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Notes on Trade in *Varanus macraei* in response to (Arida et al., 2021): 'The Hunt for the Blue tree monitor on Batanta Island, Indonesia: Subsistence on a Treasure?'

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ABSTRACT

The international wildlife trade is a growing threat to an increasingly long list of species, with reptiles among the most heavily impacted. Indonesia is a major source of many reptile species traded internationally, live to meet the demand for pets. Among the many endemic reptile species sought after is the blue tree monitor *Varanus macraei*. This species is captured from the wild in violation of Indonesia's harvest and trade quotas which are set annually in an attempt to allow for sustainable use and at the same time protect species from over-exploitation. As this species is becoming increasingly difficult to obtain from the wild, it is clear that not only is the removal of specimens from the wild illegal, but it also appears to be unsustainable.

Keywords: CITES, lizards, reptiles, wildlife trade

INTRODUCTION

The blue tree monitor *Varanus macraei* belongs to the *Hapturosaurus* subgenus which includes *V. prasinus* and eight other small arboreal lizards (Bucklitsch *et al*., 2016). It was first formally described in 2001 from specimens in the wildlife trade in the USA and named after a reptile dealer (Böhme and Jacobs, 2001). Endemic to Indonesian New Guinea and known only from Batanta island, which has an area of little over 455 km^2, and some offshore islets of the West Papua Province (Bennett, 2015; Shea *et al*., 2017), this species has one of the smallest distributions among varanid lizards (Rauhaus *et al*., 2014; Shea *et al*., 2017). While no wild population data of *V. macraei* exists, it is threatened by habitat loss, and collection for the international pet trade which is considered the greatest threat to this species (Shea *et al*., 2017). *Varanus macraei* is assessed by the IUCN Red List of Threatened Species as Endangered (Shea *et al*., 2017).

In their paper, *The hunt for the Blue tree monitor on Batanta Island, Indonesia: Subsistence on a treasure?* Arida *et al*. (2021) illustrate the impact of targeted harvest of the blue tree monitor to supply commercial international demand. They state that locals on Batanta Island were previously able to capture this species in the immediate vicinity of their villages but now must invest more time and effort, travelling to neighbouring islands to obtain enough to meet demand. While local people see a financial benefit from the capture and trade in the species, this harvest is clearly not a sustainable livelihood strategy, nor of any conservation benefit to the species. Arida *et al*. (2021) provide new information on the local collection of *V. macraei* and the related trade dynamics, but did not, however, mention that the harvest in this

species from the wild, and the subsequent commercial trade in wild-caught individuals of *V. macraei* is in violation of Indonesian legislation and therefore illegal.

METHODS

In order to understand the legality of the trade in *V. macraei*, Indonesia's legislation was examined, as were Indonesia's annually set harvest and trade quotas. Records of legal trade were obtained from the CITES Trade Database (trade.cites.org) with information regarding origin, exporting country, importing country, purpose, items, volume and dates of trade being recorded. The literature was reviewed to better understand and illustrate the nature of the trade in this species, including a review of literature pertaining to commercial captive breeding of reptiles for export from Indonesia. Relevant legislation relating to commercial captive breeding was also examined. Based on the information obtained from this research, conclusions regarding the trade in *V. macraei* were made.

RESULTS AND DISCUSSION

Indonesia has an extensive harvest and export quota system for non-protected species to supply both domestic and international markets that stipulates which species may be harvested, how many can be harvested, where they can be harvested from and in what form (e.g. live for the pet trade) (Soehartono and Mardiastuti, 2002; Nijman *et al*., 2012). The quotas are, in theory, in place to allow for a sustainable offtake, benefiting local livelihoods and at the same time ensuring the long-term conservation of the species (Soehartono and Mardiastuti, 2002; Nijman *et al*., 2012). However, there have not been quota established for *V. macraei* and therefore no harvest from the wild for trade is permitted.

Varanus macraei is not listed as a protected species in Indonesia (Regulation of the Minister of Environment and Forestry No. P.106/MENLHK/SETJEN/KUM1.1/12/2018). All *Varanus* spp. have been included in Appendix II (five species in Appendix I) of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since 1975, and as such, *V. macraei* is listed in Appendix II and permits for export are required which include information on the source of the individuals (wild, captive-bred, farmed etc). Export of captive-bred *V. macraei* is permitted from Indonesia.

According to the CITES Trade Database, from 2010 to 2020 (inclusive), a total of 3167 *V. macraei* are reported as having been exported from Indonesia (exporter, not importer records) for commercial purposes (purpose code T). Of these, 1199 are reported as being bred in captivity (source code C) and 1968 as being born in captivity (source code F). An additional 17 are reported by importing countries as being wild-caught (source code W) from Indonesia, though these are not reported by the exporting country. However, in reality, it is suspected that at least a substantial proportion of exports are of wild-caught specimens, as there are no substantiated reports of captive born or bred *V. macraei* in Indonesia in the available literature (Bennett, 2015). According to CITES (Resolution Conf. 10.16 (Rev.), "individual animals are considered captive-bred if the species has produced offspring of second generation (F2) or subsequent generation (F3, F4, etc.) in a controlled environment; or is managed in a manner that has been demonstrated to be capable of reliably producing second-generation offspring in a controlled environment". Based on the lack of evidence of captive breeding within Indonesia (Bennett, 2015), it is unlikely that the volumes of *V. macraei* exported from Indonesia and declared as captive-bred meet this requirement.

The true numbers of individuals harvested from the wild are likely to be higher as members of the *V. prasinus* group are expected to suffer high rates of mortality between capture and export and this is thought likely to be true of this species (Bennett, 2015). It should also be noted that the trade figures are also higher due to unreported volumes of domestic trade in this species (Shea *et al*., 2017).

It is possible that a small captive-bred population of this species has been established, though available evidence suggests that captive reproduction in the species is mainly sporadic and claims of F2 and subsequent generations are not common (Rauhaus *et al*., 2014).

Perhaps most significantly, evidence of captive breeding exists only for animals maintained in Europe and North America, and reports of captive-bred, ranched or farmed (born in captivity) animals from Indonesia remain unsubstantiated (Bennett, 2015). The lack of publicly available evidence of sustainable harvesting methods and of bogus captive breeding of reptiles within Indonesia has been well documented (Schoppe, 2009; Nijman and Shepherd, 2009; Lyons and Natusch, 2011; Nijman and Shepherd, 2015), and it is therefore likely that at least a substantial proportion *V. macraei* originating from Indonesia are harvested from the wild and declared sources (codes C and F) are inaccurate (Bennett 2015).

The harvest of wild *V. macraei* for commercial trade documented by Arida *et al*. (2021) supports concerns raised by Bennett (2015) about ongoing laundering of wild individuals, falsely declared as captive-bred. As trade in certain protected species is allowed only for captive-bred specimens (e.g., *Varanus prasinus*), there is incentive for traders and exporters to label wild-sourced specimens as captive-bred to circumvent trade restrictions (Janssen and Chng, 2018).

Indonesia regulates captive-breeding through a Captive-Breeding Production Plan (CBPP) which quantifies the number of animals allowed to be produced by registered Indonesian captive-breeding facilities and includes a breakdown of the species, the breeding facilities involved, and equations used to derive quota numbers (Janssen and Chng, 2018). The CBPP was created in order to increase transparency and to minimize laundering of wild-caught animals (Janssen and Chng, 2018). However, this poses a serious threat to the conservation of Indonesian wildlife because a false sense of sustainability is established when wildlife is laundered through breeding facilities (Janssen and Chng, 2018).

Exporting wild-caught reptiles, although illegal, can be far more profitable than breeding specimens for export (Nijman and Shepherd, 2009). Fraudulent misdeclaration of wild-sourced animals as captive-bred undermines the objectives and implementation of both national and international wildlife-trade regulations. Authorities struggle with regulating the wild harvest, commercial breeding and export of reptiles in Indonesia and, as such, an increasing number of species are threatened by over-exploitation. *V. macraei* appears to be one such species.

A. Allison (pers. comm. 2014) in Shea *et al*. (2017) suggested that *V. macraei* may not be subject to targeted collection, however, the data collected and recorded by Arida *et al*. 2021 clearly illustrates that this species is now targeted to supply commercial demand, and that it is in decline due to unsustainable harvest. Arida *et al*. (2021) as well as Del Canto (2013) have stated that local populations on Batanta Island and nearby islands are largely extirpated and that hunters harvesting the species are having to search further abroad within an already very limited range.

CONCLUSION

Species with restricted range are particularly vulnerable to overexploitation (Rhodin *et al*., 2015; Fitzgerald *et al*., 2018). People living within the range of this species may be obtaining some income from the harvest of this species, however the harvest of *V. macraei* from the wild is in violation of Indonesian legislation and furthermore appears to be causing local declines and extirpations of the species in the wild (Del Canto, 2013; Arida *et al*., 2021). Del Canto (2013) was told by a local guide that *V. macraei* had been extirpated from an (unidentified) offshore islet as a result of collection for the (international) pet trade.

Commercial captive breeding in Indonesia, especially at the levels recorded in the CITES Trade Database are very likely inaccurate and/or fraudulent. The European Union (EU) has put in place restrictions on import for this species, allowing the import only of specimens over >15 cm SVL (snout vent length) for source code C and F, meaning that effectively only hatchlings and juveniles may be imported into the EU for these source codes. This reduces opportunities to launder wild caught specimens (see https://speciesplus.net/species#/taxon_concepts/9232/legal).

As such, international trade in this species from Indonesia should be halted until mechanisms are in place to ensure trade can be carried out in a transparent, legal and sustainable manner and that it does not cause further decline of the species in the wild.

To assist the government of Indonesia in protecting *V. macraei* from over-exploitation, laundering and further decline due to illegal harvesting, importing countries should no longer accept exports of this species from Indonesia until these issues are effectively addressed.

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