

# Hope for improving protection of the reticulated python

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Python skins in a tannery in West Malaysia for the international market. To date, it has been almost impossible to prove whether such skins are from legal or illegal harvests. Credit: Mark Auliya, UFZ

Trading in skins of the reticulated python is such a lucrative business

that illegal exports are rising sharply and existing trade restrictions are being circumvented on a large scale. This is endangering the stability of populations. Therefore, researchers from the Helmholtz Centre for Environmental Research (UFZ) and the Royal Zoological Society Scotland (RZSS) are developing genetic methods for tracking down individual origins and potential trade routes of the skins. Initial results have now been published in the renowned journal *PLOS ONE*. They show the genetic variation across reticulated python populations in Southeast Asia, and demonstrate the importance of such data for the long-term conservation of the giant snake species and controlled trade of its skin.

The [reticulated python](#) (*Malayopython reticulatus* ssp.) lays claim to two records: it is the longest reptile in the world, and it is one of the top reptile species most traded for their skin. Reticulated python skins have been traded commercially for around 80 years. They are an extremely lucrative natural resource for the international fashion industry. Indonesia, Malaysia and Vietnam alone exported almost four million reticulated python skins from 2002 to 2012; at least 75 per cent of these came from "legal" wild harvests. Intense international commerce is, however, calling into question the legality and sustainability of this trade, which is in fact regulated by the Convention on International Trade of Endangered Species of Fauna and Flora (CITES). This is because the reticulated python is one of around 34,000 species in Appendix II of CITES that may only be traded legally with special documents. In reality, however, it is next to impossible to keep track of the trade dynamics of the reticulated python, says Dr. Mark Auliya, an expert for applied species conservation working on international wild animal trade at the UFZ, who also advises the International Union for Conservation of Nature (IUCN), CITES, scientific organisations and customs authorities. In his opinion, management approaches barely exist at the regional and national levels. A number of businesses in the fashion industry therefore see it as their responsibility to support research projects such as that of

the UFZ biologist and his Scottish colleague Dr. Gillian Murray-Dickson (RZSS), who aim to develop tests that verify the origin of the skins within the chain of commerce and hence reduce illegal trade.

The researchers investigated the extent to which evolutionary relationships between the populations might be used as reference for the management of catch quotas. For this purpose, they analysed mitochondrial DNA of reticulated pythons from a wide variety of regions within their distribution area. In this process, a clear separation emerged between populations west and east of the so-called "Wallace Line". This imaginary biogeographical line runs across the Malaysian archipelago and separates areas with exclusively Asian fauna from areas that contain not only Asian fauna but also fauna elements of Australian origin. The results show that the reticulated python populations of the Philippines can be clearly distinguished from other populations in the Sunda region, and it is likely that the reticulated python was introduced by humans to the Moluccan island of Ambon.



As an adult, the southeast Asian reticulated python (*Malayopython reticulatus* ssp.) belongs to the largest predators of Asia. The species is particular in demand as a leather supplier for the fashion industry. Credit: Mark Auliya, UFZ

These findings should, firstly, contribute to the long-term conservation of the genetic diversity of the [python](#). "If the animals of a particular region have their own [genetic variation](#), the population must be managed separately," Mark Auliya explains. Adjusted catch and export quotas can be determined for this purpose, or a trade ban can be imposed if necessary.

Secondly, the genetic investigations can help to verify details relating to the initial export country (assuming that this is the county of origin) or country of origin provided in the CITES documentation - to determine

whether the imported skins are indeed from the Philippines or elsewhere, for example. That would facilitate the enforcement of international regulations and significantly restrict illegal schemes.

**More information:** Gillian Murray-Dickson et al, Phylogeography of the reticulated python (*Malayopython reticulatus* ssp.): Conservation implications for the worlds' most traded snake species, *PLOS ONE* (2017). [DOI: 10.1371/journal.pone.0182049](https://doi.org/10.1371/journal.pone.0182049)

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