



Communication

Urgent International Action Needed to Tackle Illegal Pet Trade in Caribbean *Iguana* Populations

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Abstract: Lizards in the Neotropical genus *Iguana* are heavily traded for the international pet trade, with unusual colour morphs and rare species commanding high prices. Recent research aimed to understand the taxonomy and phenotypic variation of *Iguana* in the Lesser Antilles, with those populations now severely threatened by this trade. Although the entire *Iguana* genus has been on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix II since 1977, current levels of trade regulation are proving to be inadequate for the Caribbean *Iguana* populations, which are declining. This paper presents the case for immediately halting regional commercial trade to safeguard the most vulnerable island populations. We further provide recommendations for trade regulations of other species complexes where the nomenclature used in legislation and the trade industry fall temporarily out of step with new taxonomic changes.

Keywords: CITES; conservation; pet trade; reptile; trade regulation



Citation: van den Burg, M.P.; Vique Bosquet, I.M.; Daltry, J.C. Urgent International Action Needed to Tackle Illegal Pet Trade in Caribbean *Iguana* Populations. *Conservation* **2022**, *2*, 244–247. <https://doi.org/10.3390/conservation2020016>

Academic Editor: Antoni Margalida

Received: 16 February 2022

Accepted: 5 April 2022

Published: 12 April 2022

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Main Text

Neotropical genus *Iguana* comprises primarily arboreal, large, long-lived reptiles that had received relatively little taxonomic attention until recently. Iguanas are widely demanded for their meat and as exotic pets, and *I. iguana* are among the most traded reptiles globally [1]. Prices in the international pet trade vary widely depending on the animal's perceived rarity, ranging from typical low-cost green morphs to more expensive colour variants (e.g., blue, crimson) and rare island endemics, which can command price tags upwards of USD 5000 each. Although the entire *Iguana* genus has been on the CITES Appendix II since 1977, current levels of trade regulation are proving insufficient to safeguard the long-term survival of certain populations in the Caribbean. We present the case for immediately halting regional commercial trade to safeguard populations at current and perceived future risk.

The *Iguana* genus has long been considered to include only two species: the Lesser Antillean iguana *I. delicatissima*, which inhabits multiple Eastern Caribbean islands and is now Critically Endangered, and the much more widespread common green iguana, *I. iguana*, throughout much of Central and South America, and several Caribbean islands. Recently, two additional taxa have been proposed from the Eastern Caribbean: The Southern Antilles horned iguana *I. insularis* (subsp. *insularis* from St Vincent and the Grenadines and Grenada, and *sanctaluciaae* from Saint Lucia) and Sabán black iguana *I. melanoderma* from Montserrat, Saba, and northern Venezuela [2,3]. Ongoing genetic and morphological research led by the first author indicates that the taxonomy of the *Iguana iguana* species complex is not yet fully resolved.

Remarkably, although no CITES live export permits have been issued from their islands of origin, investigative surveys discovered that both *I. insularis* and *I. melanoderma* were being traded internationally several years before being formally described, with trade having escalated since their formal description [4,5]. In other words, iguanas were exported without permits from their native islands and illegally laundered through CITES permits issued by other Caribbean islands. Multiple traders around the globe now offer these newly described and threatened taxa for sale, demonstrating how quickly this industry can act when novel taxa emerge. Such swift commercialization is often observed in the reptile trade industry [6–10], which are globally among the most popular exotic pets [8]. Trade can present a twofold threat to *Iguana* populations: first, through the overharvesting of wild individuals [11], and second, by facilitating the spread of invasive alien iguanas and their pathogens [12–14]. All three *Iguana* species considered to be endemic to the Eastern Caribbean (*I. delicatissima*, *I. insularis* and *I. melanoderma*) are declining, have been illegally traded, and are threatened by the introduced non-native *I. iguana* [2,5,15,16].

Given the ongoing taxonomic research on the *I. iguana* species complex, along with the seemingly insatiable demand from international collectors for novel and rare taxa and colour morphs, there is evidently a high risk of further populations suddenly becoming exposed to overexploitation. The often lengthy delay between a new taxon being formally described, attaining acceptance among species experts and becoming included in conservation tools and legislation (e.g., IUCN Red List of Threatened Species, national wildlife laws, and CITES Appendices) often hampers a fast response to safeguarding vulnerable wild populations. A further challenge is that most juvenile specimens in this genus look very similar to the untrained eye, which has enabled traders to export rare iguanas under the guise of ordinary captive-bred *I. iguana* [5]. While it is now possible to use genetic techniques to accurately determine the geographic origin of any individual iguana and identify whether it is a hybrid ([17–20]), there is currently almost no capacity in the Caribbean region to perform such tests.

In light of likely taxonomic changes and delays in bringing new taxonomic or conservation units under protection, we urgently recommend the following:

1. Halt the commercial trade of live *Iguana* both to and from islands in the Insular Caribbean region, especially the Lesser Antilles. Voluntary localized cessation of exports or a comprehensive trade suspension (import and export) is imperative to protect all endemic Caribbean iguana populations. This could be achieved by every party setting zero export and import quotas for commercial trade, and/or by transferring all populations of the genus *Iguana* in this specific region from CITES Appendix II to Appendix I.
2. CITES authorities in this area are urged to prevent fraudulent trade by paying close attention to permit applications and being wary of any sudden change in interest from traders. We strongly advise that this recommendation is implemented both by island nations with native *Iguana* populations and those with only non-native *Iguana* populations because traders use the latter to mask the true origin of the iguanas being trafficked [5]. Furthermore, this action helps in lessening the high risk of spreading these invasive reptiles and their pathogens to islands with vulnerable endemics.
3. Strengthen the capacity of border control authorities, police, protected area personnel, and others responsible for law enforcement to identify *Iguana* species. This requires the development of illustrated identification guides, training programmes, and, where possible, establishing affordable genetic testing facilities within the Caribbean to identify iguanas to species and island of origin. More accurate identification of the origins of *Iguana* specimens in trade facilitates the identification and prosecution of offenders, and greatly aids in understanding illegal trade pathways, evaluating and monitoring the status of endemic species, and managing the spread of invasive alien iguanas.

All three recommendations are urgent and should be underpinned with greater investment in the protection and conservation of wild populations of threatened island endemics,

along with raising awareness among the public, decision makers, and responsible collectors that illegal trade presents a serious risk to native species.

Author Contributions: Conceptualization, M.P.v.d.B., I.M.V.B. and J.C.D.; Writing—Original Draft Preparation, M.P.v.d.B., I.M.V.B. and J.C.D. All authors have read and agreed to the published version of the manuscript.

Funding: I.M.V.B. and J.C.D. were funded through support from the Betty Liebert Trust, Disney Conservation Fund, National Geographic Society, Re:wild, Restore Species, St Vincent & the Grenadines Environmental Fund and the US Fish and Wildlife Service [F20AP00209].

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

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