take decisive steps at the national level to prevent, combat and eradicate the illegal trade in wildlife, on both the supply and demand sides, including by strengthening the legislation necessary for the prevention, investigation and prosecution of such illegal trade. 4. Calls upon Member States to make illicit trafficking in protected species of wild fauna and flora involving organized criminal groups a serious crime [...]"</i></p>

5. CONCLUSIONS AND RECOMMENDATIONS

The present report provides recent case studies on illegal trade in reptiles and amphibians from Australia, Brazil, Costa Rica, Cuba, Japan, Mexico, Namibia & South Africa, New Caledonia, Oman, and Sri Lanka. While some of these countries were already covered in earlier reports and studies (Janssen & de Silva 2019; Janssen & Shepherd 2019; Altherr *et al.* 2019, 2016; Petrossian *et al.* 2018; Vinke & Vinke 2015; Altherr 2014), for other range states a systematic evidence for illegal trade into the European Union has, to our knowledge, thus far not yet been published.

5.1. Conclusions

- The EU remains a hub, transit point and destination for exotic pets, which were illegally caught and exported from their country of origin. EU residents are among the key smugglers, traders and clients for such species. Traders, who have been arrested for reptile smuggling in range states, remain active players in the exotic pet business, with a focus on high-priced rare and nationally protected species. Their activities undermine the efforts of conservation-oriented range states to protect their native species.
- Major reptile trade shows in Europe, such as Hamm (Germany) and Houten (Netherlands), are meeting points for traders and buyers of rare and nationally protected species.
- CITES regulations are the most relevant tool to regulate international trade in endangered species. However, the inclusion of species into Appendices I and II of CITES is a slow and only reactive process, which is often hampered by the lack of biological and trade data, limited resources in national CITES authorities, and sometimes political or economic resistance.
- While CITES listings for species threatened by international trade remains a prime obligation, the listing of a small number of individual species is a 'band-aid' approach that falls short of halting the haemorrhaging of illegal trade in wildlife. This ap-

proach falls well behind comprehensive efforts to combat trafficking in all animal and plants species – whether listed on CITES or nationally protected.

- To date, the EU does not even record the imports of species other than those listed in the EU wildlife trade regulation.
- The listing of threatened and nationally protected species on CITES Appendix III has been suggested as a solution. However, this would not prevent the selling, buying or keeping of illegally sourced animals, as EU legislation only prohibits the import of Appendix III (Annex C) specimens without proper paperwork.
- This black market industry for commercial hobbyists generates high profits by trading nationally protected species, often comparable to profits for CITES Appendix I or II species, but with almost no risk.
- Thus far, the EU has not taken the necessary steps to halt their citizens' wildlife trafficking activities. While the CITES proposals of recent Conferences of the Parties, including those that were initiated by the EU, are highly welcome and justified, the basic problems – the gaping holes in European and international legislation – are not solved.
- The USA is the only country in the world, which has legislation (i.e. the US Lacey Act) that makes it a criminal offence to import, export, transport, sell, receive, acquire, or purchase wildlife that has been taken, possessed, transported, or sold either in violation of U.S. or foreign law. However, some traffickers prefer to collect animals during breeding season, which enables them to offer "captive-bred" offspring shortly afterwards. The laundering of such animals through the EU market and then the subsequent export of offspring to the US helps smugglers and clients to circumvent the US Lacey Act. In this way, they can launder wild-caught, illegally sourced animals as "captive-bred in Europe" into the legal trade.

5.2. Recommendations

- Close cooperation between range states and importing countries is essential to prevent the trafficking of nationally protected species for the international trade.
- The EU is presently evaluating the outcome of its Action Plan against Wildlife Trafficking implemented from 2016 to 2020 (EU Commission 2020, 2016b). The renewal and strengthening of the EU Wildlife Action Plan is highly recommended and should include the goal of developing and adopting precautionary, pro-active and robust legislation to combat the trade in nationally protected species.
- The EU should continue with its strong engagement at CITES, but at the same time should also take stricter domestic measures to combat wildlife trafficking in nationally protected species from all over the world.
- Importing countries – particularly the EU given that it is a major hub, transit point and destination – should pass legislation comparable to the US Lacey Act, which supports the conservation efforts of countries of origin by banning import, possession and trade of specimens caught or exported in violation of other nations' laws.
- A registration of all wildlife imports (species level and number of individuals) would be a pre-condition to be able to enforce such legislation. In addition, the EU, in cooperation with the USA, should establish a database of national legislation, detailing prohibitions on the capture, trade and export of wildlife in range states. Such a database would also help to enforce existing trade restrictions for species listed in CITES or the EU regulation.
- Range states need to strengthen their efforts to enforce national legislation, to intensify controls and to impose deterrent fines for wildlife crime. In addition, they should exchange information on their national legislation with destination countries. A CITES Appendix III listing by the range states as an interim measure is also recommended as part of such information, although this does not relieve consumer countries from their responsibility to help combat the illegal trade in those nationally protected species.



6. REFERENCES

- Allott, A. (2018): The reptile smugglers. *New Zealand Geographic* 153, available at <https://www.nzgeo.com/stories/the-reptile-smugglers/>
- Al Rasbi, K.J.M., Els, J. & D. Mallon (2013): *Asaccus montanus*. The IUCN Red List of Threatened Species 2013: e.T199581A2604681. <https://dx.doi.org/10.2305/IUCN.UK.2013-1.RLTS.T199581A2604681.en>. Downloaded on 22 January 2020
- Altherr, S., Freyer D. & K. Lameter (2020): Strategien zur Reduktion der Nachfrage von als Heimtiere gehaltenen Reptilien, Amphibien und kleinen Säugetieren. BfN-Skripten 545, Bundesamt für Naturschutz (ed.), Bonn, 468 pp.
- Altherr, S., Lameter, K. & J.C. Cantu (2019): Trade in nationally protected lizards from Australia, Cuba, and Mexico – and the EU's role as a main destination. *TRAFFIC Bulletin* 1(2): 59–66. Available at <https://www.traffic.org/site/assets/files/12507/lizards-from-australia-cuba-mexico.pdf>
- Altherr, S.; Schuller, A. & A. Fischer (2016): Stolen Wildlife II – why the EU still needs to tackle smuggling of nationally protected species. Pro Wildlife, Munich, Germany, 40 S. Available at <https://www.prowildlife.de/wp-content/uploads/2016/08/Stolen-WildlifeII-webversion.pdf>
- Altherr, S. (2014): Stolen Wildlife – Why the EU needs to tackle smuggling of nationally protected species. Report by Pro Wildlife, Munich, Germany, 29 pp. Available at https://www.prowildlife.de/wp-content/uploads/2016/02/2014_Stolen-Wildlife-Report.pdf
- Alvarez, J.A. (2018): *in litt.* to Sandra Altherr, Pro Wildlife, 27 May.
- Amarasinghe, A. *et al.* (2015): Two new species of the genus *Sitana* Cuvier, 1829 (Reptilia: Agamidae) from Sri Lanka, including a taxonomic revision of the Indian *Sitana* species. *Zootaxa* 3915(1):67–98.
- Amarasinghe, A.; Karunaratna, D.; Hallermann, J.; Fujinuma, J.; Grillitsch, H. & P. Campbell (2014): A new species of the genus *Calotes* (Squamata: Agamidae) from high elevations of the Knuckles massif of Sri Lanka. *Zootaxa* 3785: 59–78.
- AmphibiaWeb (2020): University of California, Berkeley, CA, USA. Accessed 16 Jan 2020. <http://amphibiaweb.org/>.
- Auliya, M.; Altherr, S.; Ariano-Sanchez, D.; Baard, E.; Brown, C. *et al.* (2016a): Trade in live reptiles, its impact on wild populations, and the role of the European market. *Biological Conservation* 204, Part A: 103–119. DOI: 10.1016/j.biocon.2016.05.017
- Auliya, M.; Garcia-Moreno, J.; Schmidt, B.; Schmeller, D.; Hoogmoed, M. *et al.* (2016b): The global amphibian trade flows through Europe: the need for enforcing and improving legislation. *Biodiversity and Conservation* 25(13): 2581–2595.
- Auliya, M. (2003): Hot Trade in Cool Creatures. : A review of the live reptile trade in the European Union in the 1990s with a focus on Germany. TRAFFIC Europe (Ed.), Brussels, Belgium, 112 S.
- Bates, M.F. (2018): *Afroedura maripi*. The IUCN Red List of Threatened Species 2018: e.T110191643A110191658. <https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T110191643A110191658.en>. Downloaded on 21 January 2020
- Bates, M.F. & A.M. Bauer (2018): *Pachydactylus affinis*. The IUCN Red List of Threatened Species 2018: e.T196928A115662876. <https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T196928A115662876.en>. Downloaded on 21 January 2020.
- Bates, M.F.; Branch, W.R.; Bauer, A.M.; Burger, M.; Marais, J. *et al.* (2014): Atlas and Red List of the reptiles of South Africa, Lesotho, and Swaziland. Suricata 1. South African National Biodiversity Institute (SANBI), 512 pp.
- Bauer, A.M.; Jackman, T.R.; Sadlier, R.A. & A.H. Whittaker (2012): Revision of the giant geckos of New Caledonia (Reptilia: Diplodactylidae: *Rhacodactylus*). *Zootaxa* 3404: 1–52.
- Bauer, A.M.; Jackman, T.; Sadlier, R.A. & A.H. Whittaker (2009): Review and phylogeny of the New Caledonian diplodactylid gekkotan genus *Eurydactylodes* Wermuth, 1965, with the description of a new species. *Zoologia Neocaledonica* 7, Mémoires du Muséum National d'Histoire Naturelle 198: 13–36.
- Bega, S. (2020): Plunder of South Africa's reptiles has moved online-UN report. Article in *Independent Online South Africa*, dated 20th July. Available at <https://www.iol.co.za/saturday-star/news/plunder-of-south-africas-reptiles-has-moved-online-un-report-51214144>
- Beniac-Brooks, S. (2019): Woman allegedly caught smuggling 19 lizards in luggage through Melbourne airport. Article at *SBS News*, dated 24 April. <https://www.sbs.com.au/news/woman-allegedly-caught-smuggling-19-lizards-in-luggage-through-melbourne-airport>
- Brook, B. & Sodhi, N. (2006): Rarity bites. *Nature* 444: 555–557.
- Caramaschi, U.; Gonçalves da Cruz, C.A.; Lima, R. & R. Brandão (2016): *Pithecopus ayeaye*. The IUCN Red List of Threatened Species 2016: e.T55839A107295713. <https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T55839A107295713.en>. Downloaded on 01 February 2020.
- Carranza, S. & Arnold, E. (2012): A review of the geckos of the genus *Hemidactylus* (Squamata: Gekkonidae) from Oman based on morphology, mitochondrial and nuclear data, with descriptions of eight new species. *Zootaxa* 3378: 1–95.
- Chen, F. (2016): Poachers and Snobs: Demand for Rarity and the Effects of Antipoaching Policies. *Conservation Letters* 9(1): 65–69.
- CITES (2019): Updates on decisions made on proposals to amend Appendices I and II at CoP18, available at https://cites.org/eng/updates_decisions_cop18_species_proposals.
- Client Earth (2018): Illegal wildlife trade and the EU: legal approaches. Legal analysis by order of Pro Wildlife. Brussels, 21 pp., available at https://www.prowildlife.de/wp-content/uploads/2016/11/Illegal-wildlife-trade-and-the-EU_legal-approaches.pdf
- Courchamp, F.; Angulo, E.; Rivalan, P.; Hall, R.J.; Signoret, L. *et al.* (2006): Rarity value and species extinction: The anthropogenic allee effect. *PLoS Biology* 4 (12): 24052410.
- Cox, N.; Mallon, D.; Bowles, P.; Els, J. & M. Tognelli (2012): The conservation status and distribution of reptiles of the Arabian Peninsula. Cambridge, UK and Gland, Switzerland: IUCN, and Sharjah, UAE: Environment and Protected Areas Authority. 49 pp.
- Cruise, A. (2018): Europeans are major smugglers of Southern African reptiles. Online Article in *eTurboNews*, 15th March.
- Dantas Sales, R.F.; Ribeiro, L.B. & E.M. Freire (2015): New record and update on the geographic distribution of *Enyalius bilineatus* Duméril & Bibron, 1837 (Squamata: Leiosauridae) in Brazil. *Check List* 11(6): 1785–90.
- Dean, S. (2015): Four men arrested trying to smuggle hundreds of reptiles including a death adder out of Australia in children's books and cigarette packets. Article in *Daily Mail Australia*, dated 16 February. Available at <http://www.dailymail.co.uk/news/article-2955119/Hundreds-reptiles-amphibians-including-dead-DEATH-ADDER-discovered-smuggled-Australia-children-s-books-cigarette-packets.html>.
- De Oliveira, E.S., de Freitas Torres, D. & R.R. da Nóbrega Alves (2018): Wild animals seized in a state in Northeast Brazil: Where do they come from and where do they go? *Environ. Dev. Sustain.* <https://doi.org/10.1007/s10668-018-0294-9>
- DOE, Department of Environment (2020): Exporting Australian native plant and animal specimens. Available at <https://www.environment.gov.au/biodiversity/wildlife-trade/natives>.

- de Vosjoli, P. (2012): Crested geckos: From the experts at advanced vivarium systems. The Herpetocultural Library, Companion House Books (ed.), 92 pp.
- Di Minin, E.; Fink, C.; Hiippala, T. & H. Tenkanen (2019): A framework for investigating illegal wildlife trade on social media with machine learning. *Conservation Biology* 33(1): 210–213.
- DNR (Deutscher Naturschutzring) (2018): Environmental demands with regard to the 2019 European elections, 10 pp.; available at <https://www.dnr.de/fileadmin/Positionen/2018-07-DNR-Europawahl-2019-Forderungen-EN.pdf>
- Drevikovskiy, J. (2020): More than 180 animals seized in western Sydney smuggling bust. Online Article in *Sydney Morning Herald*, 25th January, <https://www.smh.com.au/politics/nsw/more-than-180-animals-seized-in-western-sydney-smuggling-bust-20200125-p53uod.html>
- EFFACE (2016): Conclusions and Recommendations. Research project conducted by the European Union Action to Fight Environmental Crime, a collaborative effort of 11 European universities, 36 pp. Available at http://efface.eu/sites/default/files/publications/EFFACE_Conclusions_recommendations.pdf
- EFFACE (2015): The Illegal wildlife trade – A case study report on the illegal wildlife trade in the United Kingdom, Norway, Colombia and Brazil. 62 pages. <https://bit.ly/2tGMACO>
- Endangered Wildlife Trust, Lewis Foundation & Centre for Environmental Rights (2018): Fair Game? Improving the well-being of South African wildlife. Review of the legal and practical regulation of the welfare of wild animals in South Africa. 86 pp. Available at <https://cer.org.za/wp-content/uploads/2018/06/CER-EWT-Regulation-of-Wildlife-Welfare-Report-25-June-2018.pdf>.
- Erdelen, W.R. (2012): Conservation of biodiversity in a hotspot: Sri Lanka's amphibians and reptiles. *Amphibian and Reptile Conservation* 5(2):33–51.
- EU CITES COM (2014): Summary of conclusions of the 69th Meeting of the Committee on trade in wild fauna and flora. https://circabc.europa.eu/sd/a/d0580447-312a-411e-9a90-7e3273b1aede/69_summary_com.pdf
- EU Commission (2020): Wildlife trafficking – EU action plan (evaluation). Public Consultation (19th Feb – 18th March 2020). <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12117-Wildlife-trafficking-EU-action-plan-evaluation->
- EU Commission (2018a). Progress report on the implementation of the EU Action Plan against wildlife trafficking. Brussels, Belgium. http://ec.europa.eu/environment/cites/pdf/progress_report_EU_action_plan_wildlife_trafficking_en.pdf
- EU Commission (2016b): Commission Staff Working Document – Analysis and Evidence in support of the EU Action Plan against Wildlife Trafficking. Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016SC0038&from=EN>.
- EU Commission (2016b): EU Action Plan against Wildlife Trafficking. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52016DC0087&from=EN>
- European Parliament (2017): Resolution of 2 March 2017 on EU Common Commercial Policy in the context of wildlife sustainability imperatives. 2016/2054(INI). https://www.europarl.europa.eu/doceo/document/TA-8-2017-0064_EN.html
- European Parliament (2016a): Wildlife Crime. Study by Policy Department A at the request of the Committee on the Environment, Public Health and Food Safety. 122 pp. Available at http://www.europarl.europa.eu/RegData/etudes/STUD/2016/570008/IPOL_STU%282016%29570008_EN.pdf
- European Parliament (2016b): Resolution of 18 October 2017 on EU action plan against wildlife trafficking. 2016/2076(INI). https://www.europarl.europa.eu/doceo/document/A-8-2016-0303_EN.html#title7
- European Parliament (2016c): Resolution of 15 September 2016 on the EU strategic objectives for the 17th meeting of the Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). 2016/2664(RSP). https://www.europarl.europa.eu/doceo/document/TA-8-2016-0356_EN.html?redirect
- Fendt, L. (2014a): Costa Rica deports a German caught smuggling over 400 frogs and reptiles in takeout containers. Article in *Global Post*, 18 September, available at <http://www.globalpost.com/dispatch/news/regions/americas/costa-rica/140917/costa-rican-wildlife-trafficking-takeout-containers>
- Fendt, L. (2014b): German tourist busted at Costa Rica airport smuggling 400 animals is released with no fine. Article in *The Tico Times*, 20th September. Available at <http://www.ticotimes.net/2014/09/20/german-tourist-busted-at-costa-rica-airport-smuggling-400-animals-is-released-with-no-fine>
- Fenner, A.; Hutchinson, M.; McDonald, P. & P. Robertson (2018): *Tiliqua adelaidensis*. The IUCN Red List of Threatened Species 2018: e.T21902A101743579. <http://dx.doi.org/10.2305/IUCN.UK.2018-1.RLTS.T21902A101743579.en>. Downloaded on 02 December 2019.
- Fettes, J. (2014): Lizards in suitcases: Meet Australia's most brazen smugglers. Article in *Herald Sun*, dated 9 January, available at <http://www.heraldsun.com.au/news/law-order/australias-most-brazen-smugglers/story-fni0ffnk-1226673796788>.
- Fitzgerald, L.A. *et al.* (2004): Collection, trade, and regulation of reptiles and amphibians of the Chihuahuan Desert ecoregion. TRAFFIC North America. Washington D.C.: World Wildlife Fund.
- Flecks, M.; Weinsheimer, F.; Böhme, W.; Chenga, J.; Lötters, S. & D. Rödder (2012): Watching extinction happen: the dramatic population decline of the critically endangered Tanzanian Turquoise Dwarf Gecko, *Lygodactylus williamsi*. *Salamandra* 48(1): 23–31.
- Fong, A.; Davilla, N.V. & G.M. Lopez-Iborra (2015): Amphibian hotspots and conservation priorities in Eastern Cuba identified by species distribution modelling. *Biotropica* 47(1): 119–127 2015.
- Frank, E.G. & D.S. Wilcove (2019): Long delays in banning trade in threatened species – Scientific knowledge should be applied with more urgency. *Science* 363 (6428): 686–688
- Gardner, A. (2009): Mapping the terrestrial reptile distributions in Oman and the United Arab Emirates. *ZooKeys* 31: 165–177.
- Gibson, C.; de Silva, A.; Tognelli, M.F. & S. Karunarathna (Eds.) (2020): Assess to Plan: Conservation Action Planning for the Snakes and Lizards of Sri Lanka. IUCN Conservation Planning Specialist Group, Apple Valley, MN, USA. 80 pp.
- González *et al.* (2012): González, A.H.; Mancina, C.A.; Ramos García, I.R.; Schettino, L. & A. Rodríguez (2012): Libro rojo de los vertebrados de Cuba. Editorial Academia, La Habana, 304 pp., <https://portals.iucn.org/library/node/28951>
- Gray, A. (2018): Review of the genus *Cruziophyla* (Anura: Phyllomedusidae), with description of a new species. *Zootaxa* 4450(4): 401–426.
- Grünwald, C.; Jones, J.; Franz-Chávez, H. & I. Ahumada-Carrillo (2015): A new species of *Ophryacus* (Serpentes: Viperidae: Crotalinae) from eastern Mexico, with comments on the taxonomy of related pit vipers. *Mesoamerican Herpetology* 2(4): 388–416.
- Gunatilleke, N.; Pethiyagoda, R. & S. Gunatilleke (2008): Biodiversity of Sri Lanka. *J. Natn. Sci. Foundation Sri Lanka* 36: Special Issue 25–62.
- Guynup, S. (2015): São Paulo trafficking: Smuggling Brazil's wildlife. Online article at *The Mongabay*, 28th October. <https://news.mongabay.com/2015/10/sao-paolo-trafficking-smuggling-brazils-wildlife/> (viewed, 20th December 2019).
- Hall, R. *et al.* (2008): Endangering the endangered: The effects of perceived rarity on species exploitation. *Conservation Letters* 1: 75–81.

- Herbig, J. (2010): The illegal reptile trade as a form of conservation crime: a South African criminological investigation, In: *Global Environmental Harm - Criminological Perspectives*. Willan (Ed.), London, p. 110-132.
- Herr, A.; Kennedy, E.; Povey, W.; Jing, C.; Walsh, F. *et al.* (2020): Cold-blooded treasures: The illegal traffic in Australian reptiles. Article in *The Sidney Morning Herald*, 22th February; <https://www.smh.com.au/environment/conservation/cold-blooded-treasures-the-illegal-traffic-in-australian-reptiles-20200218-p541xs.html>.
- Herrmann, H.W. & W.R. Branch (2013): Fifty years of herpetological research in the Namib Desert and Namibia with an updated and annotated species checklist. *Journal of Arid Environments* 93: 94-115.
- Hettiaarachchi, S. (2020): Smuggling national wildlife; Russians remanded. Article of 3rd March in *The Sunday Times Sri Lanka*. <http://www.sundaytimes.lk/200308/news/smuggling-national-wildlife-russians-remanded-395589.html>
- Holden, M. & E. McDonald-Madden (2017): High prices for rare species can drive large populations extinct: the anthropogenic Allee effect revisited. *Journal of Theoretical Biology* 429: 170-180.
- Hruby, D. (2019): The world's biggest reptile fair is also a hub for traffickers. Article in *Mongabay*, May 30th, <https://news.mongabay.com/2019/05/the-worlds-biggest-reptile-fair-is-also-a-hub-for-traffickers/>
- Hutchinson, Mark; Milne, T. & T. Croft (1994): Re-description and ecological notes on the pygmy bluetongue, *Tiliqua adelaidensis* (Squamata: Scincidae). *Transactions of the Royal Society of South Australia* 118: 217-226.
- IUCN (2012): The wonders of New Caledonia. Online article at <https://www.iucn.org/content/wonders-new-caledonia>, dated 11 September 2012 (viewed 5 January 2020).
- IUCN SSC Amphibian Specialist Group & South African Frog Re-assessment Group (SA-FRoG) (2016): *Sclerophrys pantherina*. The IUCN Red List of Threatened Species 2016: e.T54723A77159333. <https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T54723A77159333.en>. Downloaded on 21 January 2020.
- Jacobsen, N.H.; Kuhn, A.L.; Jackman, T.R. & A.M. Bauer (2014): A phylogenetic analysis of the southern African gecko genus *Afroedura* Loveridge (Squamata: Gekkonidae), with the description of nine new species from Limpopo and Mpumalanga provinces of South Africa. *Zootaxa* 3846(4): 451-501. doi: 10.11646/zootaxa.3846.4.1.
- Janssen, J. & A. de Silva (2019): Escalating scale – presence of protected reptiles from Sri Lanka in international commercial trade. *TRAFFIC Bulletin* 31(1): 9-15.
- Janssen, J. & K. Krishnasamy (2018): Left hung out to dry: How inadequate international protection can fuel trade in endemic species – The case of the earless monitor. *Global Ecology and Conservation* 16, e00464, doi: <https://doi.org/10.1016/j.gecco.2018.e00464>.
- Janssen, J. & B.T. Leupen (2019): Traded under the radar: poor documentation of trade in nationally-protected non-CITES species can cause fraudulent trade to go undetected. *Biodivers. Conserv.* 28: 2797-2804. <https://doi.org/10.1007/s10531-019-01796-7>
- Janssen, J. & C.R. Shepherd (2019): Trade in Endangered and Critically Endangered Japanese herpetofauna endemic to the Nansei Islands warrants increased protection. *Current Herpetology* 38(1): 99-109.
- Janssen, J. & C.R. Shepherd (2018): Challenges in documenting trade in non CITES-listed species: A case study on crocodile skins (*Tribolonotus* spp.). *Journal of Asia-Pacific Biodiversity* 11(4): 476-481.
- Jensen, T.; Auliya, M.; Burgess, N.D.; Aust, P.W.; Pertoldi, C. & J. Strand (2019): Exploring the international trade in African snakes not listed on CITES: highlighting the role of the internet and social media. *Biodiversity & Conservation* 28(1): 1-19.
- Kanari, K. & L. Xu (2012): Trade in Japanese endemic reptiles in China and recommendations for species conservation. *TRAFFIC report*, 32 Seiten.
- Kaneko, Y. & M. Matsui (2004): *Hynobius dunni*. The IUCN Red List of Threatened Species 2004: e.T10614A3205218. <https://dx.doi.org/10.2305/IUCN.UK.2004.RLTS.T10614A3205218.en>. Downloaded on 16 January 2020.
- Kidera, N. & H. Ota (2017a): *Goniurosaurus toyami*. The IUCN Red List of Threatened Species 2017: e.T18917777A18917779. <http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T18917777A18917779.en>. Downloaded on 02 December 2019.
- Kidera, N. & H. Ota (2017b): *Goniurosaurus yamashinae*. The IUCN Red List of Threatened Species 2017: e.T18917785A18917789. <https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T18917785A18917789.en>. Downloaded on 16 January 2020.
- Kidera, N. & H. Ota (2017c): *Goniurosaurus kuroiwa*. The IUCN Red List of Threatened Species 2017: e.T98152257A96877452. <https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T98152257A96877452.en>. Downloaded on 16 January 2020.
- Kyodo (2016): Rare smuggled 'crocodile newts' Okinawa-bound after being smuggled to Belgium. Online article in *The Japan Times*, 14 July 2016. <https://www.japantimes.co.jp/news/2016/07/14/national/crime-legal/rare-smuggled-crocodile-newts-okinawa-bound-smuggled-belgium/#.XiDgw8hKhPY>, viewed 16 January 2020.
- Laufer, P. (2010): *Forbidden creatures: Inside the world of animal smuggling and exotic pets*. Lyons Press, Guilford, Connecticut, 260 pp.
- Leape, J. & de Brito (2013): Illegal trading threat species all over the world. Website of WWF Brazil, 5th March, available at <https://www.wwf.org.br/informacoes/english/?33822/Illegal-trading-threat-species-all-over-the-world> (viewed 20th Dec 2019).
- Lee, J. & O. Flores-Villela (2004): *Ecnomihyla valancifer*. The IUCN Red List of Threatened Species 2004: e.T55685A11339974. <https://dx.doi.org/10.2305/IUCN.UK.2004.RLTS.T55685A11339974.en>. Downloaded on 19th December 2019.
- Leitao, R.; Zuanon, J.; Villeger, S.; Williams, S.E.; Baraloto, C. *et al.* (2016): Rare species contribute disproportionately to the functional structure of species assemblages. *Proc. R. Soc.* 283: 1828 ff.
- Lindenmayer, D. & B. Scheele (2017): Do not publish: Limiting open-access information on rare and endangered species will help to protect them. *Science* 356 (6340): 800-801.
- Living National Treasures (2020): selection for distinct countries at <http://lntreasures.com>.
- Litzgus, J. (2017): The illegal turtle trade: Why I keep secrets. Online Article in *The Conversation*, as of 22th October. <http://theconversation.com/the-illegal-turtle-trade-why-i-keepsecrets-85805>
- Lockwood, J.L.; Welbourne, D.J.; Romagosa, C.M.; Cassey, P.; Mandrak, N.E. *et al.* (2019): When pets become pests: the role of the exotic pet trade in producing invasive vertebrate animals. *Front. Ecol. & Envir.* <https://doi.org/10.1002/fee.2059>
- Lyons, J. & D. Natusch (2013): Effects of consumer preferences for rarity on the harvest of wild populations within a species. *Ecological Economics* 93: 278-283.
- Malsinghe, D.; de Silva, A.; Priyadarshani, H.A.; Dassanayake, D.; Rodrigo, K. *et al.* (2017): Seizure of the biggest illegal shipment of star tortoises (*Geochelone elegans*) by the Sri Lanka Navy. *Wild Lanka* 5(2): 078-083.
- Manzano, R. (1998): Man charged with smuggling reptiles. Article in *Los Angeles Times*, 18th June. <https://www.latimes.com/archives/la-xpm-1998-jun-18-me-61087-story.html>
- Mares, P. H. (2019): Exit the dragons: Mexico tackles trafficking of endangered lizards. Article in *The Mongabay*, 4th February, <https://news.mongabay.com/2019/02/exit-the-dragons-mexico-tackles-trafficking-of-endangered-lizards/>

- Marques, O.; Martins, M. & I. Sazima (2004): *Bothrops insularis*. The IUCN Red List of Threatened Species 2004: e.T2917A9493475. <https://dx.doi.org/10.2305/IUCN.UK.2004.RLTS.T2917A9493475.en>. Downloaded on 04 February 2020.
- Meiri, S.; Bauer, A.M.; Allison, A.; Castro-Herrera, F.; Chirio, L. *et al.* (2018): Extinct, obscure or imaginary: The lizard species with the smallest ranges. *Diversity and Distributions* 24(2): 262–273.
- Menagh, J. (2015): European reptile smugglers on 'scientific endeavour' in WA avoid further jail time but likely face deportation. Article in *ABC News Australia*, dated 17 Sep. <http://www.abc.net.au/news/2015-09-17/reptile-smugglers-in-wa-avoid-further-jail-time/6783458>
- MET (2020): Wildlife Utilization. Website of Namibia's Ministry of Environment and Tourism. <http://www.met.gov.na/services/wildlife-utilization/304/>, viewed 21st January 2020.
- Milne, T.; Hutchinson, M. & S. Clarke (2000): National recovery plan for the pygmy bluetongue lizard (*Tiliqua adelaidensis*). November 2000. <https://www.environment.gov.au/resource/national-recovery-plan-pygmy-bluetongue-lizard-tiliqua-adelaidensis>
- Mittermeier, RA & Mittermeier, C G (2004): Megadiversity: Earth's biologically wealthiest nations. Graphic Arts Center Publishing Company, Portland, USA, 501 pp.
- MOE, Ministry of Environment (2019): Red List Japan, 4th edition 2019. <http://www.env.go.jp/press/files/jp/110615.pdf>, viewed 16 January 2020.
- MOE, Ministry of Environment (2012): The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora. Ministry of Environment, Colombo, Sri Lanka. viii + 476pp
- Musing, L., Norwicz, M, Kloda, J. & K. Kecse-Nagy (2018): Wildlife trade in Belgium: An analysis of CITES trade and seizure data. TRAFFIC & WWF (Eds.), Cambridge, England. 120 pp.
- Myers, N.; Mittermeier, R.A.; Mittermeier, C.G.; da Fonseca, G. & J. Ken (2000): Biodiversity hotspots for conservation priorities. *Nature* 403: 853–858.
- Neme, L. (2011): The dark side of new species discovery, Interview with Bryan Stuart, 14th Marc 2011. <https://news.mongabay.com/2011/12/the-dark-side-of-new-speciesdiscovery/>
- Neslen, A. (2015): Lizard traffickers exploit legal loopholes to trade at world's biggest fair - Precious but endangered lizards are a lucrative new cargo for German smugglers, ahead of an international attempt to outlaw their trade. Article in *The Guardian*, dated 11 November. <https://www.theguardian.com/environment/2015/nov/11/lizard-traffickers-exploit-legal-loopholes-to-trade-at-worlds-biggest-fair>
- Ngo, H.N.; Nguyen, T.Q.; Nguyen, T.V.; Phan, T.Q.; van Schingen, M. & T. Ziegler (2019): A case study on trade in threatened Tiger Geckos (*Goniurosaurus*) in Vietnam including updated information on the abundance of the Endangered *G. catbaensis*. *Nature Conservation* 33:1–19.
- Nijman, V. & C. Shepherd (2009): Wildlife trade from ASEAN to the EU: issues with the trade in captive-bred reptiles from Indonesia. TRAFFIC Europe Report for the European Commission, Brussels, Belgium.
- Nijman, V. & S. Stoner (2014): Keeping an ear to the ground: monitoring the trade in Earless Monitor Lizards. TRAFFIC Petaling Jaya, Selangor, Malaysia, 20 Seiten.
- Nombembe, P. (2019): Two Japanese jailed, face deportation for stealing lizards in Cape Town. Online article in *Times Live*, November 27th, available at <https://www.timeslive.co.za/news/south-africa/2019-11-27-two-japanese-jailed-face-deportation-for-stealing-lizards-in-cape-town/>
- Noseworthy, J. (2018): The online trade in Caribbean Island reptiles. Online Article 27th July 2018, <https://www.illegalwildlifetrade.net/2018/07/27/the-online-trade-in-caribbean-island-reptiles/>
- NSPCA (2019): Illegal reptile trade. <https://nspca.co.za/animal-welfare/wildlife/illegal-reptile-trade/>.
- Obando Acuña, V. (2002): Biodiversidad en Costa Rica: estado del conocimiento y gestión. INBio, Instituto Nacional de Biodiversidad (ed.), pp. 81.
- O'Shea, M.; Allison, A.; Tallwin, O.; Wilson, S. & J. Melville (2017): *Chlamydosaurus kingii*. The IUCN Red List of Threatened Species 2017: e.T170384A21644690. <http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T170384A21644690.en>. Downloaded on 02 December 2019.
- Parke, E. (2018): Lucrative, easy and on the rise: Animal smuggler warns of growing black market in native animals. Article at *ABC News*, dated 15 May. <https://www.abc.net.au/news/2018-05-15/black-market-demand-fuelling-native-animal-smuggling/9724140>
- Parusnath, S. (2019): Reptile laundering. Cited in report of Delia du Toit for the University of Witwatersrand, Johannesburg, November 12th, <https://www.wits.ac.za/news/latest-news/research-news/2019/2019-11/reptile-laundering-.html>
- Petrosian, G.A.; Pires, S.F. & D. van Uhm (2018): An overview of seized illegal wildlife entering the United States. *Global Crime* 17: 181–201.
- Pinnock, D. (2018): South African law is failing to protect its wildlife. Online Article for Conservation Action Trust, 5th June, available at <https://conservationaction.co.za/recent-news/south-african-law-is-failing-to-protect-its-wildlife/>
- Piston, J. & L. Toledo (2010): Amphibian illegal trade in Brazil: What do we know? *South American Journal of Herpetology* 5(1):51–56.
- PROFEPA – Procuraduría Federal de Protección al Ambiente (2019): *in litt.* to Juan-Carlos Cantú, May 2019.
- Rasmeni, M. (2020): Reptile smuggling on the increase because of globalisation and the internet. Article in *Namibia Economist*, 13th Jan, available at <https://economist.com.na/50001/environment/reptile-smuggling-on-the-increase-because-of-globalisation-and-the-internet-expert/>
- Rodrigo, M. (2019): EU market a factor as Sri Lanka pulls its punches on protection for lizards. Online-Article in *Mongabay*, October, 6th, <https://news.mongabay.com/2019/10/eu-market-a-factor-as-sri-lanka-pulls-its-punches-on-protection-for-lizards/>
- Rodrigo, M. (2012): Wildlife officers raid Kalpitiya hotel, arrest six tourists, seize protected wildlife species. Article of 4th March, *Sunday Times Sri Lanka*, www.sundaytimes.lk/120304/News/nws_44.html.
- Rowley, J.J.; Shepherd, C.R.; Stuart, B.L.; Nguyen, T.Q.; Hoang, H.D. *et al.* (2016): Estimating the global trade in Southeast Asian newts. *Biological Conservation* 199: 96–100.
- Runhovde, S.R. (2018): Illegal online trade in reptiles from Madagascar. Series "Digital Dangers", The Global Initiative Against Translational Organised Crime (Ed.), Geneva, Switzerland. 20 S.
- SARATAG (2019): Background information on the Workshop at the Herpetological Association of Africa, Monday 9th September 2019, Cape St. Francis, South Africa.
- Scanlon, J. (2020): Time to end the scourge of wildlife crime. Speech at special event in the House of Lords on 3 March, UN World Wildlife Day, available at <https://www.independent.co.uk/voices/campaigns/GiantsClub/time-to-end-the-scourge-of-wildlife-crime-a9372651.html>
- SEMARNAT (2010): NORMA Oficial Mexicana NOM-059-SEMARNAT-2010, Protección ambiental-Especies nativas de México de flora y fauna silvestres Categorías de riesgo y especificaciones para su inclusión, exclusión o cambio-Lista de especies en riesgo.

- Shepherd, C.; Janssen, J. & J. Noseworthy (2019): A case for listing the Union Island Gecko *Gonatodes daudini* in the Appendices of CITES. *Global Ecology and Conservation* 17: e00549. <https://www.sciencedirect.com/science/article/pii/S2351989419300356>
- Sindaco, R., Wilms, T. & S.F. Mohammed, S.F. (2012): *Pristurus carteri*. The IUCN Red List of Threatened Species 2012: e.T199586A2605065. Downloaded on 03 February 2020.
- Sindaco, R. & S.F. Mohammed (2012): *Pristurus gallagheri*. The IUCN Red List of Threatened Species 2012: e.T200631A2674341. <https://dx.doi.org/10.2305/IUCN.UK.2012.RLTS.T200631A2674341.en>. Downloaded on 04 February 2020.
- Sollund, R. (2016): Wildlife Trafficking in a Globalized World: An Example of Motivations and Modus Operandi from a Norwegian Case Study. In: *Problematic Wildlife*. Angelici F. (ed.), Springer, Cha, S. 553-570.
- Steyn, P. (2015): Big illegal market for little critters – There's a price on anything that walks, creeps, crawls, or flies, as a South African nature cop explains. Article in *National Geographic*, 11th November. <https://www.nationalgeographic.com/news/2015/11/151111-south-africa-wildlife-smuggling-cape-floral-kingdom-cites-paul-gildenhuys/>
- Towie, N. (2009): Death adder among 34 reptiles seized at Perth Airport. Article at *News Com Australia*, 30 April. <http://www.news.com.au/news/death-adder-on-plane-to-perth/story-fna7dq6e-1225705327631>
- TRAFFIC (2019): Customs and police officers in Namibia receive port scanner training on wildlife contraband. Press release 3rd October, <https://www.traffic.org/news/namibia-port-scanner-training/>
- Uetz, P.; Hallermann, J. & J. Hosek (2019): The Reptile Database. Country-based search at www.reptile-database.org, Last update Dec 2019.
- UFZ, Helmholtz Centre for Environmental Research (2016): Gecko clearance sale. The European pet trade is jeopardising the survival of rare reptile species. Press release 12th July, available at https://www.ufz.de/index.php?en=36336&webc_pm=29/2016 (viewed 29th January 2020).
- UNEP – United Nations Environmental Program (2020): 2020 is a super year for nature and biodiversity. Press release, dated 10 Feb. <https://www.unenvironment.org/news-and-stories/news/2020-super-year-nature-and-biodiversity>
- UNEP – United Nations Environmental Program (2019): Megadiverse Brazil: giving biodiversity an online boost. UN Environment Programme News Article 28th Feb, <https://www.unenvironment.org/news-and-stories/story/megadiverse-brazil-giving-biodiversity-online-boost>.
- UNEP-WCMC (2016): Review of the risk posed by importing Asiatic species of Caudate amphibians (salamanders and newts) into the EU. SRG 76/10. UNEP-WCMC, Cambridge.
- UNEP-WCMC (2015): Review of species for possible CoP17 proposals for amendment of CITES Appendices. SRG72/7/2 a). UNEP-WCMC, Cambridge, 29 pp.
- UNEP-WCMC (2009): Review of non-CITES reptiles that are known or likely to be in international trade. A Report to the European Commission. UNEPWCMC, Cambridge, 86 pp.
- United Nations (2019): Resolution A/73/L.120 –Tackling illicit trafficking in wildlife. Adopted by the General Assembly on 10 September 2019. Available at <https://undocs.org/A/73/L.120>
- United Nations (2017): Resolution A/71/L.88 –Tackling illicit trafficking in wildlife. Adopted by the General Assembly on 5 September 2017. Available at <https://undocs.org/A/71/L.88>
- United Nations (2015): Resolution 69/314 –Tackling illicit trafficking in wildlife. Adopted by the General Assembly on 30 July 2015. Available at http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/69/314
- UNODC (2020): World Wildlife Crime Report 2020 – Trafficking in Protected Species. Vienna, 136 pp. Available at https://www.unodc.org/documents/data-and-analysis/wildlife/2020/World_Wildlife_Report_2020_9July.pdf
- UNODC (2016): World Wildlife Crime Report – Trafficking in protected species. 100 pp. Available at https://www.unodc.org/documents/data-and-analysis/wildlife/World_Wildlife_Crime_Report_2016_final.pdf
- Vasquez, C. (2017): *in litt.* to Alejandra Goyenechea, Defenders of Wildlife, 29th September.
- Vinke, T. & S. Vinke (2015): Can illegal be legal within the European Union? *Schildkröten im Fokus Online* (1): 1-6.
- Warner, J.K. (2009): Conservation biology of the Gabon adder (*Bitis gabonica*) in South Africa. Dissertation thesis, School of Animal, Plant and Environmental Sciences. University of the Witwatersrand, Johannesburg. 121 pp.
- Weerakoon, D. (2012): A Brief Overview of the Biodiversity of Sri Lanka. In: *The National Red List 2012 of Sri Lanka*; Conservation Status of the Fauna and Flora. Ministry of Environment, Colombo, Sri Lanka: pp. xvii-xix
- Whitaker, A.H. & R.A. Sadler (2011): *Eurydactyloides occidentalis*. The IUCN Red List of Threatened Species 2011: e.T176204A7196841. <http://dx.doi.org/10.2305/IUCN.UK.2011-1.RLTS.T176204A7196841.en>. Downloaded on 02 December 2019.
- Whitaker, A.H., Sadler, R.A. & A.M. Bauer (2010a): *Eurydactyloides symmetricus*. The IUCN Red List of Threatened Species 2010: e.T176141A7187867. <https://dx.doi.org/10.2305/IUCN.UK.2010-4.RLTS.T176141A7187867.en>. Downloaded on 29 January 2020.
- Whitaker, A.H., Sadler, R.A. & A.M. Bauer (2010b): *Bavayia exsuccida*. The IUCN Red List of Threatened Species 2010: e.T29452A9498147. <https://dx.doi.org/10.2305/IUCN.UK.2010-4.RLTS.T29452A9498147.en>. Downloaded on 30 January 2020.
- Wilson, L. et al. (2013): A conservation reassessment of the reptiles of Mexico based on the EVS measure. *Amphibian & Reptile Conservation* 7(1): 1–47.
- Zahradníčková, V.; Abramjan, A.; Palupčíková, K.; Reháč, I. & D. Frynta (2017): Discovering an Antillean Anolis (Squamata: Polychrotidae) with contrasting sexual dichromatism in otherwise sexually monomorphic “chamaeleolis” group. *Acta Soc. Zool. Bohem.* 81: 31–47.

.....

Imprint

Dr. Sandra Altherr & Katharina Lameter

© Pro Wildlife, August 2020

All rights reserved by Pro Wildlife

Any reproduction, in full or in part, of this publication must credit Pro Wildlife

Suggested citation

Altherr, S. & K. Lameter (2020): Stolen Wildlife III – The EU is a main hub and destination for illegally caught exotic pets. Report by Pro Wildlife (ed.), Munich, Germany, 40 pp.

Acknowledgments

The authors would like to thank the following experts (in alphabetical order) for their contribution of valuable information, support, and photos: José Alberto Alvarez, Dr. Mark Auliya, Juan Carlos Cantu, Frauke Fleischer-Dogley, Daniela Freyer, Alejandra Goyenechea, Jagath Gunawardana, Manori Gunawardena, Sevandi Jayakody, Indika Jayatissa, Natalie Kämmerer, Samantha Rajasinghe, Dr. Jo Swabe, Dr. Kanishka Ukuwela, and Stuart Williamson.

Copyrights

Cover, Top: Cover: *Calotes calotes* © Axxelerate/Pixabay

Cover, Bottom left: *Chlamydosaurus kingii* © Miklos Schiberna_Public Domain

Cover, Bottom right: *Cochranella albomaculata* © Brian Gratwicke_Wikimedia Creative Common Licence 2_0

Page 3: *Corallus annulatus* © shutterstock

Page 5: from left to right:

Sphaerodactylus elegans © Thibaudaronson_Wikimedia Creative Common Licence 4_0

Phrynosoma cornutum © Pixabay

Bitis peringueyi © Jay Iwasaki_Wikimedia Commons_Creative Licence 2_0

Pachydactylus rangei © Stefan.Kuemmel_Wikimedia Commons_Creative Licence 3_0

Page 8: *Phrynosoma cornutum* © Pixabay

Page 10: *Sphaerodactylus elegans* © Thibaudaronson_Wikimedia Creative Common Licence 4_0

Page 12: *Cochranella pulverata* © Brian Gratwicke_Wikimedia Creative Common Licence 2_0

Page 14: *Phyllomedusa Species* © Pixabay

Page 16: *Pachydactylus rangei* © Stefan.Kuemmel_Wikimedia Commons_Creative Licence 3_0

Page 20: *Trimeresurus trigonocephalus* © Gihan Jayaweera_Creative Commons Attribution-Share Alike 3.0

Page 22: *Echinotriton andersoni* © Neil Dalphin_Wikimedia_Public Domain

Page 24: *Egernia cunninghami* © Donald Hobern_Wikimedia Creative Common Licence 2_0

Page 26: *Rhacodactylus ciliatus* from New Caledonia © shutterstock

Page 33: *Calotes calotes* © Rehman Abubakr_Wikimedia Creative Common Licence 4_0

Printed on 100% recycled paper: www.dieUmweltDruckerei.de (Germany)

.....



Pro Wildlife
Engelhardstrasse 10
D-81369 Munich
+ 49 (89) 81299 507
mail@prowildlife.de
www.prowildlife.de