

“Life finds a way”: A reflection on the smuggling of a living fossil, the Borneo Earless Monitor *Lanthanotus* *borneensis* (Squamata: *Lanthanotidae*) in Indonesia

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“Life finds a way”: A reflection on the smuggling of a living fossil, the Borneo Earless Monitor *Lanthanotus borneensis* (Squamata: Lanthanotidae) in Indonesia

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The Borneo Earless Monitor (*Lanthanotus borneensis*) Steindachner, 1878 is an enigmatic, poorly-known lizard species, and is considered the sole living representative of the family Lanthanotidae (Das, 2013; Das and Auliya, 2021). This species is endemic to the island of Borneo, where it has been confirmed in the Malaysian State of Sarawak, and the Indonesian provinces of West Kalimantan and North Kalimantan (Das, 2004; Yaap et al., 2012; Vergner, 2013; Uetz et al., 2001). No fossil material of *L. borneensis* have been found, but a related Lanthanotid from the Cretaceous (75 million years ago) in the Gobi desert (Mongolia) was named *Cherminotus* (Pianka 2004). *Lanthanotus borneensis* inhabits lowland localities below 400 m elevation in forests with clear and rock streams. It has also been reported from agricultural lands (such as palm oil plantations), but only in the vicinity of forests with good canopy cover and freshwaters (Stoner and Nijman, 2015; Langner, 2017; Das and Auliya, 2021). Small rocky hill streams within forests or dense vegetation with good canopy cover are potential habitats for *L. borneensis*, based on diurnal and nocturnal observation in small streams in West Kalimantan (Arida et al., 2018).

“Life finds a way” is a famous quote in the 1993 Hollywood production, Jurassic Park. In the movie, Dr. Ian Malcolm describes several lizard species with females having the ability of parthenogenesis (or ‘self-breeding’) (Arif, 2016). In his book, “Life Finds a Way”,

biologist Andreas Wagner reveals the deep symmetry between innovation in biological evolution and human cultural creativity (Wagner, 2019). Until recently, *L. borneensis* was one of the greatest herpetological rarities that was only known from isolated localities in Borneo. However, in the last decade, this species has appeared on sale online, with high demand in the pet trade and is also on display at zoos in Japan, China, and several parts of Europe and the USA (Stoner and Nijman, 2015; Rehak et al., 2019; Jumle and Badola, 2020; Nijman, 2021). Despite being protected in three countries of its range (Indonesia [Kalimantan], Malaysia [Sarawak], and Brunei Darussalam [Temburong]), the lack of regulations that protect the species in consumer states enables international trade (Auliya et al., 2016; Universiti Brunei Darussalam, 2022). Due to its rarity in the wild, we report on and summarise the smuggling of *L. borneensis* in Indonesia from 2015 to 2022, to illustrate how local hunters and sellers find a way to ship this lizard abroad.

Smuggling records of *L. borneensis* were compiled from publicly available information, particularly from local media and social media internet sources. These constituted 10 smuggling reports of *L. borneensis* in Indonesia from 12 October 2015 to 6 July 2022 as summarised below:

1. On 12 October 2015, a German citizen was arrested at Soekarno Hatta Airport by Indonesia National Police in Jakarta while trying to carry eight *L. borneensis* hidden on his person. Eight *L. borneensis* were bought from West Kalimantan for Rp. 50,000 perindividual (c. \$4 USD), so the perpetrators paid Rp. 400,000 (c. \$32 USD) in total to get them; the concerned individual brought *L. borneensis* to Jakarta via Supadio International Airport, West Kalimantan (Arwan, 2015; Felisiani, 2015).
2. On 14 March 2016, the Natural Resources Conservation Agency (Balai Konservasi Sumber Daya Alam or BKSDA) of West Kalimantan

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Province managed to secure 17 individuals of *L. borneensis* at Supadio Pontianak International Airport, intended to be sent via delivery service to Batam (Riau Province, Sumatra). The method used to smuggle *L. borneensis* was to pack the lizards in a plastic box and put them into a cardboard box of instant noodles. To deceive the officers, the smugglers tried to use false sender and recipient information (Aditya, 2016; Sudirmansyah, 2016).

3. On 16 May 2017, a Japanese man was arrested by Avian Security and Soekarno Hatta Airport's Agricultural Quarantine Agency while transiting in Jakarta's International Airport after being found to be traveling with four suitcases and a box containing a total of 253 reptiles, including four *L. borneensis* (Adi, 2017; Kitade and Naruse, 2020).
4. On 7 November 2017, the Natural Resources Conservation Agency of West Kalimantan Province managed to secure one *L. borneensis* (Murdaningsih, 2017; Putra, 2017).
5. On 16 January 2018, the Forestry Police for cargo delivery at Supadio Airport and the Natural Resources Conservation Agency of West Kalimantan Province secured the delivery of one *L. borneensis* and orchids being sent abroad (from Pontianak to Pematangsiantar, North Sumatra) using express courier services (Andilala, 2018).
6. On 24 April 2018, the wildlife team of the Natural Resources Conservation Agency of West Kalimantan Province failed to deliver two *L. borneensis* via the delivery service at Supadio Airport (KSDAE, 2018). The delivery package is mentioned as food.
7. On 25 April 2018, a delivery package containing eight individuals of *L. borneensis* has been secured by the Natural Resources Conservation Agency of West Kalimantan Province. The package is again claimed as food to deliver via the delivery service at Supadio Airport (KSDAE, 2018).
8. On 17 May 2021, Avian Security and Supadio Airport's Agricultural Quarantine Agency found four *L. borneensis* and a box of Pitcher plants *Nepenthes* sp. which would have been sent via the delivery service at Supadio Airport (Anon, 2021).
9. On 26 April 2022, the Borneo Trans Mandiri (an autobus transportation company) and the Natural Resources Conservation Agency of West Kalimantan discovered 10 *L. borneensis* in two food boxes to be sent to Medan, North Sumatra (Eno, 2022).
10. On 6 July 2022, the Indonesia National Police of Kubu Raya District of West Kalimantan and Borneo

Trans Mandiri found four *L. borneensis* in two food boxes to be sent to Java (Fig. 1; Adi, 2022).

In Indonesia, *L. borneensis* has been listed as a protected species under the Second Amendment to the regulation of the Minister of Environment and Forest Number P.20/MENLHK/SETJEN/KUM.1/6/2018 regarding protected species of plants and animals (Ministry of Forestry and Environment, 2018). However, based on our findings, smuggling of *L. borneensis* has been found each year between 2015 to 2018, absent from 2019 to 2020, and recorded again from 2021 to 2022. The discontinuous smuggling records of *L. borneensis* from 2019 to 2020 could be the impact of the COVID-19 pandemic, when all Indonesian provinces were quarantined and shipping was restricted, or due to a lack of online postings. Assessed information were derived from internet sources and social media (particularly from Facebook and Instagram); the latter are two social media platforms with many users in Indonesia (Karimah, 2021). Our findings suggest that *L. borneensis* is also kept as a pet by reptile hobbyists in some cities in Indonesia, including Payakumbuh (West Sumatra), Bandung (West Java), Jakarta, Malang (East Java), Surabaya (East Java), Kumai (Central Kalimantan), Bontang (East Kalimantan) and Banjarbaru (South Kalimantan). Overall, these 2015-2022 smuggling records of *L. borneensis* suggest that surviving populations remain present within its distributional range.

Based on a Youtube channel about an expedition to find of *L. borneensis* in Western Kalimantan (Panji Petualang, 2019), local people explained how species (locally called "kadal duri" or "kadal bisu") is usually found when they go hunting mammals at night; mentioning that *L. borneensis* does not move much when approached. Langner (2017) reported that when detected (using a torch beam), *L. borneensis* remain motionless "frozen" on the ground. Based on these reports, *L. borneensis* can relatively easily be caught in the wild. An investigation to learn about the hunting and trading of *L. borneensis* in West Kalimantan found that hunting involves local people and a middleman (reseller) who will manage the abroad shipment (Arida et al., 2018). This investigation suggests local hunters know where *L. borneensis* occurs, and they might keep these secrets. Nuwer (2018) reported that most of the *L. borneensis* available for sale on social media and reptile forums since 2012 likely originated from Indonesian Borneo, where investigations indicate collectors regularly travel towards, and local villagers are eager to supply them. Some arrests support this, such as in 2015 and 2017



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Figure 1. The Borneo Earless Monitor *Lanthanotus borneensis*, intended to have been smuggled to Java, discovered by the Indonesia National Police of Kubu Raya District, 6 July 2022, West Kalimantan Province, Indonesia. Photo by Adi/mabesbharindo.com.

when respectively a German and Japanese individual were arrested at the Soekarno Hatta International Airport in Jakarta for attempting to smuggle *L. borneensis* out of the country, reportedly purchased from Kalimantan (Arwan, 2015; Felisiani, 2015; Adi, 2017; Janssen and Krishnasamy, 2018; Kitade and Naruse, 2020).

Our findings suggest that the smuggling of *L. borneensis* in Indonesia were collected from West Kalimantan Province. This province would benefit from conservation action to protect this lizard species. Key institutions that prevent smuggling of *L. borneensis* in Indonesia are Natural Resources Conservation Agency, Airport's Agricultural Quarantine Agency, Avian Security at airports, Indonesia National Police as well as private sectors (Borneo Trans Mandiri, an autobus transportation company). Regarding conservation actions in place for *L. borneensis*, Das and Auliya (2021) suggest that locality records and relevant sites where the species occurs need to be monitored and managed, particularly in protected areas, and park staff needs to control illegal collecting activities. Furthermore, a prerequisite to inform train authorities and relevant

stakeholders about illegal trade of animals are required in the future.

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