

The hunt for the Blue tree monitor on Batanta Island, Indonesia: Subsistence on a treasure?

Evy A. Arida Research Center for Biology, National Research and Innovation Agency (BRIN), Cibinong, Indonesia
Alamsyah E.N. Herlambang Research Center for Biology, National Research and Innovation Agency (BRIN), Cibinong, Indonesia
Mulyadi Research Center for Biology, National Research and Innovation Agency (BRIN), Cibinong, Indonesia

Corresponding email evya001@brin.go.id

ABSTRACT

The tree monitors, *Varanus (Hapturosaurus)* are highly valued in international pet trade. These lizards are somewhat striking in their colouration, among which is the Blue tree monitor, *Varanus macraei*. Body colouration of this species is dominantly blue, which is unique to this monitor lizard species. This distinctive colouration together with its limited distribution has put the species as high-priced export commodity for at least 20 years. Because the lizard is endemic to Batanta Island and the nearby islets in the Raja Ampat Islands, Indonesia, we made a trip to the islands in 2019. We visited the village of Amdui on Batanta, where we made several casual interviews with hunters. Here we report results of our interviews and brief survey on the habitats of *V. macraei*, in order to identify the roles of local hunters in the trade of tree monitors for international pet markets. Some residents of Amdui have been in search for Blue tree monitors and other monitor lizard species since mid-1990s and continue their hunt until very recently for fast cash. Because hunting is yet a large part of their culture more than farming, villagers rely on this method for subsistence. We recommend a socio-cultural approach to inform hunters on the idea of sustainability of harvest, for which a stable livelihood will be a possible consequence.

Keywords: Commercial pet, endemism, incomes, supply and demand, traditional hunting

INTRODUCTION

Wildlife hunting for pets is a common practice among cultures worldwide and probably with multiple origins (Alves *et al.*, 2018). Traditionally, the search for pets and other useful animals such as those for their meat and skin is of subsistence purposes; however, this practice has gone through a shift of motivational background in the developing countries (Robinson *et al.*, 2018), including in West Papua (Pangau-Adams *et al.*, 2012). The shift of subsistence hunting to commercial hunting has increased the number of wildlife being caught, partly due to the use of improved hunting equipments (Dounias, 2016).

Hunting and gathering as a means of subsistence are deeply rooted in traditional societies in West Papua (Pattiselanno and Arobaya, 2013). Such traditional methods for subsistence are in practice because of a combination of factors, including availability of resource animals in the existing wildlife habitats, poverty, social status of hunters, and demands for supply of wildlife for various purposes (Duffy *et al.*, 2016; Dobson *et al.*, 2019).

Hunting may be practiced due to the lack of professional skills for contemporary occupations while at the same time international demands for exotic pets offer a chance to improve incomes. Such coincidence of mutualism may become the major driver of extended exploitations (Thomas-Walters, 2021). However, some people who practice hunting may shift among various occupations alternatingly to supplement their incomes (Pattiselano *et al.*, 2020).

Hunting for the trade of Tree monitors have been going on for at least 30 years and even before their discovery in science. So far, scientific discoveries have revealed six species of Tree monitors, including the Blue tree monitor from Batanta (Figure 1). All species of Tree monitors are traded for international pet markets. Their colourful scaly skins may have been the attraction for reptile hobbyists to keep them as pet. Some hobbyists even succeed in their quest to breed captive colonies of these lizards. The Blue tree monitor (Figure 2) and its five Tree monitor relatives are available in commercial captive breeding facilities in West Java, Indonesia. Parental stocks for these facilities were sourced from wild animals collected in the Raja Ampat Islands, i.e., Batanta, Waigeo, and Salawati in the west of West Papua's Bird's Head.

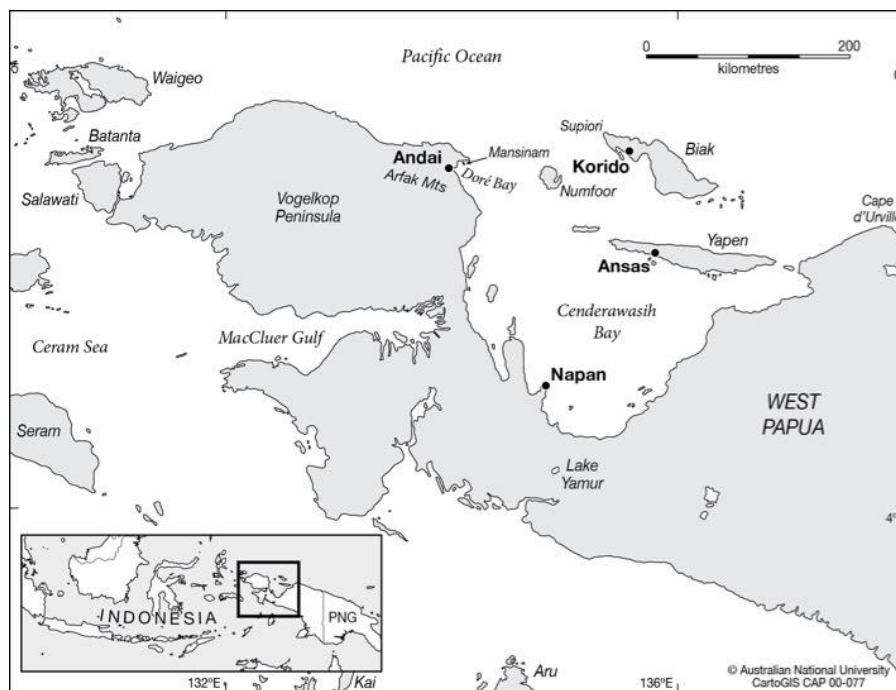


Figure 1. Map of Batanta Island in the Raja Ampats, West Papua, Indonesia (Source: CartoGIS Services, College of Asia and the Pacific, the Australian National University)

The Blue tree monitor, *Varanus macraei* was discovered in 2001 from a specimen internationally traded to the USA. The specimen was caught on Ayem Island and traded through Amdui Village on Batanta Island. The blue scales of this species, which spreads almost on its entire body, are exceptionally different from other species of tree monitors and other groups of lizards in the world. *Varanus macraei* quickly gained its popularity among reptile collectors and were offered in high prices, ranging from US\$ 1,800 to US\$ 2,500 for a pair of male and female individuals (<https://www.backwaterreptiles.com/monitor-lizards-for-sale.html>, <https://undergroundreptiles.com/product/blue-tree-monitors/>). A single wild-caught adult male is offered at the price of US\$ 2,500 by Suncity Exotics in Riverside, California, USA (<https://www.morphmarket.com/us/c/reptiles/lizards/monitors/533492>).



Figure 2. Blue tree monitor, *Varanus macreii* in its habitat on Batanta Island

Due to the increasing international trade, some concern on the decline of wild population and sustainability of trade was raised by conservationists leading to the categorisation of Blue tree monitor as “Endangered” in the IUCN Red List of Threatened Species (Shea *et al.*, 2017).

METHODS

We visited Batanta, Yariffi, and Ayem Islands for interviews with habitual hunters and a rapid survey on habitats. Our focus was to gather information on the background motivations of the hunt and local trade of the Blue monitor from hunters residing in Amdui Village on Batanta Island. Thus, we stayed with them in the village for two nights and followed their direction for suitable habitats of their target species. We gathered information on hunting tradition and the associated socio-economic aspects of this activity through casual conversations with hunters and their families. Permission for interviews was given by chief of village, while villagers were open to our visits in their hunting ground and homes.

RESULTS AND DISCUSSION

We succeeded to interview representatives of three hunting groups, all of which were based in Amdui. Members of the groups were all male, including sons, brothers, and brother-in-laws. The hunt for the Blue monitors was started in the early 1990s, after they were in contact with Haji Nasir, a Makassarese living in Dobo in the Kei Islands in South-eastern Maluku. Haji Nasir came to Batanta on his quest for birds and lizards for profitable business.

Currently, about 30 people in Amdui are hunters, who search for the Blue tree monitors for trade since the 1990s. They were mostly unemployed young men who fish in the sea for subsistence or work informally in constructions. It was relatively easy for hunters to target wildlife in their habitats close to their homes. Current habitats on Batanta still support the occurrence of this endemic lizard, although fewer lizards were found during a week of hunting session. Hunters made a simple noose (Figure 3B) using a long thin bamboo or tree branch to reach lizards at tree heights. The lizards caught were then temporarily kept in plastic mesh bags (Figure 3C) before transporting them to their village.



Figure 3. A. a hunter with a Blue tree monitor, B. bamboo noose, C. Peach-throated monitor caught as side target

Hunters usually go for their search in groups of four to five people for about one week and camp out before returning to Amdui with their catch. These Amdui men mentioned they used to go for their hunts nearby the village; however they started to go further west on Batanta since a few years because lizards are easier to find in these new locations. By the year of 2007, the Blue tree monitors were already hard to locate on Ayem Island (Figure 4), which lies just off Amdui on Batanta (Del Canto, 2013). Hunters further mentioned that it was easy for them to spot and catch the lizards in their gardens in the early 1990s.

Hunters learnt from their experiences that a rainy day precedes a good hunting day. When the sun shines in the morning the next day after a rainy night, they expect a good catch of approximately 20 lizards per week. Hunting was started daily in the mornings around 9 a.m during sunny days and ended in the afternoon at about 3 p.m. During the course of a hunting day, a member of the group who first spotted a lizard was the person to claim the price of the animal he saw, while the other members were taking part as helpers.

Not only were these hunters in search of Blue tree monitors, but they also looked for other species of monitor lizards. We noticed their catch of two species during their camp in a location on Batanta. We retain some details of this location from public view because such information may trigger more collections and thus pressure on the population. Besides Blue tree monitors, hunters also collected Peach-throated monitor, *Varanus jobiensis*. We observed the latter in a mesh-bag tied to a tree branch (Figure 3C).

Prices of monitor lizards range from IDR 50 Thousand to IDR 1 Million (US\$ 3.5–71.4) when sold to a collector in Sorong, the capital city of West Papua province. Species, size, and sex of these lizards are important pricing factors. For example, a baby Blue tree monitor is worth for IDR 1 Million, especially when umbilical cord still remains. A female Blue tree monitor of a similar size to a male of the same species will be rewarded a few US\$ higher, i.e US\$ 25 and US\$ 21.4, respectively. An adult Peach-throated monitor of 87.5 cm total length is sold for only US\$ 3.5, which is about six times lower than the price of a male Blue tree monitor of similar size. This pricing probably reflects demands and thus *V. jobiensis* is considered less attractive than *V. macraei* as a pet.



Figure 4. The island of Ayem seen from the main pier of Amdui on Batanta

All lizards caught by the camping hunters during our visit were adults. The Blue tree monitors were female and male individuals, of which minimum size was in the reproductive stage (Ziegler *et al.*, 2009). Hunters kept these lizards temporarily in their homes for about two weeks before sale or as soon as weather and logistics permit them to sail to Sorong. Besides bringing lizards for sale to a middleman in the capital city, hunters also sell fish and crops such as vegetables, bananas, and fruit of the palm *Areca catechu*.

Table 1. Body sizes of captured Blue tree monitors

Number	Snout-Vent Length	Total Length (cm)	Sex	Hunters
1	31.0	44.5	M	Maurens and Sefwat
2	31.0	89.5	F	Maurens and Sefwat
3	32.0	93.2	M	Maurens and Sefwat
4	29.0	87.0	F	Clemens and Simson
5	34.0	95.0	M	Clemens and Simson
6	39.5	88.0	F	Clemens and Simson

The Blue tree monitor is among the species immediately exploited after scientific description. The continuing trade may leave this endemic species vulnerable if a half of the traded individuals are wild-caught (Marshall *et al.*, 2020). Moreover, the nature of trade is based on orders, i.e., “collection to order”, which likely accelerates exploitation of wild individuals as international demands are increasing (Robinson *et al.*, 2018). Thus, importing countries may need to adjust their regulations on the trade of threatened species, in order to help conservation efforts in the range states (Altherr and Lameter, 2020).

Fast cash is one of the drivers for the hunt of Blue tree monitors, although villagers gain incomes to support their daily life by fishing in the sea and growing crop in their gardens. Seaweed farming and home-garden vegetable growing seemed less appealing, particularly because plant growing takes more time before harvest than one week of successful hunt. Additionally, fishing is associated with sea weather that sometimes poses the risks of losing lives.

The Blue tree monitor is apparently almost like a treasure for these villagers, as well as for monitor lizard hobbyists. A great variation of skin colours and level of endemism of this lizard seem to heighten its economic value. Similarly, each species of the Tree monitors, *Varanus (Hapturosaurus)*, is a commodity in the international pet trade. From black, blue, green, to yellow and with occurrence on a specific island in the Raja Ampat, Tree monitors offer a range of exclusively exotic pet for hobbyists. Those who hunt for the lizards stated that there is an increase of income and they earn faster.

The lizards used to be available in the vicinity of the hunters' homes at the beginning of the hunting trend about 30 years ago. Currently, hunting for the trade is continuing, although hunters have to travel on boat to find Blue tree monitors in farther areas of Batanta. The direct sale to a middleman in Sorong is probably as far as these hunters know about the pet market. Hunters were unaware of a much larger scale of wildlife trade, which may result in dramatic population declines of Blue tree monitors and also other species being constantly hunted for more than three decades (Symes *et al.*, 2018).

CONCLUSIONS

Our short stay and interviews with hunters on Batanta direct us to a conclusion that the hunt for the Blue tree monitor is driven by long-term demands. Some influence from outsiders on the promising sale of this species slowly shifts their traditional hunting for subsistence into a profitable activity. With low incomes, their role as the bottom supplier puts these hunters into a vulnerable position, where demands and availability of "treasure lizard" dictates their daily life. Small-scale fishing and crop growing may sustain their households, but health and education seem to be prioritised more. We recommend a socio-cultural approach to inform hunters on the idea of harvest sustainability and the consequences it may bring for a stable livelihood and future for them and their families.

ACKNOWLEDGEMENTS

We thank Buntje Soetanto for logistical supports during our field survey in the Raja Ampat Islands and Gunawan for providing photographic documentations for our visits. Field survey was partly funded by CITES species monitoring programmes for Research Center for Biology LIPI in 2019, through the Indonesian National Grant Scheme (DIPA). We also thank anonymous reviewers and editors of Journal of Tropical Ethnobiology for considering our publication in this volume.

REFERENCES

- Altherr, S. and Lameter, K. 2020. The rush for the rare: Reptiles and amphibians in the European pet trade. *Animals* 10(11): p.2085.
- Alves, R.R.N., Souto, W.M.S., Fernandes-Ferreira, H., Bezerra, D.M.M., Barboza, R.R.D. and Vieira, W.L.S. 2018. *The Importance of Hunting in Human Societies*. In Alves, R.R.N. and Albuquerque, U.P. (eds.). *Ethnozoology: Animals in Our Lives*. Academic Press, London: 95-118.
- Del Canto, R. 2013. Field observations on *Varanus macraei*. *Biawak* 7(1): 18-20.

- Dobson, A.D., Milner-Gulland, E.J., Ingram, D.J. and Keane, A. 2019. A framework for assessing impacts of wild meat hunting practices in the tropics. *Human Ecology* 47(3): 449-464.
- Duffy, R., St John, F.A., Büscher, B. and Brockington, D. 2016. Toward a new understanding of the links between poverty and illegal wildlife hunting. *Conservation Biology* 30(1): 14-22.
- Marshall, B.M., Strine, C. and Hughes, A.C. 2020. Thousands of reptile species threatened by under-regulated global trade. *Nature Communications* 11(1): 1-12.
- Pangau-Adam, M., Noske, R. and Muehlenberg, M. 2012. Wildmeat or bushmeat? Subsistence hunting and commercial harvesting in Papua (West New Guinea), Indonesia. *Human Ecology* 40(4): 611-621.
- Pattiselanno, F. and Arobaya, A.Y.S. 2013. *Managing Tropical Forest for Indonesian Papuan's Livelihood*. Proceeding of Institute of Foresters of Australia National Conference, Canberra: 207-215.
- Pattiselanno, F., Lloyd, J.K., Sayer, J., Boedhihartono, A.K. and Arobaya, A.Y. 2020. Wild meat trade chain on the Bird's Head Peninsula of West Papua Province, Indonesia. *Journal of Ethnobiology* 40(2): 202-221.
- Robinson, J.E., Griffiths, R.A., Fraser, I.M., Raharimalala, J., Roberts, D.L. and St. John, F.A. 2018. Supplying the wildlife trade as a livelihood strategy in a biodiversity hotspot. *Ecology and Society* 23(1): 13.
- Shea, G., Allison, A. and Tallowin, O. 2017. *Varanus macraei*. The IUCN Red List of Threatened Species 2017: e.T42485731A42485734.
- Symes, W.S., Edwards, D.P., Miettinen, J., Rheindt, F.E. and Carrasco, L.R. 2018. Combined impacts of deforestation and wildlife trade on tropical biodiversity are severely underestimated. *Nature Communications* 9(1): 1-9.
- Thomas-Walters, L. 2021. *Behaviour change for demand reduction in the wildlife trade*. Unpublished doctoral dissertation. University of Kent.
- Ziegler, T., Strauch, M., Pes, T., Konas, J., Jirasek, T., Rütz, N., Obereuter, J. and Holst, S. 2009. First captive breeding of the blue tree monitor *Varanus macraei* Böhme & Jacobs, 2001 at the Plzen and Cologne Zoos. *Biawak* 3(4): 122-133.

Journal of Tropical Ethnobiology

VOLUME IV

NUMBER 2

JULY 2021

CONTENTS

Ethnobotanical Study of Zingiberaceae Rhizomes as Traditional Medicine Ingredients by Medicinal Plant Traders in the Pancur Batu Traditional Market, North Sumatera, Indonesia

Marina SILALAH, NISYAWATI, Endang C. PURBA, Daichiro W. ABINAWANTO, and Riska S. WAHYUNINGTYAS 78-95

Using Measurable Indices to Evaluate the Cultural Importance of Socio-religious Plants: Comparative Data from the Three States of India

Kavi K. OZA, Suchitra CHATTERJEE, Shrey PANDYA, and Vinay M. RAOLE 96-104

The Utilization of Tokulo (*Kleinhovia hospita* L.) as Traditional Medicine by Wawonii Community in Lampeapi Village, Wawonii Island, Southeast Sulawesi

Nissa ARIFA, Mulyati RAHAYU, Siti SUNARTI, and RUGAYAH 105-110

The hunt for the Blue tree monitor on Batanta Island, Indonesia: subsistence on a treasure?

Evy A. ARIDA, Alamsyah E.N. HERLAMBANG, and MULYADI 111-117

Carbon Potentials in Biomass of Fruit Trees in Home Gardens in the Bogor Regency, West Java

Dian A. SUSANTO, Kuswata KARTAWINATA, and NISYAWATI 118-129

Tebat Rasau Geopark: Ethnobiology and Ethnogeology of a Pleistocene River in Belitung, Indonesia

Ary P. KEIM, FITHROROZI, Tukul R. ADI, R. INDARJANI, Fauzi AKBAR, Yudi AMSONI, Ida F. HASANAH, and Wawan SUJARWO 130-149

