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Endangered and Dangerous:
How a Special Exemption from CITES Appendix I
Classification Could Counterintuitively Protect Certain
Reptile Species from Extinction

Prof. Billy Gage Raley*

Dangerous reptile species face a bleak future, as humans are instinctually-driven to kill wild snakes and crocodiles. Fortunately, people are also economically-driven to rear domesticated snakes and crocodiles for their skins. However, regulations that impose barriers to the international trade of endangered species are currently being exploited by wealthy nations such as the U.S. and Australia to protect their domestic reptile markets from foreign competition. This article argues that signatories to the CITES treaty should immediately lift domestic restrictions on the importation of Appendix I reptiles raised in CITES-certified farms, and also support proposals to downgrade dangerous reptiles from Appendix I to Appendix II classification.

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Introduction

Reptiles are a cursed taxonomical class. “Snake-bit”, so to speak. According to a recent study sponsored by the International Union for Conservation of Nature (IUCN) Species Survival Commission, one in five reptile species are in danger of extinction.²⁾

The primary threat to reptiles is loss of habitat. A majority of the world’s reptiles are found in the tropics,³⁾ and the tropics are undergoing rapid development⁴⁾ and

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2) John Vidal, *One in five reptile species faces extinction study*, Guardian, Feb. 15, 2013, <https://www.theguardian.com/environment/2013/feb/15/reptile-species-face-extinction>.

3) *Anacondas and other scaled wonders of the rainforest*, WWF, http://wwf.panda.org/what_we_do/where_we_work/amazon/about_the_amazon/wildlife_amazon/reptiles/

4) *Social, Economic & Environmental dimensions to answer: Is life in the tropics getting better?* State

deforestation.⁵⁾ Many reptile species are highly-adapted to specific environments and are therefore especially vulnerable to ecological disruptions.⁶⁾

Despite the hopes and efforts of conservationists, fighting against tropical development is a losing battle. Today, 40% of the world's population lives in the tropics, and that number is expected to grow to over 50% by 2050.⁷⁾ Tropical nations are also experiencing tremendous economic growth,⁸⁾ both spurred by and spurring more exploitation of natural environments.⁹⁾ The pace of reptile habitat loss, therefore, is likely to accelerate rather than decline.

Besides the loss of territory, snakes and crocodilians face a unique type of threat: instinctual human fear. It is unrealistic to expect humans to refrain from killing these dangerous wild reptiles, even when they are ordered to refrain from doing so by law.¹⁰⁾ Imagine a farmer who finds a crocodile in his family's rice paddy, or a cobra in his family's garden, and how absurd it would be to expect him to tolerate this threat to his children out of "respect for biodiversity".

But while humans are instinctually-driven to kill wild snakes and crocodilians, they are also economically-driven to rear domesticated snakes and crocodiles for their skins. Unlike other dangerous endangered species such as big cats, sharks, rhinos, and elephants, snakes and crocodiles are relatively low-maintenance animals that can be profit-

of the Tropics Project, <http://sott.jcu.edu.au> (noting that tropical nations are undergoing "[r]apid population and economic growth").

5) See, e.g., Kevin Hillstrom & Laurie Collier Hillstrom, *Latin America and the Caribbean: A Continental Overview of Environmental Issues*, Vol. 5 140 (2004) (stating that the Amazon watershed has undergone considerable alteration in the last half century due to increased industrial and agricultural activity, which are "wreaking major changes on the region's rivers and tropical forests").

6) Vidal, *supra* note 2 (stating that "many [reptile] species are very highly specialised in terms of habitat use and the climatic conditions they require for day to day functioning. This makes them particularly sensitive to environmental changes.").

7) *10 reasons why the tropics matter*, State of the Tropics Project, <http://stateofthetropics.org/10reasons>.

8) Nova SBE, *Tropical Knowledge and Management 2*, available at http://www.novasbe.unl.pt/images/novasbe/files/Brochures/AFnetBrochura_TropiKMan.pdf (noting that the tropical world's economy is growing 20% faster than the Rest of the World").

9) *Technologies to Sustain Tropical Forest Resources* 37 (1984) (stating that "[t]ropical forests support economic development").

10) See Jon Furman, *Timber Rattlesnakes in Vermont & New York: Biology, History, and the Fate of an Endangered Species* 73 (2015) ("Even in this more enlightened age, with laws in place to protect the snakes in many states, including Vermont and New York, many people will still kill one of these animals if it happens to come onto their property").

ably farmed. The value of their skins, meat, and other byproducts can outweigh the cost of breeding and raising the animals to maturity.¹¹⁾

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which is intended to conserve endangered species, is actually serving to inhibit commercially-motivated conservation of reptiles. Many dangerous reptiles are listed as Appendix I species, and the international trade of species falling under this classification is heavily restricted.¹²⁾ Some nations, such as the United States, ban all commercial imports of Appendix I species.¹³⁾

The ultimate goal of CITES is to preserve species in their natural habitat. Unfortunately, due to the human urge to eliminate dangerous reptiles from the wild, this is not a realistic goal when it comes to snakes and crocodiles. Sustainable commercial exploitation is the only viable method of preserving dangerous reptile species.

In light of these realities, this article argues that signatories to the CITES treaty should vote to downgrade profitably-farmable reptiles from “Appendix I” to “Appendix II” classification. It also argues that wealthy consumer nations such as the U.S. and Australia should not exercise their right to impose heavier import restrictions on snakes and crocodiles than those mandated by CITES.

Part I of this article discusses how the fear of dangerous reptiles is innate and widespread. Part II discusses how reptile farming is a profitable business model. Part III addresses how CITES raises obstacles to international trade. Part IV discusses the benefits of removing barriers to the international trade of snakes and crocodiles. The article concludes by asserting that nations should remove domestic restrictions on the importation of farmed Appendix I reptiles, and also support proposals to downgrade dangerous reptiles from Appendix I to Appendix II classification.

11) Patrick Aust, An assessment of the commercial production of CITES-listed snake species in Viet Nam and China 2 (2014) (“Snakes and snake products are sought after for diverse reasons, including meat, skin, pets, cosmetics and medicines. The demand for snakes, particularly from Asia’s growing middle class, is fuelling an increase in international trade and the emergence of commercial production systems.”).

12) See *infra* note 63–79 and 91–94 and accompanying text.

13) See *infra* note 80–87 and accompanying text.

I. Evolutionary Incentives to Eliminate Crocodiles and Snakes in the Wild

From time immemorial, humans have viewed reptiles not just as one of the many impersonal threats posed by nature, but as an implacable foe motivated by evil intentions.¹⁴⁾ “Some of the oldest tales and wisest mythology,” notes the Association for Psychological Science, “allude to the snake as a mischievous seducer, dangerous foe, or powerful iconoclast.”¹⁵⁾ For example, the story of Adam and Eve one of the oldest surviving narratives in human history¹⁶⁾ represents a snake as the physical embodiment of Satan, the archenemy of mankind.¹⁷⁾ According to that account, a divine curse dictates that humans and snakes will forever view each other as mortal enemies.¹⁸⁾

Dangerous reptiles feature prominently in other historical accounts. Snakes are included as part of the biblical plagues of Egypt narrative,¹⁹⁾ and an infestation of “fiery serpents” is sent to punish the Israelites during the Exodus.²⁰⁾ It is speculated that the mythical Leviathan may have been a larger-than-life representation of the Nile Crocodile.²¹⁾ The greatest villain in Greek mythology, Medusa, has snakes as hair,²²⁾ and an asp bite was the legendary cause of death of Cleopatra.²³⁾

Fast-forwarding to modern times, reptiles are perennially depicted as antagonists in

14) Craig Kasnoff, *Indian Python: An Endangered Species*, Bagheera, http://www.bagheera.com/inthewild/van_anim_python.htm (“Throughout history, humans have regarded snakes with both fascination and horror. In many cultures, snakes have been symbols of evil, from the Biblical serpent in the Garden of Eden to the snake demons of Indian mythology. To the ancient Egyptians the emblem of judgment and death was a snake.”).

15) Vanessa LoBue, *The Evolution of Aversion: Why even children are fearful of snakes*, Assoc. Psycho. Sci., Feb. 27, 2008, <http://www.psychologicalscience.org/media/releases/2008/lobue.cfm>.

16) See Sven Birkerts, *The Longwood Introduction to Fiction* 29 (1992) (stating that the story of Adam and Eve “can be seen as one of the earliest attempts to account for human origins”).

17) Revelation 12:9 (“[T]hat serpent of old, called the Devil and Satan.”).

18) Genesis 3:14-15 (“[T]he LORD God said to the serpent: [. . .] you are cursed [. . .] I will put enmity between you and the woman, and between your seed and her Seed; He shall bruise your head, and you shall bruise His heel.”).

19) Exodus 7:8-13.

20) Numbers 21:6.

21) Matt Kaplan, *Medusa’s Gaze and Vampire’s Bite: The Science of Monsters* 86 (2012).

22) Stephen R. Wilk, *Medusa: Solving the Mystery of the Gorgon* 91 (2007).

23) Duane W. Roller, *Cleopatra: A Biography* 148 (2010).

films. Snakes appear as villains in blockbuster movies such as *The Jungle Book* and the *Indiana Jones* series, and in countless B-movies such as *Snakes on a Plane* and *Anaconda*.²⁴⁾ Crocodiles are featured in James Bond films, *Peter Pan*, *Tarzan*, *Crocodile Dundee*, and B-movies such as the *Lake Placid* series.²⁵⁾ Last but not least, the *Jurassic Park* series, which stars giant prehistoric reptiles that attack humans, is “one of the most successful [movie] franchises of all time.”²⁶⁾

According to scientists at the University of Virginia, “the legend surrounding th[ese] proverbial predator[s] may not be based solely on fantasy,” as the fear of reptiles “is most likely intrinsic.”²⁷⁾ “Fear of snakes is one of the most common phobias,” despite the fact that “many people have never seen a snake in person.”²⁸⁾ Researchers believe that there is an “evolved tendency in humans for the rapid detection of snakes,” as tests show that even young children can quickly identify snakes as a threat.²⁹⁾ This phenomenon is known in the scientific community as the “snake detection hypothesis.”³⁰⁾ This tendency has been identified in other primates as well. As the *Washington Post* explains:

Although some of us fear snakes more than others, all baby humans, chimps and monkeys are equally jumpy when confronted with a black plastic snake. That aversion probably grew out of the pressures of life in the jungle eons ago. Back then, encounters with certain snakes were a matter of life and death, and a healthy fear of snakes kept our ancestors alive long enough to procreate.³¹⁾

24) Richard B. Armstrong & Mary Willems Armstrong, *Encyclopedia of Film Themes, Settings and Series* 186 (2000).

25) *Id.* at 8.

26) Andrew Lisa, ‘*Harry Potter*’, ‘*Jurassic Park*’, ‘*Avengers*’ and 14 Other Multi-Billion Dollar Movie Franchises, *Huff. Post*, Aug. 20, 2015, http://www.huffingtonpost.com/gobankingrates/harry-potter-jurassic-par_b_8017852.html.

27) LoBue, *supra* note 15.

28) Clara Moskowitz, *Why We Fear Snakes*, *Live Sci.*, March 3, 2008, <http://www.livescience.com/2348-fear-snakes.html>.

29) LoBue, *supra* note 15.

30) Jan W. Van Strien et al., *Testing the snake-detection hypothesis: larger early posterior negativity in humans to pictures of snakes than to pictures of other reptiles, spiders and slugs*, 8 *Front. Hum. Neurosci.* 691 (2014).

31) Arthur Allen, *Evolutionary psychology explores ancient and newer roots of instinctual fears*, *Wash.*

Humans also have an instinctual fear of crocodiles. A study of “[t]wenty-four healthy, non-phobic women” showed that they quickly reacted to photographs of crocodiles and snakes, suggesting that these types of deadly reptiles “may have been important agents of evolutionary changes in the primate visual system allowing rapid visual detection of fearful stimuli.”³²⁾ A study of newborn rhesus monkeys showed that they too have an innate fear of toys resembling crocodiles and snakes.³³⁾ A fear of crocodiles may also be behind the widespread phobia of “murky water.”³⁴⁾

This intrinsic aversion to snakes and crocodiles gives rise to a derivative human urge to eliminate them. The fear of venomous snakes so strongly “compels humans to kill the potential threat” that even harmless snakes are often killed out of an abundance of caution.³⁵⁾ Conservationists in Sri Lanka were “told that crocodiles were routinely killed as people are fearful of their presence in their neighborhood, especially in view of the fact that women and children bathe in [] seasonal ponds.”³⁶⁾

The fear of reptiles greatly complicates conservation efforts. In India, where snake-bites kill nearly 50,000 people annually,³⁷⁾ laws protecting endangered snakes under the threat of criminal prosecution are not enough to deter the population from killing them. Though “harming a snake is a punishable offence under the Indian Wildlife Protection Act,”³⁸⁾ one snake removal volunteer feels he cannot charge panicked customers for his services because “then people will kill the snake rather than pay.”³⁹⁾ Even Indians

Post, Oct. 25, 2010, <http://www.washingtonpost.com/wp-dyn/content/article/2010/10/25/AR2010102503433.html>.

32) Van Strien et al., *supra* note 30.

33) Allen, *supra* note 31.

34) Stephen T. Asma, *Monsters on the Brain: An Evolutionary Epistemology of Horror*, 81 Soc. Research 941, 947 (2014).

35) Ed Yong, *To Protect An Endangered Snake, First Protect A Venomous One*, Nat. Geo., Sept. 2, 2014, <http://phenomena.nationalgeographic.com/2014/09/02/to-protect-an-endangered-snake-first-protect-a-venomous-one/>. See also Chandan Surabhi Das, *Declining snake population-why and how: a case study in the Mangrove Swamps of Sundarban, India*, 59 Eur. J. Wildl. Res. 227, 233 (2013) (“The fear and resentment aroused due to snakebites results in malicious and rampant killing of many non-venomous snakes on sight.”).

36) Harry Messel & Grahame Webb, *Regional Reports: Sri Lanka*, 23 Croc. Spec. 10 (2004).

37) Anita Malhotra, *Snake bites kill 45,000 Indians every year and that number won't come down anytime soon*, Quartz India, Jul. 28, 2015, <http://qz.com/465409/snake-bites-kill-45000-indians-every-year-and-that-number-wont-come-down-anytime-soon/>.

38) *Just dial 9871963535 for snake helpline*, Times of India, Jul. 9, 2008, <http://timesofindia.indiatimes.com/home/environment/flora-fauna/Just-dial-9871963535-for-snake-helpline/articleshow/3214800.cms>.

tasked with wildlife conservation are prone to killing snakes; in the Sundarban reserve forest, many park employees “do not hesitate to kill a snake on sight, including snakes in remote areas where they pose no real danger to people.”⁴⁰⁾

Vigilante hunting is a constant concern for crocodile sanctuaries, as “local farmers and landholders are [unlikely] to tolerate proximity to wild crocodilians and the risks they pose to humans and livestock.”⁴¹⁾ In Thailand, Pang Sida National Park has been set aside as a wild crocodile sanctuary, but “[d]uring [the] wet season, crocodiles may be flushed out of protected areas” into surrounding villages.⁴²⁾ Thai officials must hold public meetings to educate locals about conservation and plead with them not to kill the escaped crocodiles, but rather report them to authorities.⁴³⁾ The desire to kill crocodiles that wander off the reservation is understandable, as there have been many instances of crocodiles killing people near wildlife sanctuaries.⁴⁴⁾ In the Indian state of Odisha, for example, there are frequent reports of crocodiles from a wildlife sanctuary straying into nearby rivers, and “[l]ethal assault by the reptiles and consequent retaliatory attack by men, have become a regular feature in this part of the state.”⁴⁵⁾

39) Dan Bloom, *Meet the Indian snake charmer who risks his life every day to remove some of the deadliest species in the world from people's homes - and he's allergic to most anti-venoms*, Daily Mail, Jul. 22, 2014, <http://www.dailymail.co.uk/news/article-2701529/Meet-Indian-snake-charmer-risks-life-day-remove-deadliest-species-world-peoples-homes-hes-allergic-anti-venoms.html>.

40) Das, *supra* note 35.

41) Petrus Johannes Botha, *The distribution, conservation status and blood biochemistry of Nile crocodiles in the Olifants river system*, Mpumalanga, South Africa 6 (2011).

42) CITES, *Consideration of Proposals for Amendment of Appendices I and II*, 4 CoP16 Prop. 25 4 (2013).

43) *Id.*

44) *See, e.g., Elephants, crocodiles kill 7 people at Malawi park*, Hindustan Times, Sept. 29, 2015, <http://www.hindustantimes.com/world/elephants-crocodiles-kill-7-people-at-malawi-park/story-sBGs5f4qLHQQHqVvG5ppvJ.html> (stating that “four people [were] killed outside the park by crocodiles and crop-raiding elephants,” and that experts attributed the deaths “primarily to the fact that the reserve is unfenced”); *Fishing community in shock after man snatched from boat while fishing in Kakadu*, NT News, Jun. 9, 2014, <http://www.ntnews.com.au/news/northern-territory/fishing-community-in-shock-after-man-snatched-from-boat-while-fishing-in-kakadu/story-fnk0b1zt-1226946962619> (listing multiple reports of people being killed by crocodiles in or near Australian parks); *Woman Killed By Crocodile Near Bhitarkanika National Park in Odisha*, NDTV, Feb. 19, 2016, <http://www.ndtv.com/india-news/woman-killed-by-crocodile-near-bhitarkanika-national-park-in-odisha-1279111> (stating that the death of a woman who was killed by a crocodile was just the latest in a series of “man-animal conflict in areas close to Bhitarkanika National Park”).

45) *Woman killed by crocodile in Odisha's Kendrapara*, Times of India, Feb. 19, 2016, <http://timesofindia.indiatimes.com/city/bhubaneswar/Woman-killed-by-crocodile-in-Odisha-Kendrapara/articleshow/>

II. Economic Incentives to Conserve Crocodiles and Snakes in Captivity

While humans have an evolutionary incentive to kill dangerous reptiles in the wild, they also have an economic incentive to raise dangerous reptiles in captivity. Snake and crocodile farming is a viable business model. Demand for products made from reptiles is sufficient to drive entrepreneurs to establish sustainable breeding populations.

“The crocodylian skin industry,” for example, “is robusta constant feature has been persistent demand.”⁴⁶⁾ Cobras and pythons are “[v]alued for their meat, skin and medicinal worth.”⁴⁷⁾ Over the past quarter-century, “the growth of Asia’s wealthy middle class and increasing demand for luxury goods” has led to an enormous growth in demand for reptile products.⁴⁸⁾

Commercial crocodile farming is credited with saving the Siamese crocodile from the threat of disappearance. Ironically, “Southeast Asia’s wild crocodiles were brought to the brink of extinction because of their pliable, oblong scales that fed the appetite of the fashion industry, yet the value of their skin also spared them from total extirpation.”⁴⁹⁾ In the mid-1980s, when the species had almost vanished, “[t]he turnaround came when a handful of pioneers began farming crocodiles for commercial gain, [. . .] resulting in at least 1,000 farms of all sizes and the hundreds of thousands of the reptiles in existence today.”⁵⁰⁾ In Thailand, it is estimated that only 200 Siamese Crocodiles survive in the wild, but over 700,000 are being commercially raised in captivity.⁵¹⁾

Though commercial breeding of snakes has not yet reached the scale of crocodile farming,⁵²⁾ there is strong potential for growth in this industry. King cobra farming,

51055031.cms.

46) James MacGregor, *The Call of the Wild*, captive crocodylian production and the shaping of conservation incentives 38 (2006).

47) Patrick W. Aust et al., *Asian snake farms: conservation curse or sustainable enterprise?* 1 (2016).

48) *Id.*

49) *Crocodile Farming in Vietnam*, AsiaLIFE, Jan. 6, 2016, <https://www.asialifemagazine.com/vietnam/crocodile-farming-in-vietnam>.

50) *Id.*

51) CITES, *supra* note 42, at 2.

52) JP Dunbar, *Ron Lily: The Snake Man of Bali*, Herpetological Soc. Ireland, April 26, 2016, <https://thehsi.org/2016/04/26/ron-lilley-the-snake-man-of-bali/> (noting that “there is as yet no large-scale commercial breeding of snakes” to meet the demand for snake products in Indonesia).

for example, is highly-profitable in countries like Vietnam, where, as of 2015, they “are sold for their meat and traditional medicinal value for US\$81/kg.”⁵³⁾ Vietnam is also “the world’s largest producer of captive-bred pythons, exporting over 150,000 skins in 2013.”⁵⁴⁾ Profits at large-scale snake farms in Vietnam “can exceed US\$1 million per annum per farm.”⁵⁵⁾

“Biologically, snakes are relatively well suited to farming.”⁵⁶⁾ They grow rapidly in captivity, reaching market size in less than two years.⁵⁷⁾ Once they reach maturity, snake fecundity is high (more than 20 eggs per year) for a period of about four years.⁵⁸⁾ Their food source comes from cheap, undesirable rodents or from waste protein from food production chains.⁵⁹⁾

The market for snake and crocodile products will likely continue to grow into the future.⁶⁰⁾ Snake skins and crocodile leather have always been prized by consumers.⁶¹⁾ Even apart from the lucrative skin market, crocodile and snake meat has “the potential to become a cheap and environmentally friendly source of high quality protein.”⁶²⁾

53) Aust, *supra* note 10, at 20.

54) *Id.* at 3.

55) *Id.* at vi.

56) *Id.*

57) *Id.* at v.

58) *Id.* at v-vi.

59) *Id.* at 8.

60) *Id.* at 20 (stating that “[a]ll king cobra farmers said that demand for king cobras was increasing”); David Jones, *Hermes Breeds own Crocs to Meet Bag Demand*, Reuters, Jun. 8, 2009, <http://www.reuters.com/article/us-luxury-summit-hermes-crocodiles-idUSTRE5573QI20090608> (stating that Hermes’ crocodile leather purse “continues to be its fastest-growing product line,” and that even during the economic downturn the company was hiring hundreds of leather craftsmen and expanding operations to meet demand).

61) *See, e.g.*, Tetta Ortiz Matera, *Crocodile Skin 101*, Phil. Star, Mar. 20, 2013, <http://www.philstar.com/fashion-and-beauty/2013/03/20/921623/crocodile-skin-101> (quoting a producer in the Filipino luxury bag industry as stating that the surge in demand for reptile skins is more than a fad, as “there will always be consumers for luxury exotic skin products”).

62) Aust, *supra* note 11, at vi.

III. CITES Classification and Barriers to International Trade

CITES places restrictions on the international trade of products made from endangered species. The treaty has three different classifications for threatened animals:

“Appendix I” classification includes species threatened with extinction. Trade in specimens of these species is permitted only in exceptional circumstances.

“Appendix II” classification includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival.

“Appendix III” includes species that are listed after one member country has asked other CITES Parties for assistance in controlling trade in a species. These species are not necessarily threatened with extinction globally.⁶³⁾

All species of large crocodiles and alligators are listed as Appendix I or II species.⁶⁴⁾ Many snake species are also in danger of extinction.⁶⁵⁾ All pythons and boas are considered threatened by CITES,⁶⁶⁾ and many venomous snakes, including the King Cobra,⁶⁷⁾ are also endangered.⁶⁸⁾

Because “there are many species for which trade would be detrimental to their survival,”⁶⁹⁾ CITES is concerned primarily with regulating the international trade of products

63) How CITES works, <https://cites.org/eng/disc/how.php>.

64) Luis Alejo, AB 2075 Assembly Bill-Bill Analysis 5 (2014).

65) Juliette Jowit & Ashleigh Searle, *Snakes declining at alarming rate, say scientists*, Guardian, Jun. 9, 2010, <https://www.theguardian.com/environment/2010/jun/09/scientists-alarm-snakes>.

66) Philippe De Vosjoli & Roger Klingenberg, *Burmese Pythons: Plus Reticulated Pythons And Related Species* 12 (2012).

67) B Sivakumar, *King cobra under threat, put on red list*, Times of India, Jul. 2, 2012, <http://timesofindia.indiatimes.com/city/chennai/King-cobra-under-threat-put-on-red-list/articleshow/14571226.cms>.

68) Mark O’Shea, *Venomous Snakes of the World* 26 (2008) (providing a non-comprehensive list of endangered venomous snakes).

derived from threatened species.⁷⁰⁾ “[A]ny species listed in Appendix I of CITES is effectively banned from international commercial trade”⁷¹⁾ (though there is an exception for animals bred in captivity, as explained in the following paragraph). Species listed under Appendix II “can be traded internationally, but there are strict rules.”⁷²⁾

While the “ultimate objective” of CITES “is the continued existence of wild populations in their natural habitat,”⁷³⁾ the Convention also recognizes “that commercial trade may be beneficial to the conservation of species and ecosystems when carried out at levels that are not detrimental to the survival of the species in question.”⁷⁴⁾ Because of this, CITES treats Appendix I species as Appendix II species if they are bred in CITES-certified farms.⁷⁵⁾ This exemption allows Appendix I species that are sustainably-farmed to be traded on the international market.⁷⁶⁾

Some nations, however, do not permit the import of Appendix I species even when they have been raised in a CITES-certified facility.⁷⁷⁾ Under Article XIV(1)(a) of the CITES treaty, “each Party retains the right to adopt stricter national measures that regulate or prohibit the import, export, taking, possession, or transport of CITES species.”⁷⁸⁾ CITES members can also, at their discretion, deny import permits for species

69) CITES, Recognition of the Benefits of Trade in Wildlife, Resolution Conf. 8.3 (Rev. CoP13) 1 (2004).

70) What is CITES? <https://www.cites.org/eng/disc/what.php> (stating that CITES’ “aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival”).

71) U.S. Fish & Wildlife Service, CITES & Elephants: What is the “global ban” on ivory trade? 1 (2013). See also CITES, <http://www.worldwildlife.org/pages/cites> (“Appendix I: Includes the world’s most endangered plants and animals, such as tigers and gorillas. Trade in these species, or even parts of them, is completely banned, except in rare cases such as scientific research.”).

72) CITES, <http://www.worldwildlife.org/pages/cites>.

73) CITES, Disposal of confiscated live specimens of species included in the Appendices, Resolution Conf. 10.7 (Rev. CoP15) 1 (2010).

74) CITES, Recognition of the Benefits of Trade in Wildlife, Resolution Conf. 8.3 (Rev. CoP13) 1 (2004).

75) FAQ (Frequently Asked Questions), <https://cites.org/eng/resources/faq.php> (“[I]f a commercial breeder of a CITES Appendix-I species fulfils certain conditions and is registered with the CITES Secretariat, specimens from the breeding operation may be treated as if they are of Appendix-II species, meaning that they can be traded commercially.”).

76) *Id.*

77) David S. Favre, *International Trade in Endangered Species: A Guide to CITES* 191 (1989) (stating that “a number of countries do not recognize this [raised-in-captivity] exception in their domestic legislation”).

78) Revision of Regulations for the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); Final Rule, 50 Fed. Reg. 48,402 (August 23, 2007); *citing* Convention on International Trade in Endangered Species of Wild Fauna and Flora Art. XIV(1)(a), Mar. 3, 1973, 27 U.S.T. 1087,

raised in captivity, since that is only “one of the factors” that customs authorities consider when issuing permits.⁷⁹⁾

The United States is, by far, the largest consumer market in the world,⁸⁰⁾ but unfortunately for reptile farmers, the U.S. also has some of the toughest import laws in the world.⁸¹⁾ For some reptile species, “U.S. laws afford more stringent protections to species than the Convention does,” and “such stricter protections can prevent U.S. interests from participating in trade that is permitted by the Convention.”⁸²⁾ As explained in CITES’ official newsletter, “Many people think that CITES Appendices I and II directly equate to [the U.S. Endangered Species Act (ESA)] listings as endangered and threatened,” but “[t]his is not true. The listing of a species under CITES and the ESA involves different processes and listing criteria.”⁸³⁾ CITES considers the ESA to be “a stricter domestic legislation” than CITES’ international regulations.⁸⁴⁾ Most notably, unlike CITES, the ESA “does not allow for captive-held animals to be assigned separate legal status from their wild counterparts on the basis of their captive state.”⁸⁵⁾

To give a specific example, “in 1983, [CITES] members voted to allow trade in Nile crocodile products from several African countries. However, the United States did not allow imports of such products until 1996 because of Endangered Species Act protections.”⁸⁶⁾ In support of this ban, the U.S. noted that CITES “explicitly recognizes

27 U.N.T.S. 243 (entered into force July 1, 1975).

79) Favre, *supra* note 77.

80) *Market Access Plan 2015-2017 – Why the United States Matters*, Global Affairs Canada, Nov. 4, 2015, http://international.gc.ca/global-markets-marches-mondiaux/markets-marches/map_us-pam_us.aspx?lang=eng (“The United States [] has the largest consumer market in the world with consumption expenditure three-times larger than China, the next-largest consumer market.”).

81) John M. Legler & Richard C. Vogt, *The Turtles of Mexico: Land and Freshwater Forms* 51 (2013) (noting that “[i]t may take more than a year to obtain a CITES import permit to the United States,” even for research purposes).

82) U.S. Government Accountability Office, *Protected Species: International Convention and U.S. Laws Protect Wildlife Differently* 1 (2004).

83) CITES, *CITES World: Official Newsletter of the Parties* 17 (2005).

84) *Id.*

85) Vanessa Kauffman, *U.S. Fish and Wildlife Service Finalizes Rule Listing All Chimpanzees as Endangered Under the Endangered Species Act: Protections expanded to include captive populations*, U.S. Fish & Wildlife Service, Jun. 12, 2015, <https://www.fws.gov/news/ShowNews.cfm?ID=E81DA137-BAF2-9619-3492A2972E9854D9>.

86) *Id.*

the sovereign right of member countries to impose stricter domestic measures.”⁸⁷⁾

The U.S. is not the only country that raises domestic barriers to the importation of farmed reptiles. “We face the same situation in some European countries,” the president of the Thai cooperative of crocodile farmers told the *Bangkok Post*.⁸⁸⁾ Australian domestic law also imposes heavier restrictions on endangered species imports than CITES requires.⁸⁹⁾ Some Thai trade experts also believe that Japan’s domestic import regulations on crocodile skins implement CITES requirements in a overly-burdensome manner.⁹⁰⁾

Even apart from domestic restrictions on Appendix I imports, CITES licensing regulations are tough for farms to comply with.⁹¹⁾ This reality is starkly illustrated by the fact that even in Thailand, which has the most well-developed crocodile farming industry in the world,⁹²⁾ most farms cannot export due to their lack of CITES certification.⁹³⁾ Farmers are also struggling to obtain CITES certification in Cambodia’s fledgling crocodile market, where “16 farms had applied for a CITES license, [but] only six of

87) *Id.*

88) Tunya Sukpanich, *Thais fight to shift lucrative crocs from endangered list*, Bangkok Post, Aug. 3, 2013, <http://www.bangkokpost.com/print/339361/>.

89) Linda L. Tucker, *Australia’s Regulation of Commercial Use of Wildlife: An Absence of Eco-Logic* 161 (2008).

90) International Trade Centre, *Thailand: Company Perspectives: An ITC Series on Non-Tariff Measures* 7 (2014) (noting “that Japan requires CITES export permit for each item of crocodile leather product they export, which must be obtained from the Department of Fisheries in Bangkok. Some companies exports in large volume and as there are only a few officers issuing the permit at the DoF it leads to long waiting times for the exporters”).

91) See IUCN, *Proceedings of the 16th Working Meeting of the Crocodile specialist Group of the Species Survival Commission of IUCN* 311 (2002) (noting that “the granting of licenses, hide inspection and tagging, auctions and transport, effective tannery inspection, efficient CITES certification and expedient export in essence, the non-biological portions of the program” are posing the greatest obstacles to the establishment of a sustainable caiman farming industry in Bolivia. In particular, the administrative red tape can interfere with the harvest schedule, which “requires a precise and fixed timetable of events that must occur sequentially”); R.W.G. Jenkins et al., *Review of Crocodile Ranching Programs* 3 (2004) (discussing how CITES regulations pose a “very serious practical and economic burden” on farming operations).

92) Jon Fernquest, *Thailand’s crocodile industry*, Bangkok Post, Nov. 3, 2011, <http://www.bangkokpost.com/learning/learning-news/264588/thailand-crocodile-industry%5D>.

93) Sukpanich, *supra* note 88 (“Out of the 836 crocodile farms registered with the Thai authorities, only 23 Siamese crocodile farms and 13 saltwater crocodile farms are registered with CITES for international trade.”).

them had obtained approval to export skins so far.”⁹⁴⁾

Because of these barriers to exportation, many reptile farms “rely on local demand for skins and meat.”⁹⁵⁾ In Asia, which is home to many endangered crocodiles and snakes, there is very robust demand not only for reptile meat and skins, but also for traditional medicinal products.⁹⁶⁾ These nations can permit local trading in endangered species products without violating their international commitments, as CITES does not regulate domestic markets.⁹⁷⁾

Since many wealthy nations have strict controls on the import of captive-raised Appendix I species, a coalition of Southeast Asian nations, headed by Thailand, have been lobbying IUCN to move the Siamese crocodile from Appendix I to Appendix II. The biggest goal “[b]ehind the push to have the Siamese crocodile downlisted at CITES is the desire of both Thai farmers and the government to gain access to the lucrative US luxury market.”⁹⁸⁾ Downlisting the species to Appendix II would allow the hundreds of domestically-licensed crocodile farms that have not received CITES certification to export their products.⁹⁹⁾ The chief of Thailand’s Department of Fisheries and the chairman of the Crocodiles Cooperatives of Thailand both estimate that attaining access to American consumers would double the revenue of their nation’s crocodile farming industry.¹⁰⁰⁾

94) Ananth Baliga, *Cambodian croc farms on the cusp of export boom*, Phnom Penh Post, Jun. 13, 2015, <http://www.phnompenhpost.com/post-weekend/cambodian-croc-farms-cusp-export-boom>.

95) *Id.*

96) *A village that breeds millions of snakes*, Reuters, Jul. 25, 2011, <http://news.asiaone.com/News/AsiaOne+News/Malaysia/Story/A1Story20110725-290805.html> (describing how a Chinese village that farms cobras, vipers, and pythons brings in millions of dollars, driven by demand for snakes that “are renowned for their medicinal properties in traditional Chinese medicine and are commonly drunk as soup or wine to boost a person’s immunity”).

97) Solne Guggisberg, *The Use of CITES for Commercially-exploited Fish Species: A Solution to Overexploitation and Illegal, Unreported and Unregulated Fishing?* 306 (2015) (“CITES’ focus on international trade means that it does not regulate domestic.”).

98) Maher Sattar, *Thailand crocodiles caught in tug of war*, Al Jazeera, May 24, 2013, <http://www.aljazeera.com/indepth/features/2013/05/201352083129522707.html&c=7zNcvtGPxkclhD7Bs5Hk24aQFgSsiilugyeu-SnCXHQ&mkt=en-us>.

99) Provisional Assessments by the Secretariat of Proposals to Amendment of Appendices I and II at the 16th Meeting of the Conference of the Parties 31 (2012) (stating that, if Thailand’s proposal was approved, “breeding operations that produce and export this species would no longer have to be registered” under CITES).

100) Sattar, *supra* note 98.

When CITES members voted on Thailand's proposal to downgrade the Siamese and saltwater crocodiles to Appendix II status, a majority voted in support, but the initiative fell short of the two-thirds supermajority necessary for approval.¹⁰¹⁾ Though countries voting against the proposal argued that Thailand has too few crocodiles in the wild, Thailand blamed the failure on protectionist motives. "The effort failed because of the US," the chairman of the Crocodiles Cooperatives of Thailand claimed, stating that the U.S. rallied opposition to the measure because "they wanted to protect the domestic market for their own American alligator industry."¹⁰²⁾

Tellingly, Australia, which is home to the largest crocodile industry in the developed world, was part of the voting block that opposed the downlisting of Siamese crocodile s.¹⁰³⁾ Australia views the crocodile leather being produced cheaply in Asia as "threatening more expensive Australian operations."¹⁰⁴⁾ The populations of saltwater crocodiles in Australia and Australia's close ally Papua New Guinea are listed as an Appendix II species, but are listed as an Appendix I species in "[a]ll other countries including Thailand."¹⁰⁵⁾ Australia, therefore, may have opposed the downlisting proposal out of protectionist motives.

IV. Proposal to Exempt all Dangerous Reptiles from Appendix I Classification

In light of the unique challenges associated with dangerous reptile conservation, exceptional measures should be implemented that take these challenges into account.

101) Pongphon Samsamak, *Thailand fails to get crocodiles delisted*, The Nation Mar. 9, 2013, <http://www.nationmultimedia.com/news/national/aec/30201571> ("For the proposal related to protection of Siamese crocodiles, 69 of the countries present said yes, 49 were against it and 11 abstained, while 61 voted for lifting protection on saltwater crocodiles, 54 were against it, six abstained and the rest chose not to vote.").

102) *Id.*

103) *Id.*

104) Marty McCarthy, *European designers drive crocodile industry growth*, ABC, Jul. 10, 2014, <http://www.abc.net.au/news/2014-07-10/french-and-italian-fashion-designers-want-nt-crocodile-leather/5588296>.

105) Martin Jenkins & Thomasina Oldfield, IUCN/TRAFFIC Analyses of the proposals to amend the CITES Appendices at the 16th meeting of the Conference of the Parties 110 (2013).

Specifically, endangered species classifications that impede the international trade of reptile products should be removed. Though this strategy might not be appropriate for most other types of endangered species, it is the right approach when it comes to reptile conservation.

Before discussing how CITES could help encourage reptile farming efforts, it should be noted that the captive breeding of endangered species for commercial purposes is controversial. Opponents of captive breeding “aren’t just clamoring for the preservation of animals in the wild as a matter of principle. There are pragmatic considerations, including the fear that a wholly farmed species could be perilously inbred.”¹⁰⁶⁾

In the wild, animals are exposed to healthy evolutionary pressures. As the founder of Asia’s first wild crocodile restocking program explains, “[a] wild species has an ecological function when it is out in its habitat eating other species, being eaten, influencing the density of prey and competing species, [and] culling out the weak and sick.”¹⁰⁷⁾ Concerns that crocodile farming “is not a viable biological context” led one activist to argue that while captive breeding “led to a successful industry, it has not been a success story for conservation.”¹⁰⁸⁾

Commercial farming is not a realistic solution to conserving species like elephants, rhinos, or large turtles, because these markets would not be sustainable. Many endangered species are very labor-intensive and expensive to raise, and take many years to reach a marketable size. The price of ivory and other such products would likely plummet once commercial farming increases the supply. Demand would also likely decrease, as possession of a forbidden item is “often regarded as evidence for both wealth and power in many countries,”¹⁰⁹⁾ and these products will lose some of their luster if they are available legally. The legalization of farmed products can also incentivize illicit wild harvesting when hunted products carry a higher profit margin than farmed products. Furthermore, for endangered species such as elephants and primates, their “high levels of intelligence and social needs make living in [captivity] painful for them emotionally and physically,”¹¹⁰⁾ leading some to conclude that there is “no ethical way”

106) Sattar, *supra* note 98.

107) *Id.*

108) *Id.*

109) InterNations.org, *Status Symbols Around the World*, <https://www.internations.org/magazine/status-symbols-around-the-world-17426>.

to breed such animals in captivity.¹¹⁰⁾

Many of these concerns can be rebutted when applied to reptiles. First of all, it is in the financial best-interest of reptile farmers to engage in biologically-sustainable breeding practices, since this helps assure that their stock will remain healthy into the future. And while domestication always raises the danger that a species' evolution will diverge to the point that they would be unable to survive if re-exposed to the stresses of the wild, the preservation of dangerous reptiles in the wild is not a realistic goal in any case. Due to innate human hostility towards snakes and crocodiles, people cannot be expected to tolerate the presence of these reptiles in the wild. Though "[t]he feathers of [environmentalist] dogma were severely ruffled" by this conclusion, it has "bec[o]me clear that the effective conservation of crocodylians often depend[s] on giving wild populations an economic value in order to provide conspicuous and tangible incentives for their long-term sustainable management."¹¹²⁾

Experience has shown that legal reptile markets are sustainable, and it is expected that the removal of legal restrictions on trade will increase demand rather than diminish it. The legalized reptile skin market has also reduced demand for skins harvested from wild animals, as it has reduced the price of the skins and shrunk the financial incentive to risk imprisonment by engaging in illicit hunting.¹¹³⁾ Customers have also come to expect the high quality skins that farming techniques produce, driving down the price that a wild-caught specimen would fetch.¹¹⁴⁾

In addition, reptiles have a simplistic, "primordial cortical function"¹¹⁵⁾ that "do[es]

110) Sara Farr, *Why Elephants Will Never Belong In Zoos*, One Green Planet, July 16, 2015, <http://www.onegreenplanet.org/animalsandnature/why-elephants-will-never-belong-in-zoos/>.

111) Ed Stewart, *No Ethical Way to Keep Elephants in Captivity*, Nat. Geo., May 3, 2013, <http://voices.nationalgeographic.com/2013/05/03/no-ethical-way-to-keep-elephants-in-captivity/>.

112) J. Hutton et al., *Using the market to create incentives for the sustainable use of crocodylians: A review*, in IUCN, *Crocodyles: Proceedings of the 16th Working Meeting of the IUCN-SSC Crocodile Specialist Group* 391 (2002).

113) Sukpanich, *supra* note 88 (quoting the director-general of Thailand's Ministry of Agriculture and Cooperatives's Fisheries Department as stating: "We have an abundance of crocodiles raised in farms to harvest. It is not worth the trouble to take crocodiles from the wild").

114) Aust, *supra* note 11, at 1 ("For crocodylians [. . .] the controlled environment of captive production facilities resulted in a higher quality skin product compared to wild caught equivalents. Cheaper and better quality captive bred skins undermined the economic incentives for over-exploitation of wild populations, while creating a novel livelihood opportunity for rural communities.").

115) Robert K. Naumann et al., *The Reptilian Brain*, 25 *Curr. Biol.* 317 (2015).

not evidence expectancy-based learning,”¹¹⁶⁾ so they do not experience the same degree of stress in captivity that animals with higher cognitive abilities face. Also, the nature of the reptile skin market incentivizes humane farming practices, as customers do not want diseased or scarred skins.¹¹⁷⁾ Reptile farming, therefore, does not carry as many ethical issues as does the farming of other types of species.

The loosening of trade restrictions would also help improve perceptions of the fairness of conservation efforts. Many citizens and business owners in developing countries believe that wealthy economies preach the benefits of globalization, only to engage in disguised protectionist measures themselves.¹¹⁸⁾ As discussed earlier, many reptile farmers suspect that developed countries opposed their efforts to remove Southeast Asian crocodiles from the Appendix I listing, and resent the fact that developed nations may be engaging in a “protectionist approach that deprives resource-rich but economically poor countries of a viable source of income via the commercial use of their native species.”¹¹⁹⁾ If these concerns are not addressed, future international conservation efforts may be greeted with increased skepticism in the developing world.

Delisting reptiles would also further CITES’ anti-poverty goals.¹²⁰⁾ CITES has recognized “that implementation of some listings (particularly Appendix-I listings) may impact livelihoods of rural communities by restricting access to income, employment, and other resources,”¹²¹⁾ leading some to argue that “Parties should interpret and apply the Convention in the light of the many international agreements and policy statements concerning sustainable development and poverty alleviation goals.”¹²²⁾ Reptile habitats tend to be in impoverished or developing tropical nations,¹²³⁾ so loosening trade re-

116) Don M. Tucker, *Mind from Body: Experience from Neural Structure* 124 (2007).

117) See *supra* note 114 and accompanying text.

118) See, e.g., Gage Raley, *Catfish driving a wedge between US and its trade partners*, World Fishing & Aquaculture, Oct. 2, 2014, <http://www.worldfishing.net/news101/industry-news/catfish-driving-a-wedge-between-us-and-its-trade-partners> (“Vietnamese exporters believe [a new catfish import inspection system in the U.S.] was intended to protect US catfish farmers from foreign competition.”).

119) Tucker, *supra* note 89, at 3.

120) CITES, *Livelihoods and Food Security* 2 (2016) (noting that “at its 38th Conference held in Rome, in June 2013, the FAO adopted five Strategic objectives which CITES naturally adheres,” including “[r]educ[ing] rural poverty”).

121) CITES, *Resolution Conf. 16.6: CITES and Livelihoods* 1 (2013).

122) CITES, *CITES and the Precautionary Principle* 2 (2016).

123) See, e.g., *Countries with the most number of reptile species*, Mongabay, <http://rainforests.mongabay.com/03reptiles.htm> (providing a list that shows that developing countries account for nine of the top

restrictions could help with poverty eradication efforts.

Last but not least, removing international trade barriers would be a boon to the farmers that are helping to preserve many endangered reptile species. These farmers single-handedly brought some species back from the brink of extinction,¹²⁴⁾ but unfortunately their tremendous contributions to conservation are often overlooked. If CITES were to grant developing nations' requests to delist reptile species from Appendix I classification, this would provide recognition and financial reward for the farmers who have played such an important role in preserving these species.

Conclusion

In light of these facts, developed markets should remove domestic barriers to the import of reptiles that are raised in captivity. Nations with wealthy consumer markets, such as the U.S., E.U., and Australia, should immediately lift domestic restrictions on the importation of Appendix I reptiles raised in CITES-certified farms. They should also begin supporting proposals to downgrade dangerous reptiles from Appendix I to Appendix II classification.

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ten countries with the highest number of reptile species); Hutton et al., *supra* note 107, at 388 (stating that crocodiles “most often originate in developing countries.”).

124) See *supra* note 49-51 and accompanying text.