

# Updated Checklist of the Herpetofauna of Brunei Darussalam

Hanyrol H. Ahmad Sah<sup>1\*</sup>, T. Ulmar Grafe<sup>1</sup>, Joremy Tony<sup>1</sup>,  
Jerry S. H. Wong<sup>2</sup>, Justin Jeffrey<sup>2</sup> and J. Maximilian Dehling<sup>3</sup>

<sup>1</sup> Environmental and Life Sciences Programme, Faculty of Science, Universiti Brunei Darussalam,  
Jalan Tungku Link, Gadong BE 1410, Brunei Darussalam

<sup>2</sup> Brunei Nature Society, P.O. Box 2241, Bandar Seri Begawan BS8674, Brunei Darussalam

<sup>3</sup> Institut für Integrierte Naturwissenschaften, Abteilung Biologie, Universität Koblenz  
Universitätsstraße 1, 56070 Koblenz, Germany

\*corresponding author email: hanyrol.ahmadsah@ubd.edu.bn

## Abstract

We provide an updated checklist of the herpetofauna of Brunei Darussalam based on literature data, citizen science records, field surveys, and opportunistic observations. Forty-four species are added to the checklist of the country, bringing the total number of herpetofauna in Brunei to 248 species (90 amphibians and 158 reptiles). The new records include the enigmatic *Glyphoglossus flavus*, *G. smithi*, *Rhacophorus borneensis*, *Lanthanotus borneensis*, four species of *Calamaria*, *Gonyosoma margaritatum* and a new species of rock gecko, *Cnemaspis gituen*. The additional species improve our knowledge on the herpetofaunal diversity of Brunei and their range distribution in this region. Our study also reflects the need for further field and taxonomic work as well as citizen-science involvement, to uncover the hidden herpetofaunal diversity of Brunei. With the expanding threat of extinctions, enhanced knowledge on Borneo's biodiversity and their population trends will provide essential baseline information to support evidence-based conservation actions.

*Index Terms:* amphibians, Brunei, checklist, conservation, herpetofauna, reptiles

## 1. Introduction

Herpetofauna form an integral component of global biodiversity. They serve as important mid-level consumers in the food web, making them critical drivers of predator-prey dynamics, energy flow, and nutrient cycling in both terrestrial and aquatic ecosystems.<sup>1-4</sup> They also help regulate numerous harmful pest and disease-transmitting species.<sup>3-5</sup> Despite the vital ecosystem services they provide, 41% of amphibians and 21% of reptiles are currently threatened with extinctions worldwide.<sup>6</sup> Habitat loss and degradation are the leading cause of many population declines, particularly in Southeast Asia, followed by overharvesting, increasing wildlife trade, invasive species, pollution, diseases, and climate change.<sup>7</sup> Their sensitivity to some of these threats can be used to forecast the level of disturbance in an ecosystem, making them an excellent

bioindicator of environmental health.<sup>1,4,8</sup> Documenting and monitoring herpetofaunal diversity is becoming more important to better understand the response of local biodiversity to threats and subsequently, guide effective conservation strategies.

Brunei Darussalam is located on the northern coast of Borneo, within one of the world's biodiversity hotspots. Despite its modest size of only 5765 km<sup>2</sup>, the Brunei government has gazetted 41% of its land area as forest reserves.<sup>9</sup> The country constitutes various forest ecosystems ranging from lowland mixed-dipterocarp rainforest, mangroves, kerangas, peat swamps, freshwater swamps, beach forests, and montane forest vegetation.<sup>10</sup> Brunei is divided into two faunal and floristic regions. The moderately populated western districts, Brunei-Muara,

Tutong and Belait, are characterised by the presence of alluvial, swampy plains with low hills and wetlands in the interior region.<sup>9,11</sup> In contrast, the sparsely populated eastern Temburong District features extensive mangroves and peat swamps near the coast, and hillier terrain with denser lowland mixed-dipterocarp and montane forests towards the southern border.<sup>9,11</sup> Furthermore, Brunei's location at the convergence of two biogeographical areas of East Sarawak and the mountainous interior parts of Borneo,<sup>12</sup> have resulted in the rich diversity of ideal habitats for many species of Bornean herpetofauna.

The earliest published record of herpetofauna in Brunei was a report on a snake bite, allegedly involving *Garthius chaseni*.<sup>13</sup> As this species is only found at higher elevations and has not been documented in Brunei ever since, it is almost certain that the snake's identity was mistaken and that in fact the snake was *Craspedocephalus borneensis*.<sup>14</sup> However, the earliest published checklist was compiled by Elkin in 1992.<sup>15</sup> In the checklist, she recorded only eight species of sea snakes, four species of sea turtles and a saltwater crocodile from observing marine animals in the coastal waters of western Brunei. An unpublished report by Reading in 1992 was the first to document the amphibians in Batu Apoi with 28 species.<sup>16</sup> In 1994, Das referred to 51 species of amphibians and 44 species of reptiles recorded from the Batu Apoi Reserve Forest (presently a part of the Ulu Temburong National Park, UTNP), surveyed during the Universiti Brunei Darussalam-Royal Geographic Society expedition and beyond for a few additional months, but named only three species for each group.<sup>17</sup> In subsequent publications, Das updated the number of amphibians in Batu Apoi to 50, then 52, and the number of reptiles to 46.<sup>18,19</sup> Only in 2007 was the first checklist of the herpetofauna of Brunei published by Das in his book 'Amphibians and Reptiles of Brunei Darussalam'.<sup>20</sup> In total, he listed 62 species of amphibians and 124 species of reptiles for Brunei. Subsequently, Das, Nyawa, and Charles listed a total of 23 frog and 31 reptile species for Tasek Merimbun in the book 'A guide to the

Amphibians and Reptiles of Tasek Merimbun, Merimbun Heritage Park, Brunei Darussalam' in 2008.<sup>21</sup> An updated inventory of the amphibians of the UTNP in 2009 brought the total number from 51 to 66 species.<sup>22</sup> The checklist of amphibians for Brunei was updated in 2010, bringing the total number of species to 80.<sup>23</sup> Extensive surveys of frogs at the Bukit Teraja Protection Forest in 2010 to 2011 yielded 39 species for the area.<sup>24</sup> Furthermore, a six-day survey in hilly forests near Bukit Pagon at the south of the UTNP during the iCUBE Bukit Pagon expedition in 2012, reported 23 species of frogs and eight species of reptiles.<sup>25</sup> Another updated checklist of the amphibians of Brunei published in 2014 listed 84 species.<sup>26</sup> A checklist of the venomous snakes of Brunei was published in 2015.<sup>27</sup> Since then, no other checklist of either amphibians, reptiles, or both were published.

In recent times, Brunei has faced increasing anthropogenic activities such as deforestation and fragmentation for infrastructural development, pollution, forest fires, human-wildlife conflict, and climate change. These are becoming more threatening to the survival of herpetofauna in this country. Hence, in this study we provide an updated checklist of the amphibians and reptiles of Brunei Darussalam as baseline data for better protected area management, conservation actions and legislative policies. Additionally, we present longitudinal data on the presence or absence of species over a five-year period to aid in the assessment of long-term population trends.

## 2. Materials and Methods

We compiled the current checklist of the herpetofauna of Brunei using the previous inventories by Das<sup>20</sup> and Grafe & Das<sup>26</sup>, other scientific literature including published and unpublished data from papers, books, theses, and lists of herpetofauna compiled by the Universiti Brunei Darussalam Museum, as well as personal observations. We also used the findings from standardized visual and acoustic transect samplings done in 2022 and 2023 during biannual frog surveys of stream-associated frogs in Ulu Temburong. Additionally, three rapid night surveys were done in the submontane forest

of Bukit Belalong (913 m asl) of the UTNP in November 2013, December 2020, and March 2021. To supplement the checklist, online sources including iNaturalist and the Facebook group ‘Snakes of Borneo’ were thoroughly checked for snake encounters across Brunei.

The updated scientific names of this checklist follow Frost<sup>28</sup> and Uetz *et al.*<sup>29</sup> for amphibians and reptiles, respectively. The global status of the species is in accordance with the International Union for Conservation of Nature (IUCN) Red List of Threatened Species.<sup>30</sup>

### 3. Results and Discussion

In total, 248 species of herpetofauna comprising 90 amphibians (eight families) and 158 reptiles (23 families) were documented for Brunei (see *Table 1*). This represents almost half of the herpetofauna species known in Borneo (527 species).<sup>47</sup> Excitingly, we document 44 additional records including several elusive species with secretive lifestyles. A female *Glyphoglossus flavus* was first found inside a pitfall trap containing about 5 cm of rainwater set up at Ulu Temburong in 2012.<sup>33</sup> This small burrowing microhylid frog was later found to be quite common on the sandy ridges of the national park where males sporadically come out above ground to call during heavy thunderstorms. Two new records of bush frogs, *Philautus davidlabangi* and *P. mjobergi*, were reported from the shrubs at the summit of Bukit Belalong in November 2013.<sup>31</sup> Further surveys at Bukit Belalong in 2020 and 2021 also led to the discovery of another burrowing frog, *Glyphoglossus smithi*, as well as a dwarf toad, *Pelophryne saravacensis*, and the flying tree frog *Rhacophorus borneensis*. However, the most unexpected herpetological encounter in the recent past was of *Lanthanotus borneensis*.<sup>41,48</sup> The Borneo earless monitor was found during a thunderstorm in Temburong in October 2022, with its tail grasping onto roots near a fast-flowing stream. Even new reptile species are still being discovered in Brunei: a new species of rock gecko, *Cnemaspis gituen*, was found on boulders in the kerangas forest of Bukit Patoi plateau in March 2025.<sup>44</sup> The first recorded specimen of *Gonyosoma margaritatum*,

a predominantly arboreal snake, was found resting on branches during the day at the Ashton Trail of the Kuala Belalong Field Studies Centre in 2016. Introduced species including *Calotes versicolor*, *Duttaphrynus melanostictus*, and *Kaloula pulchra* are also included in the checklist as they have established populations in Brunei, and thus have become part of the country’s biodiversity.<sup>34,35,38</sup>

Through social media and citizen science, we have added 10 new records of snakes to the checklist. The marine snakes *Hydrophis atriceps*, *H. viperinus*, and *Microcephalophis gracilis* were encountered on the sand at the Panaga Beach in Kuala Belait. Although *Dendrelaphis kopsteini* and *Lycodon capucinus* are considered common snakes in residential areas throughout Southeast Asia, their presence in Brunei was only reported for the first time recently. Furthermore, *Calamaria borneensis*, *C. leucogaster*, *C. schlegeli*, and *Calamaria* sp. were found on hiking trails in different forests in Brunei. These small snakes with fossorial and nocturnal habits can be easily overlooked.<sup>46</sup> Additionally, snakes that have never been recorded previously outside Ulu Temburong were also encountered by citizen scientists, for example, *Chrysopelea pelias*, *Coelognathus flavolineatus*, and *Liopeltis tricolor*. This finding enhances our knowledge on the range distribution of certain snake species within this country. Moreover, the frequent reports on the presence of venomous snakes, particularly cobras, in residential areas can be helpful in mitigating human-wildlife conflict. In recent decades, citizen science has been increasingly recognized as a useful, cost-effective tool for wildlife inventories and monitoring.<sup>49</sup> Participation from the general public enables sizeable datasets to be collected, thus supporting the usually costly conventional scientific research methods and at the same time raises public awareness of biodiversity conservation.<sup>49-51</sup>

The fact that we are still finding new records of herpetofauna in Brunei, even in urban areas, suggests that our checklist is still incomplete. One focal area for new discoveries has been the Ulu Temburong National Park (UTNP). Efforts

here have focused on the river, stream, and leaf litter communities of the lowland forests, with little attention given to the more remote and difficult to access submontane and montane forests. Remarkably, 28 more species were discovered solely in the UTNP since the 2007 and 2012 checklists, bringing the total number of herpetofauna in the National Park to 174 (78 amphibians and 96 reptiles) (see **Table 1**). Thus, this study emphasizes UTNP's high herpetofaunal diversity and the importance of safeguarding this national park for the integrity of Borneo's overall biodiversity. Extensive sampling efforts should also be conducted in other forest types and habitats, particularly heath forests, peat swamp forests, mangroves, and montane forests, as well as arboreal, pond, and marine ecosystems. These underexplored habitats may contain similar species richness to the UTNP or unique herpetofaunal communities, and thus deserve similar levels of protection. For example, both the UTNP and the Bukit Teraja Protection Forest need to be equally protected, as they were found to have a low resemblance in frog community composition.<sup>24</sup>

Future inventories should also include molecular biology techniques such as DNA sequencing to reveal taxonomic status of unidentified and cryptic species,<sup>52,53</sup> as well as their phylogenetic relationships. A few species in the checklist including *Alcalus* sp., *Calamaria* sp., *Meristogenys jerboa* and *Leptobrachium kanowitense* need clarification as to whether they fall into formerly described species or constitute new, distinctive taxonomic units. This will be useful in the assessment of their conservation status. A recent study using mitochondrial DNA, CT scans, and cutaneous microbiome analyses found one species of *Ichthyophis* collected from Ulu Temburong to be a new record of *Ichthyophis asplenius*.<sup>45</sup> Due to their morphological resemblance, all caecilian specimens encountered earlier on in Brunei were thought to be *Ichthyophis nigroflavus*. Through mitochondrial and nuclear DNA analyses, *Limnnectes kuhlii* which was previously considered a single, widely distributed species is now found to represent about 20 morphologically

similar species from distinct lineages.<sup>54</sup> Similar molecular analyses on *Limnnectes kuhlii* and other cryptic herpetofauna in Brunei will definitely boost the country's species richness.

Our longitudinal data compiled from 2021 to 2025 confirmed the presence of 140 out of the 204 species listed in former inventories (see **Table 1**).<sup>20,23,26</sup> This indicates that most species are thriving, possibly due to having large enough population sizes.<sup>23</sup> However, species which were not found during the recent surveys might naturally have low populations including *Pelobatrachus edwardinae*, *Leptobrachella picta*, *Tomistoma schlegelii*, and *Oligodon annulifer*. Alternatively, species such as *Ansonia platysoma*, *Huia cavitympanum*, *Philautus davidlabangi*, *P. mjobergi*, *Rentapia everetti*, *Aphaniotis ornata*, and several species of marine snakes and turtles, only exist in specific locations within Brunei which were scarcely or not visited during the last five years. While small-sized, well-camouflaged herpetofauna with hidden lifestyle might simply be unnoticed. Although there is no evidence that populations of herpetofauna in Brunei are declining, continued long-term dataset will undoubtedly contribute to better insights into the responses of herpetofauna to changes in natural and anthropogenic processes. Such knowledge will be crucial in strategizing mitigation and conservation measures.

Only *Cnemaspis gituen* is endemic to Brunei; however, about 57% of amphibians and 20% of reptiles can only be found in Borneo. Amphibians tend to have smaller home ranges, lower dispersal ability, and more permeable skin than reptiles, resulting in the differences in endemism and degree of susceptibility to environmental changes. Furthermore, Brunei also hosts several species of conservation concern. According to the IUCN Red List of Threatened Species,<sup>30</sup> 209 species are classed as Least Concern, five species are Near Threatened, 10 species are Vulnerable, four species are Endangered, two species are Critically Endangered, nine species are Data Deficient and nine others are either Not Evaluated or not

identified to the species level yet. Thus, based on this information, species that need urgent protection from further decline are *Glyphoglossus smithi*, *Meristogenys jerboa*, *Staurois parvus*, *Philautus ingeri*, *Tomistoma schlegelii*, all of its turtle species except for *Dogania subplana*, *Lanthanotus borneensis*, *Orthriophis taeniurus*, and *Ophiophagus bungarus*. However, the Brunei Wildlife Protection Act (1984) currently protects only four species from this list, namely *Chelonia mydas*, *Dermochelys coriacea*, *Eretmochelys imbricata*, and *Lanthanotus borneensis*. Although the majority of Brunei's herpetofauna is categorized as Least Concern globally, inadequate studies on their population trends might suggest a higher conservation status, as they might be exposed to different environmental conditions and anthropogenic pressures in this country.

#### 4. Conclusions

This study confirms the high species richness of herpetofauna found in Brunei Darussalam and provides new distribution records of several species within Borneo. The discoveries of additional species, even in urban settings, show that the current checklist is still far from complete. Further herpetofaunal surveys, particularly in underexplored and inaccessible areas, and taxonomic work will likely increase the species richness of amphibians and reptiles in this country. Apart from the UTNP, Teraja, and Tasek Merimbun, other conservation areas such as Sungai Ingei Conservation Area, Ulu Mendaram Conservation Forest, and the Brunei Bay also require extensive sampling to reveal their conservation value. Long-term monitoring of herpetofaunal population trends is also necessary for the assessment or revision of the status for some species in the IUCN Red List. This, thereafter, can be used to update the current national wildlife protection law to prevent species and their habitats from further decline. Establishing a properly-structured national database on biodiversity for citizen science is a vital next step to support wildlife research in Brunei and facilitate better community-based conservation projects. In light of the impending anthropogenic disturbances in this region, our

work accentuates the need for baseline inventories and long-term research for better management and informed conservation of the ecosystem.

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#### References

- [1] K. M. Andrews *et al.*, "Ecological effects of roads on amphibians and reptiles: a literature review", *Herpetological Conservation*, 3, 121-143, 2008.
- [2] J. P. Collins and M. L. Crump, *Extinction in our times: global amphibian decline*. Oxford University Press, 2009.
- [3] D. J. Hocking and K. J. Babbitt, "Amphibian contributions to ecosystem services", *Herpetological Conservation and Biology*, 9, 1-17, 2014.
- [4] A. Turner, "The contribution of amphibians and reptiles in ecosystem

- dynamics and biodiversity conservation”, *Journal of Zoological Sciences*, 12, 8-9, 2024.
- [5] R. Dial and J. Roughgarden, “Experimental removal of insectivores from rain forest canopy: direct and indirect effects”, *Ecology*, 76, 1821-1834, 1995.
- [6] N. Cox *et al.*, “A global reptile assessment highlights shared conservation needs of tetrapods”, *Nature*, 605, 285-2, 2022.
- [7] J. W. Gibbons *et al.*, “The global decline of reptiles, déjà vu amphibians”, *BioScience*, 50, 653-666, 2000.
- [8] J. M. Silva *et al.*, “Lizards as model organisms to evaluate environmental contamination and biomonitoring”, *Environmental Monitoring and Assessment*, 192, 1-13, 2000.
- [9] Forestry Department, *The 6th National Report for the Convention of Biological Diversity Brunei Darussalam*, 2019.
- [10] P. S. Ashton *et al.*, *A practical guide to forests and trees of Brunei Darussalam and the northeast Borneo hotspot* (Vol. 1). Bandar Seri Begawan, Brunei Darussalam, 2003.
- [11] Forestry Department, *The 4<sup>th</sup> National Report for the Convention of Biological Diversity Brunei Darussalam*, 2010.
- [12] M. Auliya, *Taxonomy, Life History, and conservation of giant reptiles in west Kalimantan*. Natur und Tier Verlag, Münster, 2006.
- [13] N. S. Haile, “Snake bites man: two recent Borneo cases.” *Sarawak Museum Journal*, 11, 291-298, 1963.
- [14] R. Malkmus *et al.*, *Amphibians & Reptiles of Mount Kinabalu (North Borneo)*, Koeltz Scientific Books, Königstein, 2002.
- [15] J. Elkin, “Observations of marine animals in the coastal waters of western Brunei Darussalam”. *Brunei Museum Journal*, 7, 74-87, 1992.
- [16] C. J. Reading, *Frogs found within the Batu Apoi Forest Reserve in Brunei (April/May 1991). Final Report*. UBD-RGS Rainforest Project 1991-92. Mimeographed. 8 pp. +13 figs.+28 maps, 1992.
- [17] I. Das, “Evaluating biodiversity: the Batu Apoi experience”, *Ambio*, 23, 238-242, 1994.
- [18] I. Das, “Amphibians and reptiles recorded at Batu Apoi, a lowland dipterocarp forest in Brunei Darussalam”, *The Raffles Bulletin of Zoology*, 43(1), 157–180, 1995.
- [19] I. Das, “Spatio-temporal resource utilization by a Bornean rainforest herpetofauna: Preliminary results. In: D. S. Edwards, W. E. Booth, S. C. Choy (eds), *Tropical Rainforest Research — Current Issues. Monographiae Biologicae*, 74, 315-323. Springer, Dordrecht, 1996.
- [20] I. Das, *Amphibians and reptiles of Brunei. Kota Kinabalu Natural History Publications (Borneo) Sdn. Bhd*, 2007.
- [21] I. Das *et al.*, *A guide to the amphibians and reptiles of Tasek Merimbun Heritage Park Brunei Darussalam*, Brunei Museums Department, 2008.
- [22] T. U. Grafe and A. Keller, “A Bornean amphibian hotspot: The lowland mixed dipterocarp rainforest at Ulu Temburong National Park, Brunei Darussalam”, *Salamandra*, 45, 25-38, 2009.
- [23] T. U. Grafe *et al.*, “Updated check list of the amphibians of the Ulu Temburong

- National Park and Brunei Darussalam”, *Scientia Bruneiana*, 11, 53-59, 2010.
- [24] H. H. Ahmad Sah and T. U. Grafe, “Amphibian species diversity in the proposed extension of the Bukit Teraja Protection Forest, Brunei Darussalam”, *Scientia Bruneiana*, 18, 11-23, 2019.
- [25] H. H. Ahmad Sah *et al.*, “The Amphibians, Reptiles and Fishes of the 2012 Bukit Pagon Expedition, Brunei Darussalam”, *Bulletin of the Peabody Museum of Natural History*, 57, 97-114, 2016.
- [26] T. U. Grafe and I. Das, “Conservation Status of the Amphibians of Brunei Darussalam”. In: *Conservation Biology of Amphibians of Asia. Status of Conservation and Decline of Amphibians: Eastern Hemisphere* (Eds. Heatwole, H. & I. Das), pp. 300-309. Natural History Publications (Borneo), Kota Kinabalu, 2014.
- [27] I. Das and J. K. Charles, “Venomous Snakes and Envenomation in Brunei”. In: P. Gopalakrishnakone *et al.* (eds) *Clinical Toxinology in Asia Pacific and Africa*. Springer, Dordrecht, pp. 103-114, 2014.
- [28] D. R. Frost, *Amphibian Species of the World: an online reference*, Version 6.2, 2025, August 11. <https://amphibiansoftheworld.amnh.org/index.php>.
- [29] P. Uetz *et al.*, (eds.) *The Reptile Database*, 2025, August 11. <http://www.reptile-database.org>
- [30] IUCN. *The IUCN Red List of Threatened Species*, Version 2025-1, 2025, August 11. <https://www.iucnredlist.org>
- [31] H. H. Ahmad Sah. *Anuran species diversity, distribution patterns and diets in the Ulu Temburong National Park, Brunei Darussalam: roles of anurans in a tropical ecosystem*. PhD Dissertation, Universiti Brunei Darussalam, 2017.
- [32] M. D. Abdulla and T. U. Grafe, “Geographic distribution: *Lamprolepis nieuwenhuisii* (Nieuwenhuis’s Skink)”, *Herpetological Review*, 50, 747, 2019.
- [33] H. H. Ahmad Sah and T. U. Grafe, “Geographic distribution: *Calluella flava* (Yellow Burrowing Frog)”, *Herpetological Review*, 46, 376-377, 2015.
- [34] J. K. Charles, “Geographic distribution: *Kaloula pulchra* (Painted Bull Frog)”, *Herpetological Review*, 39, 478-479, 2008.
- [35] J. K. Charles and I. Das, “Geographic distribution: *Duttaphrynus melanostictus* (Common Asian Toad)”, *Herpetological Review*, 39, 478, 2008.
- [36] R. Chau and T. U. Grafe, “Geographic distribution: *Oligodon signatus* (Barred Kukri Snake)”, *Herpetological Review*, 50, 809, 2019.
- [37] I. Das, *A field guide to the reptiles of Borneo*. Natural History Publications (Borneo) Limited, 2025.
- [38] I. Das *et al.*, “*Calotes versicolor* (Squamata: Agamidae)—A new invasive squamate for Borneo”, *Current herpetology*, 27, 109-112, 2008.
- [39] I. Das *et al.*, “*Leptomantis fasciatus* (Boulenger, 1895) as a possible nuptial gift offered by a male Raffles’s Malkoha, *Rhinorhina chlorophaea* (Raffles, 1822)”, *Herpetology Notes*, 14, 713-716, 2021.

- [40] R. F. Inger *et al.*, *A field guide to the frogs of Borneo*, second edition. Natural History Publications (Borneo), 2017.
- [41] J. Jeffrey *et al.*, “A new record of the enigmatic Bornean earless monitor lizard (*Lanthanotus borneensis*) from Brunei Darussalam with notes on their retreat sites”, submitted to *Journal of Tropical Biology and Conservation*.
- [42] A. Keller, “Geographic distribution: *Parias sumatranus* (Sumatran Pit Viper)”, *Herpetological Review*, 39, 373, 2008a.
- [43] A. Keller, “Geographic distribution: *Xenodermus javanicus* (Rough-backed Litter Snake)”, *Herpetological Review*, 39, 374, 2008b.
- [44] T. Kurita *et al.*, “A new species of *Cnemaspis gituen* (Sauria: Gekkonidae) from Temburong District, Brunei Darussalam”, *Zootaxa*, 5725, 511-532, 2025.
- [45] S. E. McGrath-Blaser *et al.*, “Cutaneous bacterial microbiome description and new locality record of the poorly known striped caecilian *Ichthyophis asplenius* Taylor, 1965 in Bruneian Borneo”, *Journal of Natural History*, 59, 29-43, 2025.
- [46] R. B. Stuebing *et al.*, *A field guide to the snakes of Borneo*. Natural History Publications (Borneo), 2014.
- [47] I. Das *et al.*, *Biological Diversity of Borneo – The Herpetofauna. United Nation’s Sustainable Development Solutions Network, Science Panel for Borneo*. In press.
- [48] J. Kon, *Treasured find in green jewel*, *Borneo Bulletin*, 2022, October 22. <https://borneobulletin.com.bn/treasured-find-in-green-jewel/>
- [49] L. G. Moussa and M. Mohan, “Exploring Citizen Science Applications for Wildlife Monitoring”, *Premier Journal of Environmental Science*, 1(100005), 1-7, 2024.
- [50] A. I. Tulloch *et al.*, “Realising the full potential of citizen science monitoring programs”, *Biological Conservation*, 165, 128-138, 2013.
- [51] E. A. Goldstein *et al.*, “Locating species range frontiers: a cost and efficiency comparison of citizen science and hair-tube survey methods for use in tracking an invasive squirrel”, *Wildlife Research*, 41, 64-75, 2014.
- [52] D. S. McLeod, “Of least concern? Systematics of a cryptic species complex: *Limnonectes kuhlii* (Amphibia: Anura: Dicroglossidae)”, *Molecular Phylogenetics and Evolution*, 56, 991-1000, 2010.
- [53] J. M. Dehling *et al.*, Cryptic radiation within the tadpole-carrying Guardian Frogs from Borneo, *Limnonectes palavanensis* and *L. finchi* (Anura: Dicroglossidae), with the description of eight new species”, *Zootaxa*, 5650, 1-80, 2025.
- [54] M. Matsui *et al.*, “Revision of the *Limnonectes kuhlii*-like Fanged Frogs from Malaysian Borneo (Amphibia: Anura: Dicroglossidae)”, *Current Herpetology, Kyoto*, 43, 226-277, 2024.

Appendix

Table 1. Updated checklist of the herpetofauna of Brunei Darussalam.

Data source: AS = Ahmad Sah 2017<sup>31</sup>, AG = Abdullah and Grafe 2019<sup>32</sup>, ASG = Ahmad Sah and Grafe 2015<sup>33</sup>, C = Charles 2008<sup>34</sup>, CD = Charles and Das 2008<sup>35</sup>, CG = Chau and Grafe 2019<sup>36</sup>, CS = Citizen science, D1 = Das 2007<sup>20</sup>, D2 = Das 2025<sup>37</sup>, DCE = Das, Charles and Edwards 2008<sup>38</sup>, DHG = Das et al. 2021<sup>39</sup>, E = Elkin 1992<sup>15</sup>, G = Grafe et al. 2010<sup>23</sup>, GD = Grafe and Das 2014<sup>26</sup>, GK = Grafe and Keller 2009<sup>22</sup>, I = Inger et al. 2017<sup>40</sup>, J = Jeffrey et al.<sup>41</sup>, K1 = Keller 2008<sup>42</sup>, K2 = Keller 2008<sup>43</sup>, KU = Kurita et al.<sup>44</sup>, M-B = McGarth-Blaser et al. 2025<sup>45</sup>, N = new record (i.e. not recorded before 2012 for amphibians and before 2007 for reptiles), and S = Stuebing et al. 2014<sup>46</sup>.

Country codes of known species distribution: AF = Afghanistan, AU = Australia, BD = Bangladesh, BN = Brunei Darussalam, BT = Bhutan, CN = China, FJ = Fiji, FM = Micronesia, FR = France, GU = Guam, HK = Hong Kong, ID = Indonesia, IN = India, IR = Iran, JP = Japan, KH = Cambodia, LA = Lao People's Democratic Republic, LK = Sri Lanka, MM = Myanmar, MU = Mauritius, MV = Maldives, MY = Malaysia, NP = Nepal, OM = Oman, PG = Papua New Guinea, PH = Philippines, PK = Pakistan, PW = Palau, SB = Solomon Islands, SC = Seychelles, SG = Singapore, TH = Thailand, TO = Tonga, TL = Timor-Leste, TW = Taiwan, US = United States of America, VN = Vietnam, and VU = Vanuatu.

Conservation status follows listings of the IUCN red list categories (NE = Not Evaluated, DD = Data Deficient, LC = Least Concern, NT = Near Threatened, VU = Vulnerable, EN = Endangered and CR = Critically Endangered).

New species records for Brunei are shown in bold.

New records for the Ulu Temburong National Park (UTNP) are marked with pound (#).

Species endemic to Borneo are marked with asterisk (\*).

Scientific and common names	Data source	Presence confirmed 2021-2025	Global distribution	Conservation status	Recorded in UTNP
<b>CLASS AMPHIBIA</b>					
<b>ORDER GYMNOPIHONA</b>					
<b>FAMILY ICHTHYOPHIIDAE</b>					
<b><i>Ichthyophis asplenius</i></b> Striped caecilian <sup>#</sup>	N (M-B)	+	BN, ID, MY, TH	DD	+
<i>Ichthyophis nigroflavus</i> Yellow-black caecilian	D1	+	BN, MY	DD	+
<b>ORDER ANURA</b>					
<b>FAMILY BUFONIIDAE</b>					
<i>Ansonia albomaculata</i> White-lipped slender toad*	D1, GK	-	BN, ID, MY	LC	+
<i>Ansonia leptopus</i> Brown slender toad	D1, GK	+	BN, ID, MY	NT	+

<i>Ansonia longidigita</i> Long-fingered slender toad*	D1, GK	+	BN, ID, MY	LC	+
<b><i>Ansonia minuta</i></b> <b>Dwarf slender toad*<sup>#</sup></b>	<b>N (Author)</b>	-	BN, ID, MY	LC	+
<i>Ansonia platysoma</i> Flat-bodied slender toad*	GK	-	BN, MY	LC	+
<i>Duttaphrynus melanostictus</i> Common Sunda toad	CD	+	BD, BT, BN, CH, KH, HK, ID, IN, LA, LK, MM, MV, MY, NP, PK, SG, TH, TW, VN	LC	-
<i>Ingerophrynus divergens</i> Forest toad	D1, GK	+	BN, ID, MY	LC	+
<i>Ingerophrynus quadriporcatus</i> Four-ridged toad	D1, GK	+	BN, ID, MY, SG	LC	-
<b><i>Pelophryne saravacensis</i></b> <b>Sarawak dwarf toad*<sup>#</sup></b>	<b>N (Author)</b>	+	BN, MY	LC	+
<i>Pelophryne signata</i> Lowland dwarf toad	D1, GK	+	BN, MY	LC	+
<i>Phrynoidis asper</i> River toad	D1, GK	+	BN, ID, MM, MY, TH, VN	LC	+
<i>Phrynoidis juxtasper</i> Giant river toad	D1, GK	+	BN, ID, MY	LC	+
<i>Rentapia everetti</i> Everett's tree toad*	D1, GK	-	BN, ID, MY	LC	+
<i>Rentapia hosii</i> Hose's tree toad	D1, GK	+	BN, ID, MY, TH	LC	+
<b>FAMILY CERATOBATRACHIDAE</b>					
<i>Alcalus baluensis</i> Kinabalu dwarf mountain frog*	D1	+	BN, ID, MY	LC	+
<i>Alcalus</i> sp.	D1	-	BN	-	+

FAMILY DICROGLOSSIDAE					
<i>Fejervarya cancrivora</i> Crab-eating frog	D1, G	+	BN, GU, ID, IN, KH, LA, MY, MM, SG, TH, VN	LC	-
<i>Fejervarya limnocharis</i> Grass frog	D1, G	+	BD, BN, BT, IN, ID, KH, LA, LK, MM, MY, NP, PK, SG, TH, VN	LC	+
<i>Limnonectes ibanorum</i> Rough-backed river frog*	D1, GK	-	BN, ID, MY	LC	+
<i>Limnonectes ingeri</i> Greater swamp frog*	D1, GK	+	BN, ID, MY	LC	+
<i>Limnonectes "kuhlii"</i> Kuhl's creek frog	D1, GK	+	BN, KH, CN, IN, LA, MM, MY, TH, VN	LC	+
<i>Limnonectes leporinus</i> Giant river frog*	D1, GK	+	BN, ID, MY	LC	+
<i>Limnonectes malesianus</i> Peat swamp frog	D1, G	+	BN, ID, MY, SG, TH	NT	-
<i>Limnonectes paramacrodon</i> Lesser swamp frog	D1	+	BN, ID, MY, SG, TH	NT	-
<i>Limnonectes phylax</i> Smooth guardian frog*	D1, GK	+	BN, ID, MY	LC	+
<i>Occidozyga baluensis</i> Seep frog*	D1, GK	+	BN, ID, MY	LC	+
<i>Occidozyga laevis</i> Puddle frog	D1, GK	+	BN, ID, MY, PH, SG, TH	LC	+
FAMILY MEGOPHRYIDAE					
<i>Leptobranchella fritinniens</i> Twittering slender litter frog*	D1, GK	+	BN, MY	DD	+
<i>Leptobranchella gracilis</i> Slender litter frog*	D1, GK	+	BN, ID, MY	LC	+
<i>Leptobranchella juliandringi</i>	D1, GK	+	BN, ID, MY	LC	+

Dring's dwarf litter frog*					
<i>Leptobrachella parva</i>					
Rough-sided dwarf littler frog*	D1, GK	+	BN, MY	LC	+
<i>Leptobrachella picta</i>					
Painted slender litter frog*	D1, GK	-	BN, ID, MY	LC	+
<i>Leptobrachium abbotti</i>					
Lowland litter frog*	D1, GK	+	BN, ID, MY	LC	+
<b><i>Leptobrachium kanowitense</i></b>					
<b>Kanowit black-eyed litter frog*</b>	N (Author, I)	+	BN, MY	DD	-
<i>Leptobrachium montanum</i>					
Montane large-eyed litter frog*	D1, GK	-	BN, ID, MY	LC	+
<i>Pelobatrachus edwardinae</i>					
Edwardine's horned frog*	D1, GK	-	BN, MY	LC	+
<i>Pelobatrachus nasutus</i>					
Borneo horned frog	D1, GK	+	BN, ID, MY, SG, TH	LC	+
<b>FAMILY MICROHYLIDAE</b>					
<i>Chaperina fusca</i>					
Saffron-bellied frog	D1, GK	+	BN, ID, MY, PH, TH	LC	+
<b><i>Glyphoglossus flavus</i></b>					
<b>Yellow burrowing frog*<sup>#</sup></b>	N (Author, AS, ASG, GD, I)	+	BN, MY	LC	+
<b><i>Glyphoglossus smithi</i></b>					
<b>Blotch-sided burrowing frog*<sup>#</sup></b>	N (Author)	+	BN, MY	NT	+
<i>Kalophrynus intermedius</i>					
Intermediate sticky frog*	D1, GK	+	BN, ID, MY	LC	+
<i>Kalophrynus meizon</i>					
Borneo big sticky frog*	D1, GK	+	BN, ID, MY	LC	+
<i>Kalophrynus subterrestris</i>					
Lesser sticky frog*	GK	-	BN, ID, MY	LC	+
<i>Kaloula baleata</i>					
Brown bullfrog	D1, G	+	BN, ID, IN, KH, LA, MY, PH, TL, VN	LC	-

<i>Kaloula pulchra</i> Banded bullfrog	C, G	+	BD, BN, CN, GU, ID, IN, KH, LA, LK, HK, MM, MY, PH, SG, TH, TW, VN	LC	-
<i>Metaphrynella sundana</i> Tree hole narrow-mouthed frog*	D1, GK	+	BN, ID, MY	LC	+
<i>Microhyla malang</i> Bornean narrow-mouthed frog*	D1, GD, GK	+	BN, ID, MY	LC	+
<b><i>Microhyla nepenthicola</i></b> <b>Matang narrow-mouthed frog*</b>	N (GD)	-	BN, MY	NE	-
<i>Nanohyla perparva</i> Least narrow-mouthed frog*	D1, G	-	BN, ID, MY	LC	-
<i>Nanohyla petrigena</i> Pothole narrow-mouthed frog	D1, GK	+	BN, ID, MY, PH	LC	+
<b>FAMILY RANIDAE</b>					
<i>Huia cavitympanum</i> Hole-in-the-head frog*	D1, GK	-	BN, ID, MY	LC	+
<i>Hylarana baramica</i> Brown marsh frog	D1, GK	+	BN, ID, MY, SG, TH	LC	-
<i>Hylarana erythraea</i> Green paddy frog	D1, GK	+	BN, KH, ID, IN, LA, MM, MY, PH, SG, TH, VN	LC	+
<i>Hylarana glandulosa</i> Rough-sided frog	D1, GK	+	BN, ID, MY, TH, VN	LC	+
<i>Hylarana luctuosa</i> Mahogany frog	D1, GK	+	BN, ID, MY, TH	LC	+
<i>Hylarana megalonesa</i> Large White-lipped frog*	D1, GK	+	BN, ID, MY	LC	+
<i>Hylarana nicobariensis</i> Cricket frog	G	+	BN, ID, IN, MY, PH, TH	LC	-
<i>Hylarana picturata</i>	D1, GK	+	BN, ID, MY	LC	+

Spotted stream frog*					
<i>Hylarana signata</i> Striped stream frog	D1, GK	+	BN, ID, MY, TH	LC	+
<i>Meristogenys jerboa</i> Western torrent frog*	D1, GK	-	BN, MY	VU	+
<i>Meristogenys orphnocnemis</i> Northern torrent frog*	D1, GK	-	BN, ID, MY	LC	+
<i>Meristogenys poecilus</i> Malaysian Borneo frog*	D1, GK	+	BN, ID, MY	LC	+
<i>Odorrana hosii</i> Poisonous rock frog	D1, GK	+	BN, ID, MM, MY, TH	LC	+
<i>Staurois guttatus</i> Black-spotted rock skipper*	D1, GK	+	BN, ID, MY	LC	+
<i>Staurois latopalmatus</i> Rock skipper*	D1, GK	+	BN, ID, MY	LC	+
<i>Staurois parvus</i> Lesser rock skipper*	D1, GK	+	BN, ID, MY	VU	+
<b>FAMILY RHACOPHORIDAE</b>					
<i>Feihyla kajau</i> White-eared tree frog*	D1, GK	+	BN, ID, MY	LC	+
<i>Kurixalus chaseni</i> Frimled tree frog	D1, GK	+	BN, ID, MY	LC	+
<i>Leptomantis belalongensis</i> Belalong tree frog*	D1, GK	+	BN, MY	LC	+
<i>Leptomantis cyanopunctatus</i> Blue-spotted tree frog	G, GD, GK	-	BN, MY, SG, TH	LC	+
<i>Leptomantis fasciatus</i> Banded tree frog*	D1, DHG, GK	+	BN, ID, MY	LC	+
<i>Leptomantis harrissoni</i> Brown tree frog*	D1, GK	+	BN, ID, MY	LC	+
<i>Leptomantis rufipes</i>	D1, GK	+	BN, ID, MY	LC	+

Red-legged frog*					
<i>Nyctixalus pictus</i> Cinnamon frog	D1, GK	+	BN, ID, MY, PH, SG, TH	LC	+
<b><i>Philautus davidlabangi</i></b> <b>Matang bush frog<sup>#</sup></b>	N (Author, AS)	-	BN, MY	LC	+
<i>Philautus hosii</i> Hose's bush frog*	D1, GK	+	BN, ID, MY	LC	+
<i>Philautus ingeri</i> Inger's bush frog*	G	+	BN, ID, MY	VU	+
<b><i>Philautus mjobergi</i></b> <b>Mjöberg's bush frog*<sup>#</sup></b>	N (Author, AS)	-	BN, ID, MY	LC	+
<i>Philautus tectus</i> Obscure bush frog*	D1, GK	+	BN, MY	LC	+
<i>Polypedates colletti</i> Collett's tree frog	D1, GK	+	ID, MY, TH, VN	LC	+
<i>Polypedates leucomystax</i> Four-lined tree frog	D1, GK	+	BD, BN, BT, CN, ID, IN, MM, MY, PH, SG, TH, TW	LC	+
<i>Polypedates macrotis</i> Dark-eared tree frog	D1, GK	+	BN, ID, MY, PH, TH	LC	+
<i>Polypedates otlophus</i> File-eared tree frog*	D1, GK	+	BN, ID, MY	LC	+
<b><i>Rhacophorus borneensis</i></b> <b>Borneo flying frog*<sup>#</sup></b>	N (Author)	+	BN, MY	LC	+
<i>Rhacophorus nigropalmatus</i> Wallace's flying frog	D1, GK	+	BN, ID, MM, MY, TH	LC	+
<i>Rhacophorus pardalis</i> Harlequin flying frog	D1, GK	+	BN, ID, MY, PH, TH	LC	+
<i>Theloderma horridum</i> Spiny warted frog	D1, GK	-	BN, ID, MY, SG, TH	LC	+
<i>Zhangixalus dulitensis</i>	D1, GK	+	BN, ID, MY	LC	+

Jade tree frog*					
<b>CLASS REPTILIA</b>					
<b>ORDER CROCODILIA</b>					
<b>FAMILY CROCODYLIDAE</b>					
<i>Crocodylus porosus</i> Saltwater crocodile	D1	+	AU, BD, BN, IN, ID, MM, MY, PG, PH, SB, SC, SG, LK, TL, KH, TH, VN, VU	LC	+
<i>Tomistoma schlegelii</i> False gharial	D1	-	BN, ID, MY	VU	-
<b>ORDER TESTUDINES</b>					
<b>FAMILY CHELONIIDAE</b>					
<i>Chelonia mydas</i> Green sea turtle	D1	+	Widespread throughout tropical and subtropical waters	EN	-
<i>Eretmochelys imbricata</i> Hawksbill sea turtle	D1	-	Widespread throughout tropical and subtropical waters	CR	-
<i>Lepidochelys olivacea</i> Olive ridley sea turtle	D1	-	Widespread throughout tropical and subtropical waters	VU	-
<b>FAMILY DERMOCHELYIDAE</b>					
<i>Dermochelys coriacea</i> Leatherback sea turtle	D1	-	Widespread throughout tropical and temperate waters	VU	-
<b>FAMILY GEOEMYDIDAE</b>					
<i>Batagur borneoensis</i> Painted terrapin	N (D2)	-	BD, MY, TH	CR	-

<i>Cuora cuoro</i> Sunda box turtle	D1	-	BD, BN, ID, IN, LA, MM, MY, PH, SG, TH, VN	EN	+
<i>Cyclemys dentata</i> Asian leaf turtle	D1	-	BD, ID, MY, PH, SG, TH	NT	-
<i>Heosemys spinosa</i> Spiny turtle	D1	+	BN, ID, MM, MY, PH, SG, TH	EN	+
<i>Notochelys platynota</i> Malayan flat-shelled turtle	D1	-	BN, ID, MY, TH, VN	VU	+
<b>FAMILY TRIONYCHIDAE</b>					
<i>Amyda cartilaginea</i> Malayan softshell turtle	D1	-	BN, ID, KH, LA, MY, MM, SG, TH, VN	VU	-
<i>Dogania subplana</i> Asian softshell turtle	D1	+	BN, ID, MM, MY, PH, SG	LC	+
<b>ORDER SQUAMATA</b>					
<b>SUBORDER LACERTILIA</b>					
<b>FAMILY AGAMIDAE</b>					
<i>Aphaniotis ornata</i> Ornate shrub lizard* <sup>#</sup>	D1	-	BN, ID, MY	LC	+
<i>Bronchocela cristatella</i> Green crested lizard	D1	+	BN, ID, IN, MM, MY, SG, TH	LC	+
<i>Calotes versicolor</i> Changeable lizard	DCE	+	AF, BD, BN, BT, CN, FR, HK, ID, IN, IR, KE, KH, LA, MM, MU, MV, MY, NP, OM, PK, SC, SG, TH, VN, US	LC	-
<i>Draco cornutus</i> Cornuted flying lizard*	D1	+	BN, ID, MY	LC	+
<i>Draco maximus</i> Large flying dragon <sup>#</sup>	N (Author)	-	BD, ID, MY	LC	+

<i>Draco melanopogon</i> Black-bearded flying lizard	D1	-	BN, ID, MY, SG, TH	LC	+
<i>Draco quinquefasciatus</i> Six-lined flying lizard	D1	+	BN, ID, MY, SG, TH	LC	+
<i>Draco sumatranus</i> Common gliding lizard	D1	+	BN, ID, MY, SG, TH	LC	-
<i>Gonocephalus bornensis</i> Bornean angle-headed lizard*	D1	+	BN, ID, MY	LC	+
<i>Gonocephalus grandis</i> Giant angle-headed lizard	D1	+	BN, ID, LA, MM, MY, TH, VN	LC	+
<i>Gonocephalus liogaster</i> Blue-eyed angle-headed lizard	D1	-	BN, ID, MY	LC	-
<b>FAMILY EUBLEPHARIDAE</b>					
<i>Aeluroscalabotes felinus</i> Cat gecko	N (Author)	+	BN, ID, MY, SG, TH	LC	+
<b>FAMILY GEKKONIDAE</b>					
<i>Cnemaspis gituen</i> *	N (KU)	+	BN	-	-
<i>Cyrtodactylus hutan</i> Giant bent-toed gecko*	D1	+	BN, MY	NE	+
<i>Cyrtodactylus ingeri</i> Inger's bent-toed gecko*	D1	-	BN, MY	LC	+
<i>Cyrtodactylus malayanus</i> Malayan bent-toed gecko*	D1	-	BN, ID, MY	LC	+
<i>Cyrtodactylus miriensis</i> Miri bent-toed gecko*	D1	+	BN, ID, MY	NE	+
<i>Gehyra mutilata</i> Four-toed gecko	D1	-	Widespread throughout Southeast Asia and Oceania	LC	+
<i>Gekko albofasciolatus</i> White-banded green-eyed gecko	D1	+	BN, ID, MY	LC	+

<i>Gekko horsfieldii</i> Horsfield's gliding gecko	D1	-	BN, ID, IN, MM, MY, SG, TH	LC	+
<i>Gekko kuhli</i> Kuhl's gliding gecko	D1	+	BN, ID, MM, MY, SG, TH	LC	+
<i>Gekko monarchus</i> Spotted house gecko	D1	-	BN, ID, MY, PG, PH, SG, TH, TL	LC	-
<i>Hemidactylus frenatus</i> Asian house gecko	D1	+	Widespread in tropical and subtropical regions	LC	+
<i>Hemidactylus platyurus</i> Flat-tailed house gecko	D1	-	BD, BN, BT, CN, ID, IN, KH LA, LK, MM, MY, NP, PG, PH, SG, TH, TL, VN, KH, US	LC	-
<i>Hemiphyllodactylus typus</i> Worm gecko	D1	-	BN, KH, CK, CN, FJ, FR, ID, IN, MU, MY, PG, PH, SB, SG, LK, TH, TL, TO, TW, US, VN, VU	LC	+
<b>FAMILY LANTHANOTIDAE</b>					
<i>Lanthanotus borneensis</i> Borneo earless monitor lizard*	N (J)	+	BN, ID, MY	EN	-
<b>FAMILY SCINCIDAE</b>					
<i>Brachymeles apus</i> Kinabalu legless lizard*	D1, D2	-	BN, MY	LC	-
<i>Dasia grisea</i> Grey tree skink <sup>#</sup>	N (Author)	-	BN, ID, MY, PH, SG	LC	+
<i>Dasia vittata</i> Common tree skink*	D1, G	+	BN, ID, MY	LC	+
<i>Dasia vyneri</i> *	N (D2)	-	BN, ID, MY	LC	-

<b>Vyner's tree skink</b>					
<i>Emoia atrocostata</i> Mangrove skink	D1	+	AU, BN, CN, FM, ID, JP, MY, PW, PG, PH, SB, SG, TW, VU	LC	-
<i>Eutropis multifasciata</i> Common ground skink <sup>#</sup>	D1	+	AU, BN, CN, ID, IN, KH, LA, MY, MM, PG, PH, PU, SG, TH, TW, US, VN	LC	+
<i>Eutropis rudis</i> Three-keeled ground skink	D1	+	BN, ID, IN, KH, MM, MY, PH, SG, TH, VN	LC	+
<i>Eutropis rugifera</i> Rough-backed ground skink <sup>#</sup>	D1	-	BN, ID, IN, MY, PH, SG, TH	LC	+
<b><i>Lamprolepis nieuwenhuisii</i></b> Nieuwenhuis' skink*	N (AG)	-	BN, ID, MY	LC	-
<b><i>Lipinia vittigera</i></b> Banded lipinia	N	-	BN, KH, ID, LA, MM, MY, SG, TH, VN	LC	-
<i>Sphenomorphus cyanolaemus</i> Blue-bellied litter skink	D1	+	BN, ID, MY	LC	+
<b><i>Sphenomorphus sp.</i><sup>#</sup></b>	N	-	BN	-	+
<i>Subdoluseps bowringii</i> Bowring's supple skink	D1	+	AU, BD, BN, ID, IN, KH, LA, MM, MY, PH, SG, TH, VN	LC	-
<i>Tropidophorus beccarii</i> Beccari's water skink*	D1	-	BN, ID, MY	LC	+
<i>Tropidophorus brookei</i> Brooke's water skink*	D1	+	BN, ID, MY	LC	+
<i>Tytthoscincus hallieri</i> Hallier's forest skink*	D1	-	BN, ID, MY	LC	-
<b>FAMILY VARANIDAE</b>					

<i>Varanus dumerili</i> Dumeril monitor	D1, G	-	BN, ID, MM, MY, SG, TH	DD	-
<b><i>Varanus rudicollis</i></b> <b>Roughneck monitor<sup>#</sup></b>	<b>N (CS)</b>	<b>+</b>	BN, ID, MM, MY, TH	LC	<b>+</b>
<i>Varanus salvator</i> Water monitor	D1	+	BD, BN, CN, ID, IN, KH, LA, LK, MM, MY, SG, TH, TW, VN	LC	+
<b>SUBORDER SERPENTES</b>					
<b>FAMILY ACROCHORDIDAE</b>					
<i>Acrochordus granulatus</i> Asiatic file snake	D1	+	AU, BN, CN, ID, KH, LK, MM, PG, PH, SB, SG, TH, TL, VN, VU	LC	-
<i>Acrochordus javanicus</i> Javan file snake	D1	-	BN, ID, MY, TH	LC	-
<b>FAMILY COLUBRIDAE</b>					
<b>SUBFAMILY CALAMARIINAE</b>					
<b><i>Calamaria borneensis</i></b> <b>Bornean reed snake<sup>*#</sup></b>	<b>N (Author)</b>	<b>+</b>	BN, ID, MY	LC	<b>+</b>
<i>Calamaria grabowskyi</i> Grabowsky's reed snake <sup>*</sup>	D1	+	BN, ID, MY	LC	-
<i>Calamaria griswoldi</i> Lined reed snake <sup>*</sup>	D1	-	BN, MY	LC	-
<b><i>Calamaria leucogaster</i></b> <b>Collared reed snake</b>	<b>N (CS)</b>	<b>+</b>	BN, ID, MY	LC	<b>-</b>
<i>Calamaria lovii</i> Lowi's reed snake	D1	-	BN, ID, MY, VN	LC	-
<i>Calamaria lumbricoidea</i> Variable reed snake	D1	+	BN, ID, TH, MY, PH, SG	LC	+
<b><i>Calamaria schlegeli</i></b> <b>Red-headed reed snake</b>	<b>N (CS)</b>	<b>+</b>	BN, ID, MY, SG	LC	<b>+</b>

<b><i>Calamaria</i> sp.<sup>#</sup></b>	N (Author)	-	BN	-	+
<i>Pseudorabdion albonuchalis</i> White-collared reed snake*	D1	-	BN, ID, MY	LC	+
<b><i>Pseudorabdion collaris</i></b> <b>Common collared snake*<sup>#</sup></b>	N (Author)	+	BN, ID, MY	LC	+
<i>Pseudorabdion longiceps</i> Dwarf reed snake	D1	-	BN, ID, MY, SG, TH	LC	+
<b>SUBFAMILY COLUBRINAE</b>					
<i>Ahaetulla fasciolata</i> Speckled-headed vine snake	D1	+	BN, MY, SG, TH	LC	+
<i>Ahaetulla prasina</i> Oriental vine snake	D1	+	BD, BN, BT, CN, IN, KH, LA, MM, MY, PH, SG, TH, VN	LC	+
<i>Boiga cynodon</i> Dog-toothed cat snake	D1	+	BN, ID, MY, PH, SG, TH	LC	+
<i>Boiga dendrophila</i> Mangrove cat snake <sup>#</sup>	D1	+	BN, ID, KH, MY, PH, SG, TH, VN	LC	+
<i>Boiga drapiezii</i> White-spotted cat snake	D1	+	BN, ID, MM, MY, PH, SG, TH, VN	LC	+
<i>Boiga jaspidea</i> Jasper cat snake	D1	+	BN, ID, MY, SG, TH, VN	LC	+
<i>Boiga nigriceps</i> Black-headed cat snake	D1	+	BN, ID, MY, SG, TH, VN	LC	+
<i>Chrysopelea paradisi</i> Garden flying snake	D1	+	BN, ID, MM, MY, PH, SG, TH	LC	+
<i>Chrysopelea pelias</i> Twin-barred flying snake	D1	+	BN, ID, MY, SG, TH	LC	+
<i>Coelognathus flavolineatus</i> Common Malayan racer	D1	+	BN, ID, IN, KH, MM, MY, SG, TH, VN	LC	+

<i>Coelognathus radiatus</i> Copperhead rat snake	D1	-	BD, BN, CN, HK, ID, IN, KH, LA, MM, MY, NP, SG, TH, VN	LC	-
<i>Dendrelaphis caudolineatus</i> Striped bronzeback tree snake	D1	+	BN, ID, MY, PH, SG, TH	LC	+
<i>Dendrelaphis formosus</i> Elegant bronzeback	D1	+	BN, ID, MY, TH	LC	-
<b><i>Dendrelaphis haasi</i></b> Haas's bronzeback	N (D2)	-	BN, ID, MY, SG	LC	-
<b><i>Dendrelaphis kopsteini</i></b> Kopstein's bronzeback	N (CS)	+	BN, ID, MY, SG, TH	LC	-
<i>Dendrelaphis pictus</i> Painted bronzeback	D1	+	BD, BN, BT, CN, ID, IN, KH, LA, MM, MY, SG, TH, VN	LC	-
<i>Dryophiops rubescens</i> Keel-bellied vine snake	D1	+	BN, ID, MY, PH, SG, TH	LC	+
<i>Gongylosoma baliodeira</i> Orange-bellied snake	D1	-	BN, ID, MY, SG, TH	LC	+
<b><i>Gongylosoma longicauda</i></b> Five-striped ground snake <sup>#</sup>	N (CS)	-	BN, ID, MY, TH	LC	+
<b><i>Gonyosoma margaritatum</i></b> Rainbow tree snake <sup>#</sup>	N (CS)	-	BN, ID, MY, SG	LC	+
<i>Gonyosoma oxycephalum</i> Red-tailed racer	D1	+	BN, ID, IN, KH, LA, MM, MY, PH, SG, TH, VN	LC	+
<i>Liopeltis tricolor</i> Malayan ringneck	D1	+	BN, ID, MY, PH, SG, TH	LC	+
<b><i>Lycodon albofuscus</i></b> Dusky wolf snake <sup>#</sup>	N (Author)	+	BN, ID, MY, TH	LC	+
<b><i>Lycodon capucinus</i></b>	N (CS)	+	BN, CN, ID, IN, KH, LA, MY, SG, TH,	LC	-

<b>Common wolf snake</b>			VN		
<i>Lycodon effraenis</i> Brown wolf snake	D1	+	BN, ID, MY, TH	LC	+
<i>Lycodon seali</i> White-banded wolf snake	D1, D2	+	BN, ID, MY, PH	LC	+
<i>Lycodon tristrigatus</i> Three-banded bridled snake	D1	-	BN, ID, MY, PH	LC	+
<i>Oligodon annulifer</i> Spotted kukri snake*	D1	-	BN, ID, MY	LC	+
<i>Oligodon octolineatus</i> Eight lined kukri snake <sup>#</sup>	D1	+	BN, ID, MY, SG	LC	+
<i>Oligodon purpurascens</i> Brown kukri snake	D1	+	BN, ID, MY, SG, TH	LC	-
<b><i>Oligodon signatus</i></b> <b>Banded kukri snake</b>	<b>N (CG)</b>	+	BN, ID, MY, SG	LC	+
<i>Orthriophis taeniurus</i> Cave dwelling ratsnake	D1	-	BN, CN, ID, IN, JP, LA, MM, MY, TH, TW	VU	-
<i>Psammodynastes pictus</i> Painted mock viper	D1	+	BN, ID, MY, SG, TH	LC	-
<i>Psammodynastes pulverulentus</i> Common mock viper	D1	+	BD, BN, BT, CN, ID, IN, KH, LA, MM, MY, NP, PH, SG, TH, VN	LC	+
<i>Ptyas carinata</i> Keelbed rat snake	D1	+	BN, ID, KH, MM, MY, PH, SG, TH, VN	LC	-
<i>Ptyas fusca</i> White-bellied rat snake <sup>#</sup>	D1	+	BN, ID, MY, TH, SG	LC	+
<i>Sibynophis melanocephalus</i> Black-headed collared snake <sup>#</sup>	D1	+	BN, ID, MY, SG, TH	LC	+
<i>Xenelaphis hexagonotus</i>	D1	+	BN, ID, MY,	LC	-

Malaysian brown snake			SG, TH		
<b>SUBFAMILY NATRICINAE</b>					
<i>Hebius flavifrons</i> Sabah keelback*	D1	-	BN, ID, MY	LC	+
<i>Hebius sarawacensis</i> Sarawak keelback	N (S)	-	BN, ID, MY	LC	-
<i>Hydrablabes periops</i> Yellow-spotted water snake*	D1	-	BN, ID, MY	LC	+
<i>Opisthotropis typica</i> Corrugated water snake	D1	-	BN, ID, MY, PH	LC	+
<i>Rhabdophis chrysargos</i> Speckle-bellied keelback snake	D1	+	BN, ID, KH, LA, MM, MY, PH, TH, VN	LC	+
<i>Rhabdophis conspicillatus</i> Red-bellied keelback <sup>#</sup>	N (Author)	+	BN, ID, MY	LC	+
<i>Rhabdophis rhodomelas</i> Blue-necked water snake <sup>#</sup>	N (Author)	+	BN, ID, MY, SG, TH	LC	+
<i>Xenochrophis maculatus</i> Spotted keelback snake	D1	+	BN, ID, MY	LC	+
<i>Xenochrophis trianguligerus</i> Red-sided keelback snake	D1	+	BN, ID, IN, KH, MM, MY, SG, TH, VN	LC	+
<b>FAMILY CYLINDROPHIIDAE</b>					
<i>Cylindrophis ruffus</i> Red-tailed pipe snake	D1	+	BN, CN, ID, KH, LA, MM, MY, SG, TH, VN	LC	-
<b>FAMILY ELAPIDAE</b>					
<i>Bungarus fasciatus</i> Banded krait	D1	+	BD, BN, BT, CN, ID, IN, KH, LA, MM, MY, SG, TH, VN	LC	-
<i>Bungarus flaviceps</i> Red-headed krait	D1	+	BN, ID, MM, MY, SG, TH,	LC	+

			VN		
<i>Calliophis bivirgatus</i> Blue coral snake	D1	-	BN, ID, MY, SG, TH	LC	+
<b><i>Calliophis intestinalis</i></b> <b>Malayan striped coral snake</b>	<b>N (CS)</b>	+	BN, ID, MY, PH, SG, TH, VN	LC	-
<i>Calliophis nigrotaeniatus</i> Banded Malaysian coral snake	D1	+	BN, ID, MY	NE	+
<i>Naja sumatrana</i> Equatorial spitting cobra	D1	+	BN, ID, MY, PH, TH	LC	-
<i>Ophiophagus bungarus</i> Sunda king cobra	D1	+	BN, ID, IN, MY, PH, PK, SG, TH	VU	+
<i>Aipysurus eydouxii</i> Beaded sea snake	E	+	AU, BN, CN, FR, ID, KH, MY, PG, PH, SG, TH, VN	LC	-
<i>Hydrophis annandalei</i> Annandale's sea snake	D1	-	Parts of Indo-Pacific region	DD	-
<b><i>Hydrophis atriceps</i></b> <b>Black-headed sea snake</b>	<b>N (CS)</b>	+	AU, BN, CN, ID, KH, MM, MY, PH, TH, TW, VN	LC	-
<i>Hydrophis curtus</i> Short sea snake	D1	+	Widespread across the Indo-Pacific region	LC	-
<i>Hydrophis cyanocinctus</i> Annulated sea snake	D1	+	Widespread across the Indo-Pacific region	LC	-
<i>Hydrophis jerdonii</i> Jerdon's sea snake	D1	-	Indian Ocean, South China Sea, Gulf of Thailand, and Indonesia	LC	-
<i>Hydrophis melanosoma</i>	E	-	BN, ID, MY	DD	-

Lesser dusky sea snake					
<b><i>Hydrophis ornatus</i></b> Ornate sea snake	E	-	Widespread across the Indo-Pacific region	LC	-
<i>Hydrophis spiralis</i> Spiral sea snake	E	-	Widespread across the Indian and Pacific Oceans	LC	-
<i>Hydrophis platurus</i> Yellow-bellied sea snake	D1	-	Widespread across the tropical and subtropical waters of Indian and Pacific Oceans	LC	-
<b><i>Hydrophis viperinus</i></b> Grey sea snake	N (CS)	+	Widespread across the Indo-Pacific region	LC	-
<i>Laticauda colubrina</i> Yellow-lipped sea krait	D1	-	Widespread across the Indo-Pacific region	LC	-
<b><i>Microcephalophis gracilis</i></b> Narrow-headed sea snake	N (CS)	+	Indian Ocean and West Pacific, from the Persian Gulf to Australia	LC	-
<b>FAMILY HOMALOPSIDAE</b>					
<i>Cerberus schneiderii</i> Southeast Asian Bockadam	D1	-	BN, ID, KH, MY, PH, SG, TH, VN	LC	-
<i>Enhydris enhydris</i> Rainbow water snake	D1	-	BD, BN, ID, IN, KH, LK, MM, MY, NP, SG, TH, VN	LC	-
<i>Homalophis doriae</i> Blotched-lipped mud snake*	D1	+	BN, MY	LC	-

<i>Hypsiscopus plumbeus</i> Rice paddy snake	D1	-	BN, IN, MM, KH, ID, LA, MY, TH	LC	+
<i>Phytolopsis punctata</i> Spotted mud snake	D1	-	BN, ID, MY, SG	DD	+
<b>FAMILY PAREIDAE</b>					
<i>Aplopeltura boa</i> Blunt-headed tree snake	D1	+	BN, ID, MY, PH, TH	LC	+
<i>Asthenodipsas borneensis</i> Dark-necked snail-eating snake*	D1	+	BN, MY	NE	+
<i>Asthenodipsas laevis</i> Smooth snail-eating snake <sup>#</sup>	N (Author)	+	BN, ID, MY, TH	LC	+
<i>Pareas nuchalis</i> Barred snail-eating snake* <sup>#</sup>	N (Author)	+	BN, ID, MY	LC	+
<b>FAMILY PYTHONIDAE</b>					
<i>Malayopython reticulatus</i> Reticulated python	D1	+	BD, BN, ID, IN, KH, LA, MM, MY, PH, SG, TH, TL, VN	LC	+
<i>Python breitensteini</i> Short-tailed python* <sup>#</sup>	D1	+	BN, ID, MY	LC	+
<b>FAMILY TYPHLOPIDAE</b>					
<i>Indotyphlops braminus</i> Brahminy blind snake	D1	+	South Asia, North and South America, Africa, Australia, and parts of Europe	LC	-
<b>FAMILY VIPERIDAE</b>					
<i>Craspedocephalus borneensis</i> Bornean pit viper *	D1	+	BN, ID, MY	LC	+
<i>Trimeresurus sabahi</i> Sabah pit viper*	D1	-	BN, MY	LC	+

<i>Trimeresurus sumatranus</i> Sumatran pit viper <sup>#</sup>	N (K1)	-	BN, ID, MY, SG, TH	LC	+
<i>Tropidolaemus subannulatus</i> Bornean keeled green pit viper	D1	+	BN, ID, MY, PH	LC	+
<b>FAMILY XENODERMATIDAE</b>					
<i>Xenodermus javanicus</i> Rough-backed snake	N (K2)	+	BN, ID, MM, MY, TH	LC	+
<b>FAMILY XENOPELTIDAE</b>					
<i>Xenopeltis unicolor</i> Sunbeam snake	D1	+	BN, CN, ID, IN, KH, LA, MM, MY, PH, SG, TH, VN	LC	+
<b>FAMILY XENOPHIDIIDAE</b>					
<i>Xenophidion acanthognathus</i> Bornean spine-jawed snake <sup>*#</sup>	N (Author)	-	BN, MY	DD	+