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# Biological Conservation

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## Editorial

### Consumer driven conservation of green pythons is possible if the price is right: A reply to Pernetta (2012)

Preventing unsustainable and illegal trade of wildlife is vital for protecting biodiversity, yet finding ways to monitor and minimise such trade cost-effectively remains a significant challenge. Recently, Pernetta (2012) criticised our suggestion to use eggshells as a means of regulating the laundering of illegally wild-caught green pythons (*Morelia viridis*) through breeding farms in Indonesia viz. if a snake was bred at a farm it must have an accompanying eggshell (Lyons and Natusch 2011). Pernetta (2012) suggested that such a method may create demand for gravid females from wild populations and argued that it should not be used as the sole tool for preventing laundering. Instead, Pernetta (2012) suggested that a chain of custody should be set up whereby microsatellite genotyping and parentage assignment techniques would provide a fool-proof method of unequivocally identifying wild-caught snakes, the funding for which could be procured via a conservation tax levied from end consumers.

We agree with Pernetta (2012) that the eggshell method should not be used as the sole tool, but one part of a multi tiered, integrated and holistic approach to combating illegal harvest of green pythons. Despite being omitted from Pernetta's (2012) review, our paper also suggested several other means of minimising illegal collection; educating the consumer market, husbandry training, determining the economic viability of green python farming and allowing limited legal collection of wild individuals.

The beauty of the eggshell method, however, lies in its simplicity; it is cost effective and can be implemented immediately. We argue, based on our fieldwork, that unless demand for green pythons (and therefore market price) significantly increases, the time involved in searching for gravid females makes it impractical. Indeed, of the 1733 green pythons collected by traders and thoroughly examined by us, 0.4% (7) were gravid females. While it may be naive to assume that intensive searching for selective harvests will not occur in the future, currently every snake encountered by collectors is taken for the pet trade – gravid or not.

Although microsatellite genotyping and parentage assignment techniques may be a valid means of regulating illegal trade, they will take a considerable time to introduce and have significant associated cost. These techniques are currently not done for any species in Indonesia, not even those of high commercial value or those that are globally threatened, and it is a stretch to expect Indonesian authorities to introduce this system for green pythons. Further, many of the farms regularly exporting green pythons from Indonesia do not have parent stock from which to allow parentage assignment. As an initial step in monitoring and enforcement, which can be implemented immediately at minimal cost, proof of breeding (in the form of eggshells) is sufficient to identify which farms are providing fallacious breeding records. Simply the added

request of enclosing eggshells (and not even measuring them) would curtail much of this trade. We suggest, therefore, that while the application of genetic forensic techniques may be more reliable than the eggshell method, the significant cost involved currently makes them impractical for regulating farming operations in Indonesia.

Despite consumers preferring captive-bred green pythons over wild-caught ones (Auyilia, 2003) Indonesian “farm-bred” snakes are attractive due to their lower market price (USD 225 compared to USD 500, respectively). Indonesian exporters currently sell snakes at these prices because of the reduced cost involved in collecting and exporting wild-caught individuals. By comparison, housing, feeding and breeding green pythons at farms may not be economically feasible if prices are not increased. Raising the price of farm-bred individuals, however, and imposing a conservation tax on their exportation will inevitably reduce demand for some snakes from Indonesia. For breeding farms to be successful, and in the presence of proper regulatory measures for preventing illegal harvests, they should provide a cheaper, more acceptable product to the consumer than wild-caught animals. Thus, for sustainable farming of green pythons, changing consumer attitudes from being price-based to conservation focussed can be achieved – but only if the price is right.

#### Acknowledgement

Thank you to M. Archer, S. Donnellan and V. Nijman for their comments on the content of this reply.

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