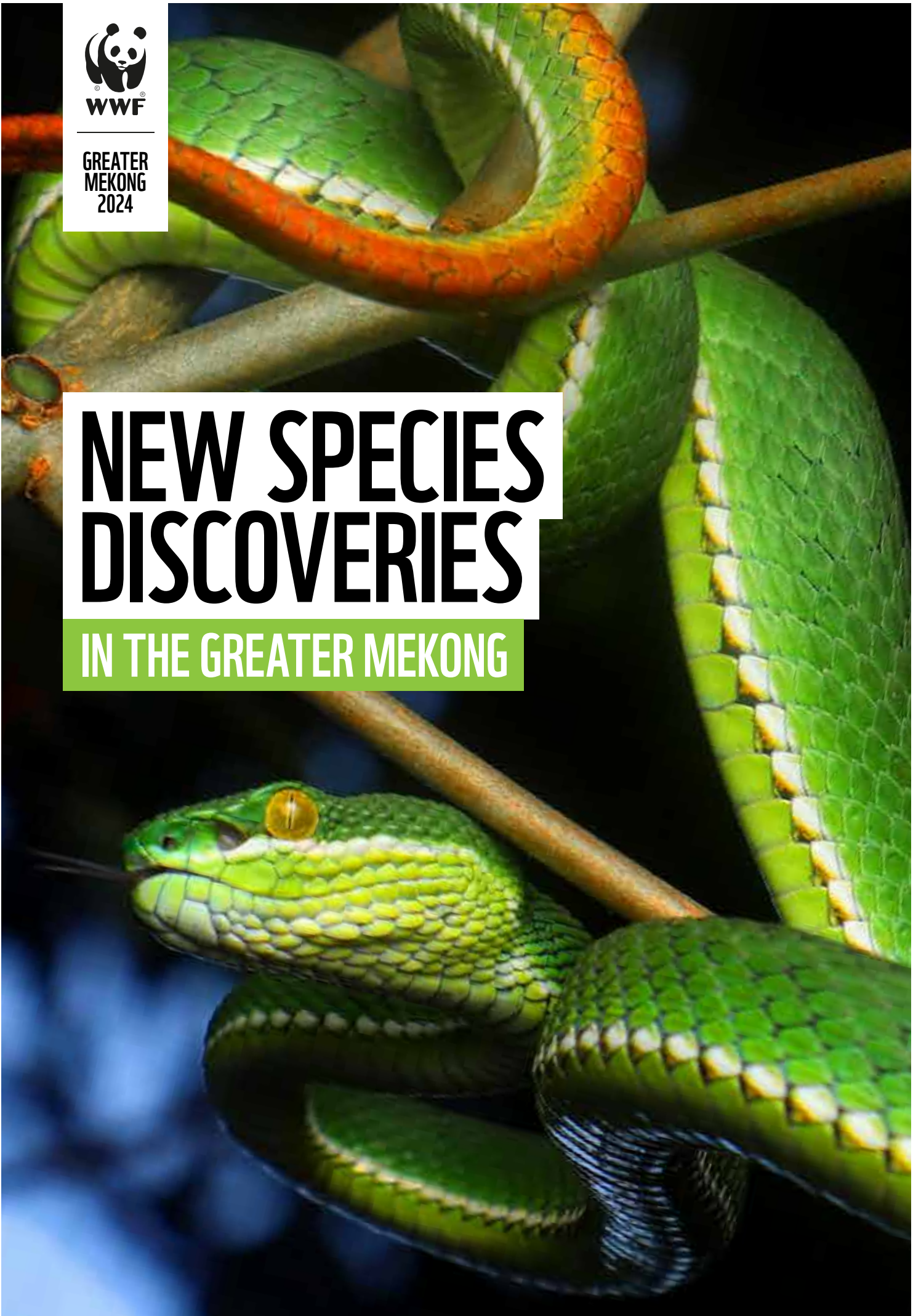




GREATER
MEKONG
2024

NEW SPECIES DISCOVERIES

IN THE GREATER MEKONG







WWF is an independent conservation organization, with more than 38 million followers and a global network active through local leadership in over 100 countries. Our mission is to stop the degradation of the planet's natural environment and to build a future in which people live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

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Special thanks

We would like to thank the researchers who contributed to this report by providing quotes and photographs, and to the many individuals around the world who continue to discover and describe new species, thereby expanding our understanding of the biodiversity of our world.

Special thanks to Maw Bhone Mya for providing the foreword, and to Reuben Houfe for designing the report. WWF-Greater Mekong appreciates WWF-Korea for funding the production of this report.

GLOSSARY

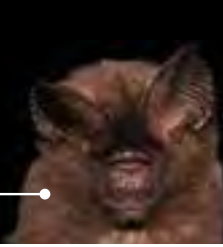
IUCN	International Union for Conservation of Nature
Laos	Lao People's Democratic Republic (Lao PDR)
WWF	World Wide Fund for Nature (formerly World Wildlife Fund)
NGO	Non-Governmental Organization

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- For this report, Greater Mekong region comprises Cambodia, Laos, Myanmar, Thailand and Viet Nam, and does not include Yunnan province and Guangxi Zhuang Autonomous Region of southern China.
- The sum of the number of each country on page 3 and 4 does not equal the total number of new species discovered in the Greater Mekong in 2023 because some species have a distribution spanning more than one country.
- For this report, we consider the new species currently recorded in only one country as endemic to that country; some of these endemic species are likely to occur in multiple countries but have not yet been recorded outside the country's borders.



Hipposideros kingstonae
© Wongwaiyut Karapan Fran

3
MAMMALS

NEW SPECIES

DISCOVERED

20

IN THE GREAT

173
PLANTS

15
FISHES

234 SPECIES

of vascular
vertebrates

Chiloschista quangdangii
© Truong Ba Vuong

Glyptothorax irroratus
© Heok Hee Ng



MYANMAR

15

14 ENDEMIC

CAMBODIA

2

0 ENDEMIC

THAILAND

8

71 ENDEMIC

is Senawi Soisook

SPECIES

ERED IN

23

TER MEKONG



AMPHIBIANS



Zhangixalus melanoleucus
© Parinya Pawangkhanant



REPTILES

SPECIES

plants and
e animals



Trimeresurus ciliaris
© Parinya Pawangkhanant

LAND

0

EMIC

LAOS

19

3 ENEMIC

VIET NAM

112

106 ENEMIC



FOREWORD

As a Ph.D candidate from Myanmar working on begonia, I am deeply passionate about exploring and documenting the many undescribed species in my country. I believe that young people, researchers and nature enthusiasts can collaborate to significantly enhance our collective understanding of the natural world. So many things are changing in our environments as a result of human activity, and the fact that so many species of plants and animals are living in these environments along with people means that we have a responsibility to understand them and, ultimately, to conserve them.

I worked with a number of local citizen scientists in Myanmar, a place where fieldwork has become increasingly difficult to conduct, in order to identify a new species of begonia, *B. kayinensis*. This beautiful flower was initially found by Paing C.S. a local plant enthusiast who sent us pictures and samples of the new plant so we could work on identifying it. We then worked through the Native Species Conservation and Identification (NSCI) initiative, a citizen science initiative which uses social media to connect its users. Naing M.K. one of the admins of the group, helped us by going back into the field to collect the necessary plant materials for publication.

The discovery and publication is therefore a collective effort between all of us that uses methods of communication and documentation that may not be typical of species discoveries in our region, but show the power of collective efforts to reach remote and unexplored areas of our world. It also shows how individuals who love nature can contribute to scientific discoveries, and that the description of new species doesn't have to remain in the realm of academia. This discovery not only sheds

light on the rich and largely undocumented flora of Myanmar but also highlights the importance of continuing these efforts throughout the region, with citizen science at the heart of our exploration and documentation of flora and fauna.

As for the species that we described, it is one of more than 2,100 species of begonia that are currently known globally. Many begonias are traded and bred extensively for the ornamental plant market. Our new species could have huge economic value if it can be used to create new hybrids that are attractive to collectors. This shows how discovering novel species is not only for conservation, but can have an economic return. Unfortunately, this return doesn't always translate into improvements for the local communities who helped discover them in the first place, and indeed these discoveries can fuel demand. There is a need for more equitable sharing of benefits from use of traditional and local knowledge.

At the same time, we must ensure that we don't overexploit these unique species for the trade and that they remain in the wild as part of an intact ecosystem. The biodiversity of our region faces a great deal of pressure from economic development and human activity. As a scientist, it is my mission to add to the collective knowledge that we have about the richness of our world, and I will continue to lend my voice to the need to conserve these plant and animal species so that we can all benefit from the beauty and the ecosystem services that they selflessly supply.

MYA BHONE MAW

Xishuangbanna Tropical Botanical Garden
Chinese Academy of Sciences



INTRODUCTION

An extraordinary 234 new species of vascular plants and vertebrate animals were discovered in the Greater Mekong region in 2023.

The Greater Mekong region of Southeast Asia – comprising Cambodia, Laos, Myanmar, Thailand and Viet Nam – is part of the larger Indo-Burma biodiversity hotspot. It is home to globally iconic and endangered species, including the tiger, the Asian elephant and the giant freshwater stingray. New species are discovered here every year, as researchers continue to explore remote natural habitats and sift through specimens preserved decades back in natural history museums and botanical gardens across the world. The 2023

discoveries bring the total species of vascular plants, fishes, amphibians, reptiles, birds and mammals described by science in the region since 1997 to 3,624.

In the last year, researchers have brought some remarkable new species to the world's attention, including a soft furred hedgehog; a snake named after the H'mong ethnic group; a new freshwater fish that was already well known in the aquarium trade; and a new genus of palm tree.

These new species, identified and described by keen naturalists and taxonomists, and compiled here by WWF-Greater Mekong, demonstrate that the region is still a fertile ground for



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scientific exploration and a hotspot of species diversity. But they also remind us of what we stand to lose if unsustainable development activities continue to disregard the value of nature, habitats and the ecosystem services upon which people depend. Many species are likely to go extinct before they are even discovered, driven by habitat destruction, diseases spread by human activities, competition with invasive species and the devastating wildlife trade. These species may be the key to discovering a new life-saving pharmaceutical, or a more bacteria-resistant species of edible plant, or a genetic variant of a genus that can help an entire taxa become more resilient to climate change.

The discovery of new species every year highlights the importance of the remaining natural ecosystems and the interest of biological explorers in the Greater Mekong. It also drives home the tremendous need for increasing protection of the natural world. Without substantial conservation action, we will continue to lose the rich biodiversity that makes this region special. With active conservation efforts by governments, scientists, NGOs and local communities, we can enable incredible new species, like the ones highlighted here, to continue to persist and be discovered for many years to come.



CAMBODIA

An aerial photograph of a vast, dense green forest in Cambodia. A white outline of the country's border is superimposed on the image. The word "BODIA" is written in large, bold, white capital letters across the middle of the forest. The sky above is blue with scattered white clouds.

BODIA



PLANT

Lindsaea kohkongensis

Also found in Malaysia

Unlike most ferns, this one grows underwater! *Lindsaea kohkongensis* grows in mixed broad-leaved forests, in dark, moist areas along the edges of valleys and in crevices of rocks that are frequently submerged by water.

Lindsaeaceae is a family of ferns found across the tropics, comprising around 250 known species. This new species was found in 2010 as part of a study of the fern flora of Cambodia. It was collected near the village of Chamnar in Thma Bang district in the province of Koh Kong – which gives the species its name.

“I paid a visit to the Muséum National d’Histoire Naturelle in 2012 to confirm my intuition that what I had collected might be a new species,” said In Chun Hwang of the Department of Biology, Jeonbuk National University. “We checked so many specimens of similar taxa, and I had originally suspected that my specimen was *L. ensifolia* or *L. heterophylla*.”

Researchers trawled through hundreds of herbarium specimens of three related species in the *Lindsaea* genus. They used microscopes and even a field emission

scanning electron microscope that requires parts of the fern to be put in a vacuum and bombarded with electrons to investigate differences in the minute patterns and veins of its feather-like (pinnate) fronds and the fern’s spores.

During these investigations, it became clear that *L. kohkongensis* was identical to a specimen collected in Malaysia in 1915. That specimen had been labelled as a related *Lindsaea* species – but now, over a century later, has been recognized as a new discovery.

“In other words, I was able to use my new specimen to recategorize the specimen collected in Malaysia, while also determining that the specimen I had collected was indeed a novel species,” says Hwang. “I imagine the researchers who discovered it first must also have had a lot of concerns about determining the taxonomy, but they did not recognize it as a new species. It feels like they granted me this great opportunity to describe a new species.”

LEARN MORE



Cinnamomum longepetiolatum H.W.Li

Det.: R. de Kok, 8-2018



copyright reserved



Herb. Lugd. Bat.
Cinnamomum longepetiolatum Kosterm
Kunming 1977

~~Albizia~~ ~~formosa~~
~~longepetiolata~~
TYPE
Cinnamomum longepetiolatum Kosterm



INSTITUT DES RECHERCHES AGRICULTURES DE L'INDOCHINE
LABORATOIRE DE BOTANIQUE
Polline n° 14 052
Cambodge: Dam tong das
Arche de 10 m et de 0.50 m.
Lamari
Cambodge: Preah Vihear, pres Phnom Penh
15-11-1952
7 a 8 m sans branche, part stéril, fruit, l.

Cinnamomum zeylanicum Desf.
Carolus K. Allen
Arnold Arboretum, Harvard University
Herb. 103

HERB. MUS. PARIS
Herbier Muséum Paris
98402107



Cinnamomum kostermannii

Also found in Viet Nam

This new species of cinnamon tree is one of 15 new species in the laurel (Lauraceae) family described from the region. It was identified as part of a systematic effort to examine and classify existing specimens from various herbariums around the world to prepare a revised account of the *Flora of Laos, Cambodia and Vietnam*.

Cinnamon is famously used around the world and in Southeast Asia for cooking, but it can also be used as medicine. It has traditionally been used to treat a wide array of ailments by improving colon health, improving blood circulation in the uterus, and acting as an antimicrobial, antifungal and antidiabetic. Cinnamon from Viet Nam accounted for 20% of the global commercial production in 2021 by volume, being one of four countries – along with China, Indonesia and Sri Lanka – that make up 98% of the world's cinnamon production.

“Species of *Cinnamomum* are difficult to identify and the many species from Indo-China have a complex history,” says lead researcher Rogier de Kok. “It was interesting to unravel this, working on the historical herbarium specimens in the Paris Herbarium. Many species are used

by local people and increasingly species are being investigated for pharmaceutical use.”

Despite their cultural and economic importance, the region's cinnamon species have received limited attention from researchers. Dutch-Indonesian botanist “Dok” Kostermans wrote an account of the *Cinnamomum* species of the region in the 1980s, but it was never published – although many of the names he proposed were used on identification labels in herbariums. This species is named in his honour.

The *Cinnamomum kostermannii* tree grows to a height of 10-12m, with a diameter of about 20cm. It differs from its close relative *C. heyneanum* in several ways, including in the yellowish colour of the hairs on its twigs, the size and shape of its buds, and its smooth lower leaf surfaces.

The species is known from only two localities – one in Cambodia and one in Viet Nam. Because of this, it's been assessed as Endangered on the IUCN Red List of Threatened Species.

LEARN MORE

De Kok, R.P.J. (2023) The Lauraceae Juss. of Indo-China: fifteen new species, four new combinations and two neo-typifications. *Adansonia* 45 (1): 1-25.





OS



REPTILE

Dixonius muangfuangensis

Endemic to Laos





The Muangfuang leaf-toed gecko, found at the foot of a rocky mountain among lowland karst forest near Muang Fuang, Laos, illustrates just how much diversity there still is to discover within the region's reptiles.

The *Dixonius* genus – commonly known as leaf-toed geckos – was first established in 1997 to contain two species that are found throughout the Greater Mekong. But since then, researchers have discovered another dozen species within the genus which have evolved separately from each other over the last few million years – including *D. muangfuangensis* and another new species described at the same time in Viet Nam, *D. gialaiensis* (see page 51).

“The discovery of these new species further emphasizes the underappreciated herpetological diversity of the genus *Dixonius* and illustrates the continued need for fieldwork in these regions,” says researcher Huyen Thuong Nguyen. Using a comprehensive system of measurements and observations, backed up by statistical tests and molecular analysis, researchers have been filling out the *Dixonius* family tree to see how and where the different species of leaf-toed gecko diverged from each other.

D. muangfuangensis is most closely related to *D. lao*, an endemic species discovered in Laos in 2020, but can be distinguished by differences in its head shape and colour patterns. The two species were found 500km apart, separated by the Nam Ngiap and Xebangfai river systems. The species diverged from each other around 3.5 million years ago, during interglacial periods in the Pliocene era, a time where the Earth's climate became cooler and drier, although still hotter than the global average today. It's likely that climatic changes and the formation of new karstic habitats and granite hills prevented movement and interbreeding between populations, setting them on separate evolutionary trajectories as they became separated and adapted to different environmental pressures.



The Muangfuang leaf-toed gecko was found near the Sinxay Temple, which is associated with the origins of Buddhism and attracts many worshippers and tourists. With visitor numbers increasing, it's vital to protect the species' habitat.

LEARN MORE

Luu, V.Q., Nguyen, T.H., Le, M.D., Grismer, J.L., Ha, H.B., Sitthivong, S., Hoang, T.T. and Grismer, L.L. (2023) Two new species of *Dixonius* from Vietnam and Laos with a discussion of the taxonomy of *Dixonius* (Squamata, Gekkonidae). *ZooKeys* 1163: 143-176.



Laodracon carsticola

Endemic to Laos

With a name that could feature in a *Lord of the Rings* movie, the Laos karst dragons sound like they should be hard to miss – but these members of the Agamidae (dragon lizard) family have been hidden on the jagged karst pinnacles of Laos for millions of years. Now, with tourism infrastructure on the karsts increasing access to new areas, researchers have concluded that this medium-sized lizard, spotted by a guide on a zipline tour, represents not just a new species but a new genus.

The lizard's swollen tail base and enlarged scales distinguish it from all other genera in the Draconinae subfamily, and DNA tests confirmed that it belongs to a different lineage. It's also only been seen on limestone pinnacles, 50-70m high, suggesting it's uniquely adapted to these habitats – a specialization that hasn't, to date, been reported among any other Draconinae. Local people say these lizards are rare and have never been recorded at ground level.

Karst pinnacles – jagged limestone outcrops that have been eroded over the aeons – are unique islands of biodiversity. Their fractured surfaces form numerous microhabitats that foster extraordinarily high levels of endemic species, many of which have a very narrow range. They also provide a refuge for species that may have





been lost from the wider area due to climatic changes and competition with other species. Researchers believe that the karst landscapes of Laos, Cambodia and Viet Nam are likely to hold many undiscovered species.

“Our study provides further evidence that Indochinese karstic landscapes, forming numerous hardly accessible habitats such as isolated valleys, caves, underground rivers, and pinnacles still cradle unique and yet-to-be-discovered biodiversity,” the authors state. “At the same time, due to human activities such as cement production, limestone massifs represent one of the most endangered habitats in Southeast Asia. Unfortunately, the immense financial returns of mineral extraction from karsts largely outweighs concerns for biodiversity conservation, leaving approximately 99% of karstic landscapes with no legal protection.”

A large limestone quarry just 8km from where the new species and genus was collected represents a potential threat. Researchers say there is an urgent need for appropriate management and conservation of karst massifs so that biodiversity like this new species and genus can be protected.

LEARN MORE

Sitthivong, S., Brakels, P., Xayyasith, S., Maury, N., Idiiatullina, S., Pawangkhanant, P., Wang, K., Nguyen, T.V. and Poyarkov, N.A. (2023) Hiding on jagged karst pinnacles: A new microendemic genus and species of a limestone-dwelling agamid lizard (Squamata: Agamidae: Draconinae) from Khammouan Province, Laos. *Zoological Research*, 44(6): 1039-1051.



Glyptothorax irroratus

Also found in China



© Heok Hee Ng

Sometimes researchers can be aware of a species for a long time before they have the time and resources to properly describe and classify it. That was the case with this species of catfish, which lives in rapids, waterfalls and other habitats with strong currents in the middle section of the Mekong river basin in China and Laos. Maurice Kottelat, who has described hundreds of new fish species, first came across it in 1996.

“I found it at low density in about every set of large rapids where I sampled in northern Laos over the last 30 years,” he says. “It was first tentatively identified as similar (but not identical) to a species from

further upstream in the Mekong basin in China.”

Eventually, Kottelat and his colleague Heok Hee Ng were able to carry out a detailed comparison of specimens from Laos and China with other *Glyptothorax* species found in the Mekong and adjacent rivers. They concluded that this dark-coloured, rheophilic (rapids-loving) catfish was a new species. Growing up to around 70mm long, it's characterized by the irregular large and small tubercles or nodules on the sides of its body.

[LEARN MORE](#)

Ng, H.H. and Kottelat, M. 2023. *Glyptothorax irroratus*, a new species of rheophilic catfish from the Mekong River drainage (Actinopterygii: Siluriformes: Sisoridae), *Journal of Natural History*, 57:5-8, 358-371.



AMPHIBIAN

Zhangixalus melanoleucus

Endemic to Laos





This medium-sized tree frog was discovered in evergreen forest at a height of more than 2,000m on Phou Samsoum Mountain in northeast Laos. The males, which measure around 35mm, have a bright grass-green back and a cream-coloured belly, while the females are larger (~54mm) and are a darker bottle-green colour. It has characteristic black and white spots on its flank; the species epithet *melanoleucus* comes from the ancient Greek words for black and white.

As well as carrying out morphological and molecular tests, researchers analysed its call using sonograms to determine that it was a unique species. Its advertisement call (the loud call that males make to attract females) consists of clicking sounds and includes a series of notes, each 0.28 seconds in duration and consisting of 2-3 pulses. This can be readily distinguished from the call of its near relatives because of its higher dominant frequency and lower number of pulses per note.

To date, the species is only known from the location where it was collected, but it may be present in other mountain areas in neighbouring provinces. All the specimens were recorded in trees and vegetation in undisturbed primary forest, suggesting the new species is a strict forest-dwelling specialist.

Zhangixalus was recognized as a separate genus in 2019, and includes 40 known species, one-third of which have been described in the last two decades. However, there are likely to be many more undescribed species in the region. The mountains of northern Laos, in particular, are a crucial centre for amphibian diversity with high rates of endemism, but are among the least studied areas in Asia, highlighting the need for further funding into exploratory biodiversity research.

LEARN MORE

Brakels, P., Nguyen, T.V., Pawangkhanant, P., Idiitullina, S.S., Lorphengsy, S., Suwannapoom, C. and Poyarkov, N.A. (2023). Mountain jade: A new high-elevation microendemic species of the genus *Zhangixalus* (Amphibia: Anura: Rhacophoridae) from Laos. *Zoological Research* 44(2): 374-379.



MYANMAR



SUMATRA



REPTILE

Trimeresurus *uetzi*

Endemic to Myanmar

Pit vipers are venomous snakes found across much of Asia and the Americas. The “pit” in the name refers to the external openings on either side of the head that contain a pair of hypersensitive infrared detectors which help the snakes find their warm-blooded prey.

One of the most widespread Asian pit vipers is *Trimeresurus albolabris*, a bright green snake which is found from Nepal to Indonesia. But what was once thought to be a single species is now known to be a complex of different branches (or lineages) – and recent research has revealed a new distinct species found in central and southern Myanmar.

Researchers examined 25 specimens that had previously been collected from various sites in Mandalay, Sagaing, Magway, Bago, Chin and Shan states, ranging from near sea level to elevations of over 1,700m. They compared them to other species in the *Trimeresurus albolabris* complex, looking at 45 morphological characteristics in minute detail – the process includes counting scales and measuring body parts to the nearest tenth of a millimetre. Backed up by DNA testing, they concluded that these constitute a new species, *Trimeresurus uetzi*.

Lead author Gernot Vogel highlights the importance of natural history museum collections in describing *T. uetzi* and many other new species. “These collections are the memory of life on our planet,” he says. “Some specimens I examine are more than 200 years old and still tell us news about their biology and distribution.”

Further studies will be needed to determine the full distribution of the species – little is known of its behaviour, diet and reproductive habits, or its conservation status. Pit viper venom can be fatal to humans but is also used in medical treatments, so better scientific understanding of the different species has potential to be life-saving.

LEARN MORE

Vogel, G., Nguyen, T. and David, P. (2023). A new green pitviper of the *Trimeresurus albolabris* complex (Reptilia, Serpentes, Viperidae) from central and southern Myanmar. *Zootaxa* 5357: 515-554.







FISH

Physoschistura *mango*

Endemic to Myanmar

This miniature loach first appeared in the international aquarium trade in 2006. It's become popular among aquarium hobbyists, and is commonly known as the "rosy loach" for its bright colour. But until last year, it hadn't been described scientifically. It also wasn't clear where it fitted into the complex family tree of Nemacheilidae, or stone loaches – a family which currently includes around 50 genera

and 800 species, though new discoveries are being made all the time, especially in Southeast Asia.

With the largest recorded specimen measuring just 23.4mm in length – less than the diameter of a bottle cap – the rosy loach is one of the smallest fish in the stone loach family. Because of its tiny size, researchers used digital images to take



All photos © Kevin Conway

measurements, and used an electron microscope to observe the mouth parts and the pectoral fin. These observations, coupled with DNA analysis, revealed the rosy loach to be a new species belonging to the *Physoschistura* genus – named *P. mango* because its orangey-yellow colour resembles the flesh of a mango.

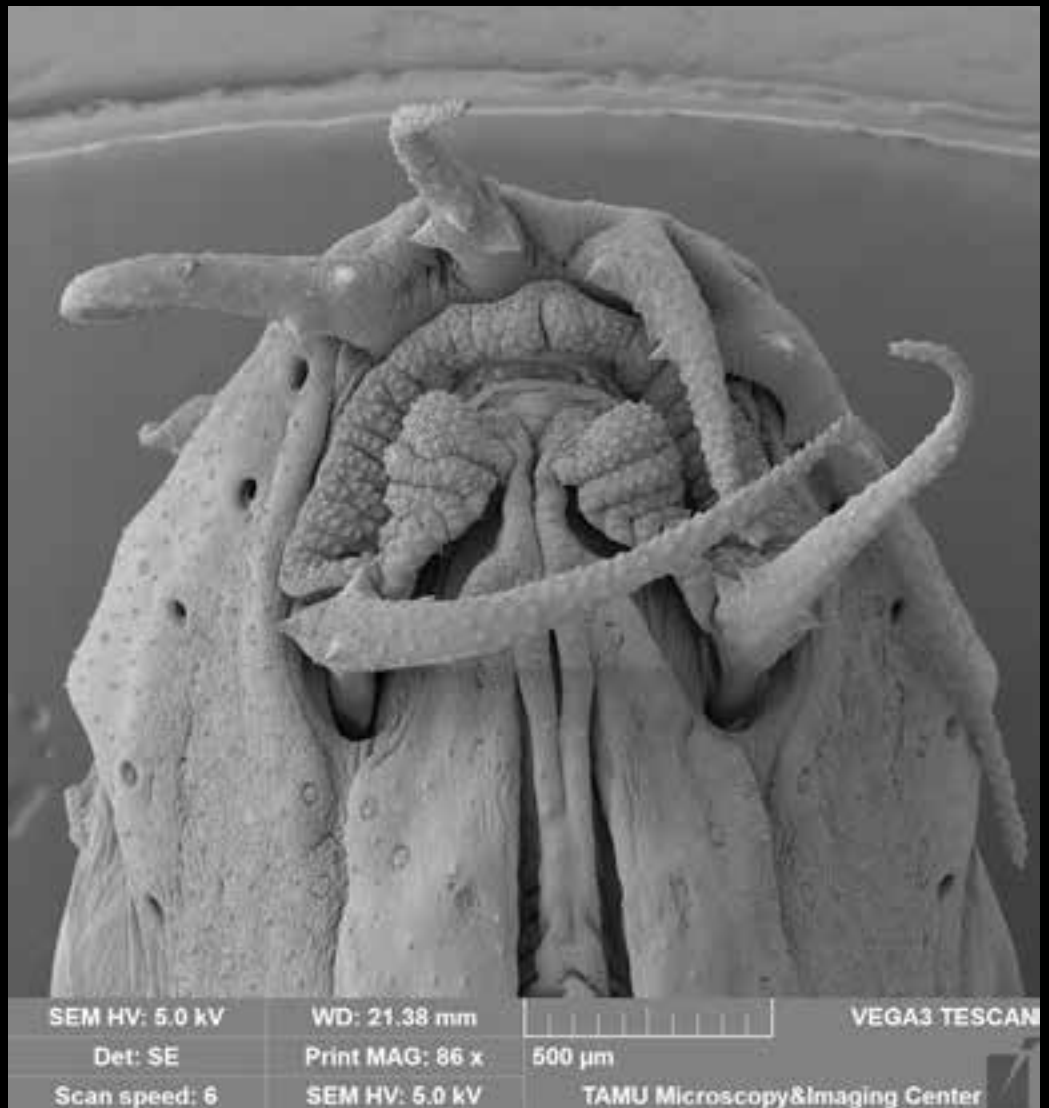
"Using Scanning Electron Microscopy, we were able to observe rather impressive conical tubercles on the barbels, or sensory structures around the mouth, of one mature male," said Kevin Conway, lead author on the discovery. "Tubercles, which are made of keratin, are commonly found on other body surfaces in carp-like fishes but are not commonly encountered on the barbels. To the best of our knowledge, the

tiny male rosy loach is the first example of a loach with tubercles on its barbels. The question is, why are they there?"

P. mango has been found in springs near Hopong in Shan state, Myanmar. Not much is known about its distribution or biology in the wild. In aquariums, individuals swim actively in the lower part of the water column between short periods of rest on the substrate, whereas most stone loaches dwell on the substrate. Mature males often chase each other and spar aggressively, nipping each other's body and fins. Rosy loaches have successfully spawned and reared young within aquariums, and we can expect to find out more about their courtship and reproduction in aquarium conditions as their popularity grows.

Conway, K. and Kottelat, M. (2023). *Physoschistura mango*, a new miniature species of loach from Myanmar (Teleostei: Nemacheilidae). *The Raffles Bulletin of Zoology* 71: 681–701.

LEARN MORE





PLANT

Begonia kayinensis

Endemic to Myanmar

More than 2,100 species of begonia have been recorded from tropical and subtropical regions worldwide, including 92 species from Myanmar. But relatively little is known about the flora of the limestone hills and caves of southern Myanmar, and new species like this one continue to be discovered. It's an attractive plant with purply-red, bullate (blistered) leaves and an inflorescence (flowering stem) arising from the top of the stem with the leaf, bearing small pink and white flowers.

The research team began investigating this unique species after receiving a specimen from a local plant hunter. To find out more, they called on the assistance of Native Species Conservation and Identification (NSCI), a citizenship science initiative dedicated to documenting and conserving Myanmar's biodiversity.

“The discovery of this new species highlights the critical role of citizen science and collaborative efforts in documenting

the biodiversity of unexplored areas in Myanmar,” says lead researcher Mya Bhone Maw. “In a time when conducting floristic exploration across the country is increasingly challenging, the contributions of local communities and citizen scientists have been invaluable. This work is a testament to the power of collaborative efforts in preserving our biodiversity, even amidst adversity.”

So far, the species is only known from three localities in Kayin state, close to popular tourist spots. While it is abundant in these areas, it could become threatened in the near future. Popular with begonia enthusiasts, it is sold as an ornamental plant, and is also used as a sour vegetable by some local people. Overharvesting could put the species at risk, so monitoring and conservation efforts are needed to ensure its long-term survival.

LEARN MORE

Maw, M.B., Hein, K.Z., Naing, M.K., Yu, W.-B., Tan, Y.-H. 2023. Taxonomic studies on Begonia (Begoniaceae) in Myanmar III: *Begonia kayinensis* (sect. Monophyllon), a remarkable new species from Kayin State, Southern Myanmar. *Taiwania* 68(4): 407-411.





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© T.N. Tun



© M.K.Naing



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THAI



LAND



MAMMAL



Hipposideros kingstonae

Also found in Malaysia

Although it's found from Thailand to Borneo, this leaf-nosed bat had flown under the radar until recently. It was discovered during fieldwork between 2014 and 2021, and has been documented at two sites in peninsular Thailand, one in

peninsular Malaysia and two in Sabah, Borneo.

It's a small bat, with a 35.3–42.6mm forearm length (the standard measurement for comparing the size of



All Photos © Pipat Soisook

bats – and in this case, about the length of a standard safety pin!) and weighing between 4.9 and 7g. It has dark brown fur with some longer white hairs on its back and orangey-brown fur on its front. It can be easily distinguished from related species by the shape of its nose-leaf – the distinctive type of nose that characterizes this family of bats, and which they use in echolocation.

DNA analysis confirmed that *Hipposideros kingstonae* is clearly a separate species – one of more than 70 recognized species in the *Hipposideros* genus. There were small genetic variations between the Borneo and mainland populations, with the Borneo population

also using a slightly higher frequency in its echolocation calls. In addition, published DNA sequences from bats found on the neighbouring island of Palawan in the Philippines are genetically very close to those from Borneo, suggesting that the species is also present there.

The roosting sites of the species are not known, but several individuals in Sabah were caught near large limestone caves, suggesting it likely roosts in the caves. Elsewhere, individuals were caught far from any known caves and may roost in tree hollows. As with so many species in the region, the loss of forest and limestone karst habitat presents a potential threat.

LEARN MORE

Wongwaiyut, P., Karapan, S., Saekong, P., Francis, C.M., Guillen-Servent, A., Sanawi, J., Khan, F.A.A., Bates, P.J.J., Jantarit, S and Soisook, P. (2023) Solving the taxonomic identity of *Hipposideros cineraceus* sensu lato (Chiroptera: Hipposideridae) in the Thai-Malay Peninsula, with the description of a new species. *Zootaxa* 5277(3): 401-442.



REPTILE

Trimeresurus *ciliaris*

Also likely found in Malaysia

Recorded for the first time in the limestone formations of Tha Le Ban National Park in southern Thailand, this new species of snake has been named the limestone eyelash pit viper, in reference to the characteristic scales above its eyes that resemble eyelashes or eyebrows. It's a small, colourful snake, with an emerald-green head and many red scales. Like its nearest relatives, it's likely to be venomous, although more research is needed to analyse its toxicity.

Currently, *Trimeresurus ciliaris* is known only from a narrow limestone area in the Nakawan Range spanning the border of Thailand and Malaysia, though it's likely that it also inhabits the northernmost part of Perlis state of peninsular Malaysia. Little

is known about its behaviour in the wild, though in captivity it eats geckos and frogs.

The Asian pit viper genus *Trimeresurus* is a complex one, with new species being described every year. This latest discovery brings the number of *Trimeresurus* species to 46, though many look very similar and are hard to tell apart in the wild. To uncover the differences in these so-called cryptic species, researchers carry out intricate comparisons of different aspects of their morphology. Advances in molecular testing have also helped reveal divergences in their genetic make-up, which are increasing our understanding of how different species have evolved – but also highlighting the gaps in our knowledge that still remain.

LEARN MORE

Idiatullina, S.S., Pawangkhanant, P., Tawan, T., Worranuch, T., Dechochai, B., Suwannapoom, C., Nguyen, T.V., Chanhome, L. and Poyarkov, N.A. (2023) Limestone jewel: A new colourful karst-dwelling pitviper (Serpentes: Viperidae: *Trimeresurus*) from the poorly explored borderlands of southern peninsular Thailand. *Vertebrate Zoology* 73: 697-716.



© Parinya Pawangkhanant



© Parinya Pawangkhanant



Garra panitvongii

Also found in Myanmar

The redbtail garra, a small algae-eating fish in the carp family, is found in aquariums all over the world. But it wasn't found in any scientific records until researchers came across several individuals while doing fieldwork on the Kasat (or Ataran) River, on the Thailand-Myanmar border.

“We discovered the redbtail garra in a remote forested area in Thailand, about four hours down a gravel and mud road from the nearest town,” says Dr Larry Page, curator of ichthyology at the Florida Museum of Natural History, who has surveyed fish in Thailand

for nearly two decades. “We recognized the fish from images in the aquarium trade and knew it had not been scientifically described, so we took tissue samples for DNA analyses and preserved the two individuals we were able to capture and used them to describe and name the species. Additional specimens used in the description were provided from Myanmar by Dr Nonn Panitvong, a Thai colleague, and we named the species *Garra panitvongii* in recognition of his assistance.”

Given its popularity in the aquarium trade, the research team had assumed that the





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reddetail garra would be found widely – but it turns out to be confined to the upper reaches of the Ataran river basin in southeastern Myanmar and western Thailand. The reddetail garra is the sixth species of *Garra* known in the Salween river basin (which the Ataran drains into). It can be easily distinguished from its nearest relatives by its unique elongated snout and its bright red caudal peduncle and tail.

With 190 known species, the *Garra* genus is one of the most diverse fish groups in the world – although according to Page, their

diversity is likely to have been drastically underestimated. “Many of the fishes in mainland Southeast Asia are referred to by names given to species discovered in India or Indonesia because they look similar,” he says – “when in fact they may be completely different species.”

LEARN MORE

Tangjitjaroen, W., Randall, Z.S., Tongnunui, S., Boyd, D.A. and Page, L.M. (2023) Species of *Garra* (Cyprinidae: Labeoninae) in the Salween River basin with description of an enigmatic new species from the Ataran River drainage of Thailand and Myanmar. *Zootaxa* 5311(3): 375-392.



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PLANT

Curcuma ubonensis

Possibly also found in Laos

This new member of the ginger family was found growing in deciduous forest in Ubon Ratchathani province, Thailand. An attractive perennial herb, it has a leafy shoot 25-40cm tall with small purple flowers. The rhizome or root stem has a mild aroma reminiscent of fresh mango.

The latest discovery adds to the incredibly rich diversity of ginger plants in the country. Out of over 1,900 species and nearly 60 genera in the Zingiberaceae (ginger) family, Thailand is home to 29 accepted genera and over 400 species. This makes it an important location for studying the remarkable diversity and evolutionary patterns of this fascinating plant family.

Within the ginger family, the *Curcuma* genus is one of the best known, encompassing numerous species that are highly valued for their medicinal, culinary and ornamental properties. In the Isan language, *Curcuma* plants are known as “Krachiao”, so this new species has been given the common name Krachiao Ubon.

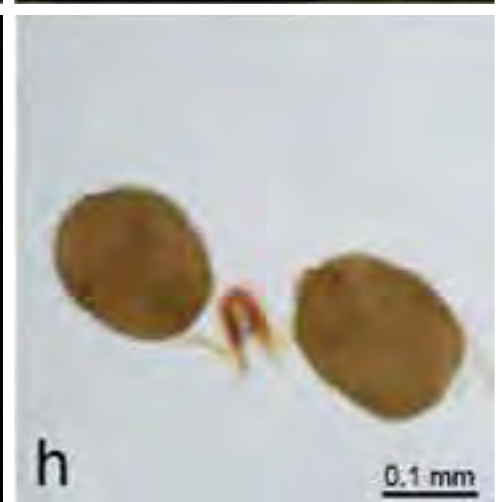
While it is possible that this species is also found in Laos, it’s so far only known from the location where it was discovered. Researchers recommend treating it as Endangered and prioritizing efforts to conserve its habitat until its distribution and population status are better understood.

LEARN MORE

Saensouk, P., Boonma, T., Maknoi, C. and Saensouk, S. (2023). *Curcuma ubonensis* (Zingiberaceae), a new species of *Curcuma* subgen. *hitcheniopsis* from Eastern Thailand. *Notulae Botanicae Horti Agrobotanici Cluj-Napoca* 51(4): 13374.









Vincetoxicum sangyojarniae

Endemic to Thailand

In 2021, Pacharaporn Sangyojarn, a senior botanist at Rajamangala University of Technology Isan, came across an unknown climbing plant in a protected area on the university's Surin Campus in eastern Thailand. At first glance, it looked like a type of *Vincetoxicum flexuosum*, a variable complex of species widespread from tropical and subtropical Asia to northern Australia. Like *V. flexuosum*, it has a slender, twining stem and branches, smooth leaves and small red or reddish-brown flowers. But close examination revealed various differences, including distinctive pyramid-shaped flower buds.

DNA tests threw up further surprises. Despite its similar appearance to *V.*

flexuosum species, genetic analysis shows that it doesn't form a monophyletic clade with these species: in other words, while the other Thai *V. flexuosum* species share a common ancestor, this one does not. Instead, it appears to be a sister to three African *Vincetoxicum* species, raising interesting questions about the evolution and distribution of this complex genus.

So far, *V. sangyojarniae* – named after the professor who discovered it – has only been recorded on the university campus, where about 20-30 mature individuals were found growing in an area of 1,500m². Because of its rarity, it's been provisionally classified as Endangered.

LEARN MORE

Kidyoo, A. and Kidyoo, M. (2023) Molecular phylogenetic and morphological analyses support recognition of a new species of *Vincetoxicum* (Apocynaceae, Asclepiadoideae) from eastern Thailand. *Plant Systematics and Evolution* 309: 27



VIET



NAM

MAMMAL



Uropsilus fansipanensis

Endemic to Viet Nam





Researchers discovered this shrew mole while carrying out fieldwork on the slopes of Mount Fansipan in Hoang Lien National Park, northwestern Viet Nam, at nearly 3,000m above sea level. Not only was this the first time shrew moles had been recorded in Viet Nam, but close examination and molecular tests showed it to be a previously unknown species.

As their name suggests, shrew moles (Uropsilinae) are members of the mole family but look similar to shrews with their long snouts, long, thin tails and small forefeet. They are found at high altitudes across the southeastern extension of the Himalayas in China and Myanmar, with this new species in Viet Nam marking the southernmost point of their range. The shrew mole subfamily consists of a single genus (*Uropsilus*), within which *U. fansipanensis*, or the Fansipan shrew mole, is the ninth species to be described.

The Fansipan shrew mole is about 14cm long, including a 6cm tail, and weighs just 8g. The tip of the fur on its back is a reddish-brown colour, with the rest being grey. It has a dark grey tail covered with small scales and a few short bristles. While it appears outwardly similar to its relatives, there are noticeable differences in bone structure and significant genetic variations that confirm it to be a distinct species.

Just as islands often have endemic species, high mountains can form “sky islands” where populations are cut off from each other and evolve into separate species. Mount Fansipan is the highest mountain on the Indochinese peninsula, and it’s likely that this geographic isolation caused the Fansipan shrew mole to diverge from its relatives.

[LEARN MORE](#)



Bui, H.T., Okabe, S., Le, L.T.H., Nguyen, N.T. and Motokawa, M. (2023) A new shrew mole species of the genus *Uropsilus* (Eulipotyphla: Talpidae) from northwestern Vietnam. *Zootaxa* 5339 (1): 59–78.

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MAMMAL

Hylomys macarong

Endemic to Viet Nam

This new species of gymnure (pronounced like “demure”) – furry members of the hedgehog family – originates from Viet Nam, but was formally described from a specimen found thousands of miles away in Washington DC, in the collection of the Smithsonian National Museum of Natural History. It was identified as a new species as part of an international effort to revise the taxonomy of lesser gymnures (*Hylomys*), using modern genomic techniques to study specimens from museum collections from six countries dating back to the 1930s. Its species name, *macarong*, comes from the Vietnamese word for vampire, on account of its long fangs.

“The specimens that led to the description of *Hylomys macarong* had been housed in the Smithsonian since the 1960s, highlighting the potential of ‘mining’ museums for new species,” explains the Smithsonian’s Arlo Hinckley. “The advent of museum genomics in Greater Mekong countries will speed up species discoveries, particularly in Thailand and Viet Nam that already have major natural history collections with large historical specimen series. Similarly, we must keep collecting specimens in poorly sampled regions for the next generations – they will surely also discover new species that we overlooked.”



© James DiLoreto / Smithsonian





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As it happens, a team of researchers from the Russian-Vietnamese Research Centre had also been studying the region's hedgehogs and gymnures, and had suspected that a specimen they collected in southern Viet Nam in 2009 was a new species. “We found this distinct species in Viet Nam more than 10 years ago, but we took too long to describe it and were too late,” laments Dr Alexei V. Abramov, from the Zoological Institute of the Russian Academy of Sciences. His team has collected several specimens that will help shed light on its characteristics and distribution.

“Identifying a new mammal species that is just known from the southern Annamites and that is the result of millions of years of evolution is a bit like the inclusion of a Picasso in an art gallery or the discovery of an archaeological site in a city,” says Hinckley. “It gives these places additional value, and hopefully funding to protect such an important heritage.”

LEARN MORE

Hinckley, A., Camacho-Sanchez, M., Chua, M.A.H., Ruedi, M., Lunde, D., Maldonado, J.E., Omar, H., Leonard, J.A. and Hawkins, M.T.R. (2023) An integrative taxonomic revision of lesser gymnures (Eulipotyphla: *Hylomys*) reveals five new species and emerging patterns of local endemism in Tropical East Asia. *Zoological Journal of the Linnean Society* zlad177.



REPTILE

Dixonius gialaiensis

Endemic to Viet Nam

Researchers surveying the region's reptiles found this new species of gecko by the side of the road one night in the mountains of Gia Lai province in the Central Highlands of Viet Nam. The Gialai leaf-toed gecko measures up to 15cm from head to tail, with rows of bumpy spikes running down its back. Males are olive green to brown with a pattern of black blotches, while the females are a lighter orange colour with dark brown blotches.

It was one of two leaf-toed geckos discovered last year (along with *D.*

muangfuangensis in Laos – see page 17) as researchers continue to learn more about the diversity of this group of species. Its closest relative is *D. minhlei*, also endemic to Viet Nam, which was itself only discovered in 2016. The sister species, which live in different mountain ranges separated by the Dong Nai River, diverged from each other around 3.2 million years ago.

Over long timescales, populations being cut off from each other can lead them to develop different characteristics until they eventually evolve into separate



All photos © Vinh Quang Luu / Zookeys

species. But today, habitat loss and fragmentation poses a threat to their survival – particularly for species like the Gyalai leaf-toed gecko, which so far has only been found at a single site.

“The construction of infrastructure at the site has had a strong impact on the habitat of the species, including fragmentation and severe degradation,” says Huyen Thuong Nguyen, one of the researchers who discovered the species.

LEARN MORE

Luu, V.Q., Nguyen, T.H., Le, M.D., Grismer, J.L., Ha, H.B., Sithivong, S., Hoang, T.T. and Grismer, L.L. (2023) Two new species of *Dixonius* from Vietnam and Laos with a discussion of the taxonomy of *Dixonius* (Squamata, Gekkonidae). *ZooKeys* 1163: 143-176.

“In addition, the clearing and controlled burning of vegetation cover in the dry season is a serious problem that impacts habitats, disrupts soil structure, creates a higher risk of forest fires and destroys underground ecosystems, especially impacting species that live on the ground such as *Dixonius*. Further investigations on the taxonomic and conservation status of the population are urgently required to develop effective conservation measures.”



REPTILE

Rhabdophis hmongorum

Also found in China



“While conducting a survey on amphibians and reptiles on Mount Fansipan in Hoang Lien National Park, at a site 2,800m above sea level, my head lamp broke,” recalls Luan Thanh Nguyen. “Two local porters who were supporting the survey returned to the nearby town to get it fixed. When they got back, they gave me a very stunning male snake that they found on the path. From the first look, I thought it was a strange species.”

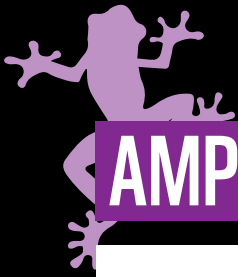
The snake clearly belonged to the *Rhabdophis* genus – known as keelback snakes because their scales are ridged or “keeled” as opposed to smooth. Morphological and molecular analysis showed that it was indeed a previously undescribed species – though it was found to be genetically identical to an unidentified specimen collected in Yunnan, China. To date, these are the only two specimens recorded, despite several surveys at Hoang Lien National Park at different times of year.

The researchers named the new species *R. hmongorum*, or H’mong keelback, in honour of the local porters who found it – members of the H’mong ethnic minority who live in the northwest montane regions of Viet Nam, as well as in southern China, Laos and parts of northern Thailand.

While we have little data about the new species’ conservation status, it already faces many threats. The forest where it was found is being degraded by the collection of fuelwood for the tourism industry and by livestock grazing. Being found at an elevation of 2,600m on Mount Fansipan, it may also be vulnerable to climate change, since species restricted to high elevations have little opportunity to move to higher ground as their habitat gets warmer. And even though the H’mong keelback isn’t dangerous to humans, people routinely kill venomous and non-venomous snakes alike when they encounter them.

LEARN MORE

Kane, D., Tapley, B., La, T., and Nguyen, L. (2023). A new species of the genus *Rhabdophis* Fitzinger, 1843 (Squamata: Colubridae) from the Hoang Lien range, northwest Vietnam. *Zootaxa* 5343(2): 101-125.



AMPHIBIAN

Tylototriton ngoclinhensis

Endemic to Viet Nam

This stunning crocodile newt is so colourful it's hard to believe it had remained hidden until now. It has a bright orange head, a bright orange stripe down its spine and 14 warty spots – also bright orange – running along either side of its body. It was discovered in May 2022 during fieldwork in Ngoc Linh Mountain nature reserve, in the Central Highlands of Viet Nam.

New species are continuously being described within the genus *Tylototriton* – known as crocodile newts because they resemble miniature crocodiles in shape. In the last three years, 12 new species have been recorded from China, Thailand and northern Viet Nam – but never this far south or this high up. The nearest known population of crocodile newts is 370km north west in Khammouane province in Laos.

“It is an exceptional discovery as it is one of the most colourful species in the genus *Tylototriton*” says lead researcher Trung My Phung. “This is also the first time that a crocodile newt species has been recorded in the Central Highlands of Viet Nam.

Occurring at elevations from 1,800m to 2,300m above sea level, this discovery sets an elevational record for the genus in the country, with former distribution ranges between 250m and 1,740m.”

“Remarkably, 15 of these often similar-looking species have been described in the last five years,” adds Thomas Ziegler, co-author and coordinator of Cologne Zoo’s biodiversity research and conservation projects in Viet Nam. “This has consequences for species conservation, because if species that are thought to be widespread actually consist of several species with smaller distribution areas, then these are naturally also more likely to be endangered due to their smaller-scale distribution.”

With its high humidity, rainfall levels and cloud coverage, Ngoc Linh is a hotspot of amphibian diversity, with many endemic species. The Central Highlands are home to at least 130 amphibian species, many of which have only been discovered recently.

Researchers believe the Ngoc Linh crocodile newt should be listed as Endangered, as it's likely to have a highly restricted range and its habitat is under threat. Its vibrant colours could also make it attractive to collectors, although international trade of all species of *Tylototriton* is banned under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

[LEARN MORE](#)

Phung, T.M., Pham, C.T., Nguyen, T.Q., Ninh, H.T., Nguyen, H.Q., Bernardes, M., Le, S.T., Ziegler, T. and Nguyen, T.T. (2023) Southbound – the southernmost record of *Tylototriton* (Amphibia, Caudata, Salamandridae) from the Central Highlands of Vietnam represents a new species. *ZooKeys* 1168: 193-218



All photos © T. Ziegler



VIETNAMAZING CAMPAIGN

Vietnamese crocodile newts are part of the [VIETNAMAZING](#) campaign, run by the European Association of Zoos and Aquaria, which highlights IUCN's One Plan Approach to conservation for particularly endangered species. As part of this approach, conservation breeding of more than 500 individuals of another recently discovered crocodile newt species, *T. vietnamensis*, has already been implemented at the Cologne Zoo and the Melinh Station for Biodiversity in Viet Nam.

[LEARN MORE](#)





PLANT

Chiloschista quangdangii

Endemic to Viet Nam

Although it was only described last year, this new species of leafless orchid may already face imminent extinction. To date, it's only known from a single location near Lung Muoi village in the north of Viet Nam. But specimens have been collected and sold in the local plant market, suggesting that the sole known population is being significantly depleted. Researchers recommend it should be listed as Critically Endangered.

It has, though, successfully bloomed under cultivation. A private orchid collector, Ngo Quang Dang, cultivated it and passed it on to the research team to study, and it is named in his honour.

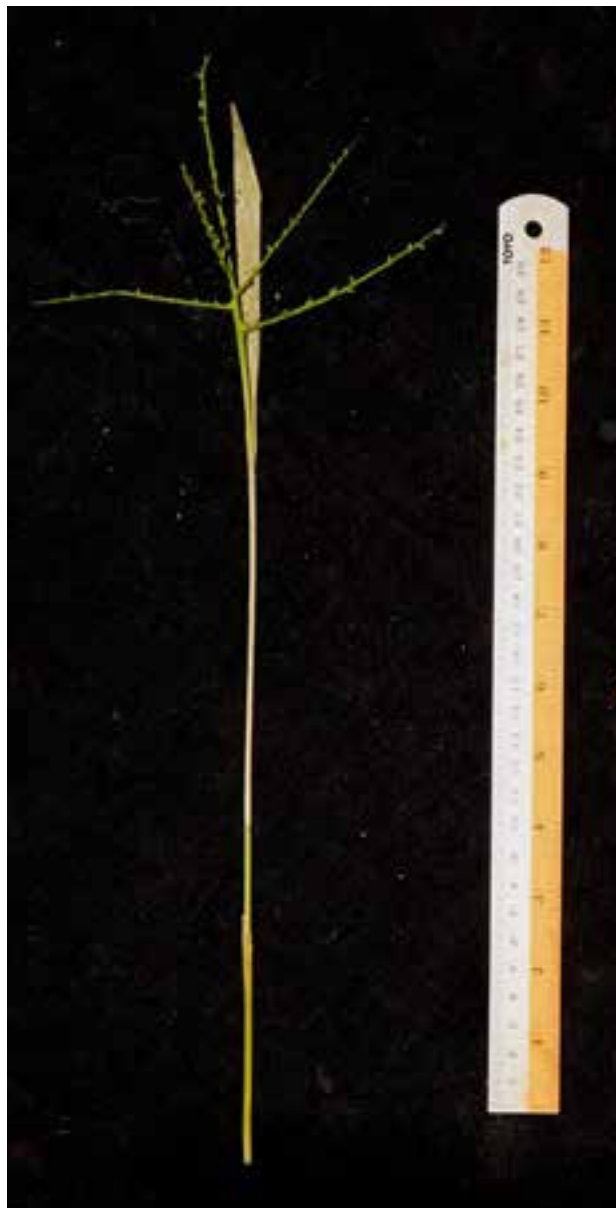
Chiloschista, sometimes known as starfish orchids, are small epiphytes (growing on the surface of other plants) with pendulous (hanging) flowers. They photosynthesize and absorb nutrients through their roots, which is common among epiphytic orchids. The latest discovery brings the number of species in the genus to 29. It has a yellow flower with dark orange splotches and a white lip.

LEARN MORE

Vo, D.T., Averyanov, L., Maisak, T., Canh, N.V., Dang, M.Q., Dang, V.S., Truong, Q.T. and Vuong, T.B. (2023) *Chiloschista quangdangii*, a new leafless orchid (Orchidaceae) from northern Vietnam. *Phytotaxa* 606 (1): 079–084.









PLANT

Truongsonia lecongkietii

Endemic to Viet Nam

During fieldwork in the mountains of Quang Ngai province, researcher Ly Ngoc Sam came across an unusual dwarf palm with bright red, oblong fruits. It couldn't be identified from any field guides from the region, and didn't match any of the 23 palm genera known in Viet Nam – or any palm genus at all.

Intrigued, he sent leaf samples off for DNA tests, drawing on ongoing large-scale studies of the genetics and evolutionary history of the palm family. The initial results were so unexpected that the tests were repeated three times, twice at Aarhus University in Denmark and once at the UK's Royal Botanic Gardens, Kew, to rule out any possibility of contamination or technical error. The findings demonstrated unequivocally that this palm had no close relations in Asia – but was a sister to the genus *Podococcus*, which is endemic to West Africa.

Kew's William Baker calls the new species “an incredibly exciting discovery and a truly bizarre new branch on the palm tree of life.” A new genus (*Truongsonia*) and tribe (Truongsonieae) have had to be created within the palm family to accommodate it.

But this newly discovered species appears to be exceptionally rare, and has already been classified as Critically Endangered. It's known from just a single location, where a small population of 10-15 plants were found scattered in less than 500 hectares of forest. Its habitat is frequently disturbed by human activities like logging, clearing of forest for timber plantations and harvesting of non-timber products. Further exploration to ascertain the full extent of *Truongsonia* populations and the threats they face is urgently required so that the species can receive the protection it needs.

LEARN MORE

Sam, L.N., Baker, W.J., Bellot, S., Dransfield, J., Eiserhardt, W.L. and Henderson, A. (2023) *Truongsonia* (Arecaceae: Arecoideae: Truongsonieae)—a new palm genus and tribe from Vietnam. *Phytotaxa* 613 (3): 201–212.





PLANT

Balantines vietnamica

Endemic to Viet Nam

Part of the caltrop (*Zygophyllaceae*) family, *Balantines* is a genus of flowering plants that includes small trees and shrubs highly adapted to dry conditions. Although a sketch and a brief description of a species later identified as *B. roxburghii* appeared in an illustrated history of Vietnamese flora in 1970, no specimens could be found in any herbariums in the country, and scientists didn't know if it still grew in the wild.

During an inventory of the semi-arid flora of Nui Chua National Park of Ninh Thuan province, researchers came across two populations of a *Balantines* species – a thorny shrub five metres tall, producing thin stone fruits (or drupes) up to 5cm long. Close comparison with other *Balantines* specimens revealed it to be a new species.

“The species is distinguishable from *B. roxburghii* since it comes from an evergreen habit and has a number of unique morphological characteristics including a curved bole, spines without leaves or flowers, a spherical ovary with yellow hairs and green fruit,” says Dr Luu Hong Truong, Director of the Southern Institute of Ecology.

The new species has already been classified as Critically Endangered, since it is known

only from two very small and distant populations with fewer than 100 individuals and fewer than 20 mature individuals in total. Its coastal savannah habitat has been reduced by around 90% in the last 40 years due to agricultural expansion, although the Nui Chua National Park has recently been recognized as a UNESCO Biosphere Reserve because of its unique ecosystem – the area receives the lowest rainfall in Southeast Asia (less than 700mm per year) and has the lowest humidity in Viet Nam.

Local people often use *Balantines* species for food and medicinal purposes, and their oils and chemical properties have many potential uses. Further research into the new Vietnamese species could reveal opportunities for its sustainable use and conservation.



LEARN MORE

Nguyen, T.Q.T., Nguyen, T.T., Tran, V.T. and Lu, H.T. (2023) *Balantines vietnamica* (*Zygophyllaceae*), a new species from Vietnam. *Academia Journal of Biology* 45(1): 55-63.



Species/Latin Name

Authors

Countries of occurrence

Common Name (English)

AMPHIBIANS

<i>Xenophrys lancangica</i> Lancang horned toad	Lyu, Z. T., Qi, S., Wang, J., Zhang, S. Y., Zhao, J., Zeng, Z. C., Wan, H., Yang, J. H., Mo, Y. M., & Wang, Y. Y.	China, Laos, Vietnam
<i>Rohanixalus wuguanfui</i> wú shì cè tiáo shù wā (English not provided)	Liu, X. L., Huang, J. K., Stuart, B. L., Ai, R. D., Bernstein, J. M., Suwannapoom, C., Chomdej, S., Che, J., & Yuan, Z. Y.	China, Myanmar and Laos (based on “phylogentic relationships”)
<i>Raorchestes malipoensis</i> Malipo Bush Frog	Huang, J., Liu, X. L., Du, L., Bernstein, J. M., Liu, S., Yang, Y., Yu, G., & Wu, Z.	China, Vietnam
<i>Amolops kottelati</i> Kottelat’s Lao torrent frog	Sheridan, J. A., Phimmachak, S., Sivongxay, N., & Stuart, B. L.	Laos
<i>Zhangixalus melanoleucus</i> Phou Samsoum Treefrog	Brakels, P., Van Nguyen, T., Pawangkhanant, P., Idiiatullina, S. S., Lorphengsy, S., Suwannapoom, C., & Poyarkov, N. A.	Laos
<i>Amolops sengae</i> Seng’s Lao torrent frog	Sheridan, J. A., Phimmachak, S., Sivongxay, N., & Stuart, B. L.	Laos, Thailand (provisionally)
<i>Amolops tanfullianae</i> Fui Lian’s Lao torrent frog	Sheridan, J. A., Phimmachak, S., Sivongxay, N., & Stuart, B. L.	Laos, Vietnam
<i>Amolops attiguus</i> Similar Lao torrent frog	Sheridan, J. A., Phimmachak, S., Sivongxay, N., & Stuart, B. L.	Laos, Vietnam
<i>Leptobranchella korifi</i>	Matsui, M., Panha, S., & Eto, K.	Thailand
<i>Leptobranchella sinorensis</i>	Matsui, M., Panha, S., & Eto, K.	Thailand
<i>Nanohyla albopunctata</i> Song Hinh pygmy narrow-mouthed frog	Gorin, V. A., Trofimets, A. V., Gogoleva, S. S., & Poyarkov, N. A.	Vietnam
<i>Amolops truongi</i>	Pham, A. V., Ngo, H. T., Nenh, S. B., Ziegler, T., & Le, M. D.	Vietnam
<i>Leptobranchella phiaoacensis</i> Phia Oac Litter Frog	Luong, A. M., Hoang, C. V., Pham, C. T., Ziegler, T., & Nguyen, T. Q.	Vietnam
<i>Leptobranchella phiadenensis</i> Phia Den Litter Frog	Luong, A. M., Hoang, C. V., Pham, C. T., Ziegler, T., & Nguyen, T. Q.	Vietnam
<i>Gracixalus truongi</i> Truong’s Treefrog	Tran, T. T., Van Pham, A., Le, M. D., Nguyen, N. H., Ziegler, T., & Pham, C. T.	Vietnam
<i>Vietnamophryne aurantifusca</i> Orange-brown Dwarf Frog	Ninh, H. T., LE, L. T. H., Bui, H. T., Nguyen, H. Q., Orlov, N., Moseyko, O. B., LE, M. V., Nguyen, S. N., Hoang, C. V., Ziegler, T., & Nguyen, T. T.	Vietnam
<i>Tylototriton ngoclinensis</i> Ngoc Linh Crocodile Newt	Phung, T. M., Pham, C. T., Nguyen, T. Q., Ninh, H. T., Nguyen, H. Q., Bernardes, M., Le, S. T., Ziegler, T., & Nguyen, T. T.	Vietnam

FISHES

<i>Schistura peninsulae</i>	Dvořák, T., Bohlen, J., Kottelat, M., & Šlechtová, V.	Malaysia, Thailand
<i>Schistura ataranensis</i>	Dvořák, T., Bohlen, J., Kottelat, M., & Šlechtová, V.	Myanmar
<i>Physoschistura mango</i>	Conway, K. W., & Kottelat, M.	Myanmar
<i>Thrissina aurora</i> Sunrise Thryssa	Hata, H., Lavoué, S., Chungthanawong, S., & Motomura, H.	Thailand
<i>Schistura hartli</i>	Dvořák, T., Bohlen, J., Kottelat, M., & Šlechtová, V.	Thailand
<i>Schistura myaekanbawensis</i>	Dvořák, T., Bohlen, J., Kottelat, M., & Šlechtová, V.	Thailand
<i>Schistura kuehnei</i>	Dvořák, T., Bohlen, J., Kottelat, M., & Šlechtová, V.	Thailand
<i>Nemacheilus pullus</i>	Kottelat, M.	Laos

<i>Glyptothorax irroratus</i>	Ng, H. H., & Kottelat, M.	Laos, China
<i>Mystus celator</i>	Ng, H. H., & Kottelat, M.	Myanmar
<i>Paracanthocobitis putaensis</i>	Lin, F., Chen, Z. Y., Myint, K. M., & Chen, X. Y.	Myanmar
<i>Garra panitvongi</i> Redtail Garra	Tangjitjaroen, W., Randall, Z. S., Tongnunui, S., Boyd, D. A., & Page, L. M.	Thailand, Myanmar
<i>Glyptothorax prionotos</i>	Ng, H. H., & Kottelat, M.	Thailand, Myanmar
<i>Chromis oligactis</i>	Prokofiev, A. M., & Astakhov, D. A.	Vietnam
<i>Euchiloglanis nami</i>	Tran, D. H., Nguyen, H. D., Dang, T. T. H., Nguyen, Q. H., & Nguyen, T. N.	Vietnam

MAMMALS

<i>Hipposideros kingstonae</i>	Wongwaiyut, P., Karapan, S., Saekong, P., Francis, C. M., Guillén-Servent, A., Senawi, J., Khan, F. A. A., Bates, P. J. J., Jantarit, S., & Soisook, P.	Thailand, Malaysia
<i>Uropsilus fansipanensis</i> Fansipan shrew mole	Bui, H. T., Okabe, S., Le, L. T. H., Nguyen, N. T., & Motokawa, M.	Vietnam
<i>Hylomys macarong</i> Dalat Gymnure	Hinckley, A., Camacho-Sanchez, M., Chua, M. A. H., Ruedi, M., Lunde, D., Maldonado, J. E., Omar, H., Leonard, J. A., & Hawkins, M. T. R.	Vietnam

PLANTS

<i>Lindsaea kohkongensis</i>	Narae, Y. U. N., Myung-Ok, M. O. O. N., Sun, B. Y., & HWANG, I. C.	Cambodia, Malaysia
<i>Gastrochilus menglaensis</i>	Liu, Q., Wu, X. F., Zhou, S. S., Li, J. W., & Jin, X. H.	China, Laos
<i>Aristolochia laotica</i>	DO, T. V., Hoang, T. T., Wen, F., Wanke, S., Forbes, M., & Souladeth, P.	Laos
<i>Capparis acutifolia</i> subsp. <i>thamphae</i>	Fici, S.	Laos
<i>Capparis averyanovii</i>	Fici, S.	Laos
<i>Lasianthus bolavenensis</i> Xangsan Bolaven	Tagane, S., Souladeth, P., Tanaka, N., Phengmala, K., & Yahara, T.	Laos
<i>Lasianthus laoticus</i> Xangsan Lao	Tagane, S., Souladeth, P., Tanaka, N., Phengmala, K., & Yahara, T.	Laos
<i>Smilax bolavenensis</i> Kheau kheaug Bolaven	Tagane, S., Souladeth, P., & Tamura, M. N.	Laos
<i>Globba amicitia</i> Dok Houang Khao Mitthaparb	Souvannakhoummane, K., Lanorsavanh, S., & Sangvirotjanapat, S.	Laos
<i>Alpinia nelumboides</i> Kha Dok Bua (English not available)	Tanaka, N., Hoang, V., Van, T. T. K., Khanh, T. T. N., Tagane, S., Funakoshi, H., & Souladeth, P.	Laos, Vietnam
<i>Gaultheria natmataungensis</i>	Fritsch, P. W., Armstrong, K. E., Aung, M. M., Fujikawa, K., & Lu, L.	Myanmar
<i>Begonia kayinensis</i> Kayin kyaway pann (English not provided)	Maw, M. R., Hein, K. Z., Naing, M. K., Yu, W. B., & Tan, Y. H.	Myanmar
<i>Polygonatum bifolium</i>	Floden, A., Nwe, T. Y., & Armstrong, K. E.	Myanmar
<i>Impatiens yinyinkyii</i> Yin Yin Kyi Dan-pan	Latt, M. M., Tanaka, N., & Park, B. B.	Myanmar
<i>Impatiens horizontalis</i> Nam-phet-la Dan-pan	Latt, M. M., Tanaka, N., & Park, B. B.	Myanmar
<i>Chiloschista shanica</i>	Wojtas, K. P., Bandara, C., & Kumar, P.	Myanmar

<i>Paraboea babae</i>	Middleton, D. J.	Myanmar
<i>Amorphophallus mirabilis</i>	Arcebal K. Naive, M., Zaw Hein, K., Serebryanyi, M., & Hettterscheid, W.	Myanmar
<i>Friesodielsia lalisae</i>	Damthongdee, A., Khunarak, N., Kaeokula, S., Saengpho, C., Wiya, C., Ue-aree, P., Baka, A., Aongyong, K., & Chaowasku, T.	Thailand
<i>Millettia calcicola</i>	Mattapha, S., Forest, F., Schrire, B. D., Lewis, G. P., Hawkins, J., & Suddee, S.	Thailand
<i>Millettia khaoyaiensis</i>	Mattapha, S., Forest, F., Schrire, B. D., Lewis, G. P., Hawkins, J., & Suddee, S.	Thailand
<i>Piper kerrii</i>	Suwanphakdee, C., Karapan, S., Banchong, Y., & Hodgkinson, T. R.	Thailand
<i>Piper phangngaense</i>	Suwanphakdee, C., Karapan, S., Banchong, Y., & Hodgkinson, T. R.	Thailand
<i>Piper rugocarpum</i>	Suwanphakdee, C., Karapan, S., Banchong, Y., & Hodgkinson, T. R.	Thailand
<i>Bambusa lituiformis</i> Pai Kanok	Arthan, W., Ohrnberger, D., Sungkaew, S., Phosi, S., Teerawatananon, A., & Janloy, A.	Thailand
<i>Ehretia pranomiana</i> Kom arjan noi	Rueangsawang, K., Thananthaisong, T., Kaewmuan, A., Daonurai, K., & Suddee, S.	Thailand
<i>Curcuma (Ecomatae) maxwellii</i> Wan Pet Ma Lanna	Leong-Škorničková, J., Soonthornkalump, S., Lindström, A. J., Niwesrat, S., Lim, S. Q., & Suksathan, P.	Thailand
<i>Curcuma (Ecomatae) rubroaurantiaca</i> Wan Pet Ma Isan	Leong-Škorničková, J., Soonthornkalump, S., Lindström, A. J., Niwesrat, S., Lim, S. Q., & Suksathan, P.	Thailand
<i>Friesodielsia betongensis</i> Bu nga soeng betong (English name not provided)	Leeratiwong, C., Karapan, S., Sathaphorn, J., & Johnson, D. M.	Thailand
<i>Friesodielsia chalermgliniana</i> Bu nga soeng hala (English name not provided)	Leeratiwong, C., Karapan, S., Sathaphorn, J., & Johnson, D. M.	Thailand
<i>Curculigo radialis</i>	Fuse, S., Sirimongkol, S., Pooma, R., & Tamura, M. N.	Thailand
<i>Glycosmis kanburiensis</i> Khoei Tai Mueang Khan (English not provided)	Aiyakool, W., & VAJRODAYA, S.	Thailand
<i>Sonerila anisophylla</i> Sao Sanom Bai Yai (English not provided)	Wai, J. S., & Hu, J. M.	Thailand
<i>Sonerila banthatensis</i> Sao Sanom Khao Banthat (English not provided)	Wai, J. S., & Hu, J. M.	Thailand
<i>Sonerila betongensis</i> Sao Sanom Betong (English not provided)	Wai, J. S., & Hu, J. M.	Thailand
<i>Sonerila epiphytica</i> Sao Sanom Doi Thule (English not provided)	Wai, J. S., & Hu, J. M.	Thailand
<i>Sonerila montana</i> Sao Sanom Doi (English not provided)	Wai, J. S., & Hu, J. M.	Thailand
<i>Sonerila peninsularis</i> Sao Sanom Dai (English not provided)	Wai, J. S., & Hu, J. M.	Thailand
<i>Sonerila phuinhongklaensis</i> Sao Namtok Phu Hin (English not provided)	Wai, J. S., & Hu, J. M.	Thailand
<i>Sonerila phuphanensis</i> Sao Sanom Phuphan (English not provided)	Wai, J. S., & Hu, J. M.	Thailand

<i>Sonerila reptans</i> Sao Sanom Lueai (English not provided)	Wai, J. S., & Hu, J. M.	Thailand
<i>Sonerila tenasserimensis</i> Sao Sanom Tanao Si (English not provided)	Wai, J. S., & Hu, J. M.	Thailand
<i>Sonerila tenue</i> Sao Sanom Phu (English not provided)	Wai, J. S., & Hu, J. M.	Thailand
<i>Paris siamensis</i> Tin Hung Doi Siam (English not provided)	Ruchisansakun, S., Sraphet, S., Yothawut, C., Thamanukornsri, C., Suksee, N., Kongsawadworakul, P., Srisawad, N., Thawara, N., Umpunjun, P., Rodpradit, S., Sangkaew, W., & Triwitayakorn, K.	Thailand
<i>Vincetoxicum sangyojarniae</i>	Kidyoo, A., & Kidyoo, M.	Thailand
<i>Begonia fimbristipula subsp. siamensis</i>	Radbouchoom, S., Phutthai, T., & Schneider, H.	Thailand
<i>Dolichos kasetsartianus</i> Kasetsart pink heart	Meeboonya, R., Ngernsaengsaruy, C., & Balslev, H.	Thailand
<i>Amorphophallus sakonnakhonensis</i> Buk Noi	Promprom, W., Chatan, W., Pasorn, P., Prasertsri, N., & Angkahad, T.	Thailand
<i>Dischidia thongphaphumensis</i>	Samsungnoen, P., Kidyoo, M., & Kidyoo, A.	Thailand
<i>Camellia suddeana</i> 泰北山茶 (English name not provided)	Zhao, D.	Thailand
<i>Milium majestatis</i>	Damthongdee, A., Sinbumroong, A., Rungrueng, A., Aongyong, K., Wiya, C., Saengpho, C., & Chaowasku, T.	Thailand
<i>Thrixspermum alboluteum</i> Takhap Lueang Tanao Si (English not provided)	Toolmal, N., Suddee, S., Culham, A., UTTERIDGE, T. M., & Schuiteman, A.	Thailand
<i>Thrixspermum polystictum</i> Maeng Mum Lueang (English not provided)	Toolmal, N., Suddee, S., Culham, A., UTTERIDGE, T. M., & Schuiteman, A.	Thailand
<i>Panax siamensis</i>	Wen, J., Krupnick, G., & Esser, H. J.	Thailand
<i>Pycnarrhena heptandra</i>	Turner, I. M.	Thailand
<i>Curcuma ubonensis</i> Krachiao Ubon (English name not provided)	Saensouk, P., Boonma, T., Maknoi, C., & Saensouk, S.	Thailand
<i>Curcuma ignea</i> Fire Siam tulip	Ruchisansakun, S., & Jenjittikul, T.	Thailand
<i>Machilus garrettii</i>	Middleton, D.	Thailand
<i>Machilus suddeei</i>	Middleton, D.	Thailand
<i>Machilus thailandicus</i>	Middleton, D.	Thailand
<i>Phoebe smitinandii</i>	Middleton, D.	Thailand
<i>Microchirita candida</i> Yat khao la o (English not provided)	Middleton, D. J., Tetsana, N., Suddee, S., & Puglisi, C.	Thailand
<i>Microchirita chonburiensis</i> Yat si chon (English not provided)	Middleton, D. J., Tetsana, N., Suddee, S., & Puglisi, C.	Thailand
<i>Microchirita formosa</i> Yat noen maprang (English not provided)	Middleton, D. J., Tetsana, N., Suddee, S., & Puglisi, C.	Thailand
<i>Microchirita fuscifauca</i> Yat neramit (English not provided)	Middleton, D. J., Tetsana, N., Suddee, S., & Puglisi, C.	Thailand
<i>Microchirita poomae</i> Yat phu ma (English not provided)	Middleton, D. J., Tetsana, N., Suddee, S., & Puglisi, C.	Thailand

<i>Microchirita rayongensis</i> Yat si rayong (English not provided)	Middleton, D. J., Tetsana, N., Suddee, S., & Puglisi, C.	Thailand
<i>Microchirita striata</i> Yat chaibadan (English not provided)	Middleton, D. J., Tetsana, N., Suddee, S., & Puglisi, C.	Thailand
<i>Microchirita suwatii</i> Yat si suwat (English not provided)	Middleton, D. J., Tetsana, N., Suddee, S., & Puglisi, C.	Thailand
<i>Pentaphragma narathiwatense</i> Khana pa bala (English not provided)	Poopath, M., Yooprasert, S., & Pooma, R.	Thailand
<i>Memecylon aurantifolium</i> Golden Memecylon	Wijedasa, L. S.	Thailand
<i>Memecylon bailek</i> small-leaved Memecylon.	Wijedasa, L. S.	Thailand
<i>Memecylon khimao</i> Confused Memecylon	Wijedasa, L. S.	Thailand
<i>Thrixspermum simile</i> Maeng Mum Lueang Pakna (English not provided)	Toolmal, N., Suddee, S., Culham, A., UTTERIDGE, T. M., & Schuiteman, A.	Thailand, Cambodia
<i>Sonerila subumbellata</i> Sao Sanom Dong (English not provided)	WAI, J. S., & HU, J. M.	Thailand, Malaysia
<i>Thrixspermum praetermissum</i> Ueang Khao (English not provided)	Toolmal, N., Suddee, S., Culham, A., UTTERIDGE, T. M., & Schuiteman, A.	Thailand, Myanmar, Laos, Vietnam, China, Bangladesh, India
<i>Thrixspermum flammeum</i> Maeng Mum Som (English not provided)	Toolmal, N., Suddee, S., Culham, A., UTTERIDGE, T. M., & Schuiteman, A.	Thailand, Vietnam, Cambodia, China
<i>Neocinnamomum huongsonensis</i>	De Kok, R. P.	Vietnam
<i>Phoebe petelotii</i> Re trắng petelot (no English name)	De Kok, R. P.	Vietnam
<i>Metapetrocosmea alba</i>	Zheng, X. R., Zou, P. S., Chen, Y., Vu, T. C., & Dai, S. P.	Vietnam
<i>Garcinia phuongmaiensis</i> Búa phươg mai (no English name)	Dang-Le, A. T., Toyama, H., Nguyen, X. M. A., Phan, T. T. N., Truong, B. V., & Dang, V. S.	Vietnam
<i>Raphiocarpus taygiangensis</i>	Nguyen, C. H., Van Phung, K., Sinh Nguyen, K., Averyanov, L. V., Truong, V. B., Tran, C. V., Cao, H. X., Chu, Q. N., Vu, H. B. T., & Pham, T. K. T.	Vietnam
<i>Raphiocarpus bicallosus</i>	Nguyen, C. H., Wen, F., Pham, T. M., Nguyen, Y. T., Bui, T. M., Nguyen, K. S., & Averyanov, L. V.	Vietnam
<i>Hedyotis konhanungensis</i> An diên Kon Hà Nừg (English name not provided)	Quang, B. H., Nguyen, K. S., Le, T. A., Nguyen, Q. L., Ngo, D. H. V., Wu, L., & Neupane, S.	Vietnam
<i>Typhonium bicolor</i>	Luu, H. T., Tran, N. T., Nguyen, T. Q. T., Phan, C. S., & Nguyen-Phi, N. G. A.	Vietnam
<i>Typhonium culaochamense</i>	Luu, H. T., Tran, N. T., Nguyen, T. Q. T., Phan, C. S., & Nguyen-Phi, N. G. A.	Vietnam
<i>Curcuma tuanii</i>	Nguyen, H. T., Nguyen, N. A., Averyanov, L., Nguyen, D. D., & Le, C. T.	Vietnam
<i>Ophiopogon muongnhensis</i>	Pham, V. T., Tanaka, N., Averyanov, L. V., Maisak, T. V., Tran, H. T., Nguyen, H. C., & Nguyen, K. S.	Vietnam
<i>Peliosanthes linearifolia</i>	Kroupsky, I. A., Lyskov, D. F., Nguyen, K. S., Pham, T. K. T., Nguyen, C. H., Kuznetsov, A. N., Kuznetsova, S. P., Vislobokov, N. A., Tanaka, N., & Nuraliev, M. S.	Vietnam
<i>Typhonium praelongum</i>	Serebryanyi, M., Trinh, T., & Hettterscheid, W.	Vietnam

<i>Amorphophallus opalinus</i>	Serebryanyi, M., Trinh, T., & Hettterscheid, W.	Vietnam
<i>Meistera muriformis</i>	Leong-Škorničková, J., Bình, N. Q., Đăng, T. H., Závěská, E., Quang, B. H., Binh, T. Đức, Ye, X.-E., Nguyen, K. S., Kuznetsov, A. N., Kuznetsova, S. P., & Nuraliev, M. S.	Vietnam
<i>Coelogyne lecongkietii</i> Thanh Đạm Lê Công Kiệt (English name not provided)	Vo, D. T., Averyanov, L. V., Maisak, T. V., Dang, M. Q., Dang, V. S., Nguyen, Q. B., Nguyen, V. C., Truong, Q. T., & Truong, B. V.	Vietnam
<i>Spatholirion cucphuongense</i> “菊芳竹葉吉祥草 (English name not provided)	Lin, C. W., Peng, C. I., Nguyen, H. Q., Nguyen, T. H., & Kono, Y.	Vietnam
<i>Mitreola capitata</i>	Nuraliev, M. S., Lyskov, D. F., Kuznetsov, A. N., Kuznetsova, S. P., & Fu, L. F.	Vietnam
<i>Chiloschista quangdangii</i>	Vo, D. T., Averyanov, L., Maisak, T., Van Canh, N., Dang, M. Q., Dang, V. S., Truong, Q. T., & Ba Vuong, T.	Vietnam
<i>Leptochilus ornithopus</i>	Fujiwara, T., Quang, B. H., Tagane, S., Murakami, N., & Oguri, E.	Vietnam
<i>Dryopteris huongii</i>	Chen, C.-W., Hsu, T.-C., Doan, H. S., Do, V. H., Luu, H. T., Le, V. S., Liu, Y.-C., Li, C.-W., Huang, Y.-M., & Chung, K.f.	Vietnam
<i>Begonia locbaosangii</i>	Nguyen, D. D., & Lin, C. W.	Vietnam
<i>Goodyera umbonata</i>	Averyanov, L. V., Nguyen, V. C., Vuong, T. B., Nguyen, K. S., Nuraliev, M. S., Nguyen, C. H., Ormerod, P. A., Maisak, T. V., Diep, D. Q., Lyskov, D. F., & Nong, D. V.	Vietnam
<i>Myrmechis brachyscapa</i>	Averyanov, L. V., Nguyen, V. C., Vuong, T. B., Nguyen, K. S., Nuraliev, M. S., Nguyen, C. H., Ormerod, P. A., Maisak, T. V., Diep, D. Q., Lyskov, D. F., & Nong, D. V.	Vietnam
<i>Rhomboda obcordata</i>	Averyanov, L. V., Nguyen, V. C., Vuong, T. B., Nguyen, K. S., Nuraliev, M. S., Nguyen, C. H., Ormerod, P. A., Maisak, T. V., Diep, D. Q., Lyskov, D. F., & Nong, D. V.	Vietnam
<i>Vietorchis proboscidea</i>	Averyanov, L. V., Nguyen, V. C., Vuong, T. B., Nguyen, K. S., Nuraliev, M. S., Nguyen, C. H., Ormerod, P. A., Maisak, T. V., Diep, D. Q., Lyskov, D. F., & Nong, D. V.	Vietnam
<i>Hoya honglenae</i>	Van Canh, N. G. U. Y. E. N., Averyanov, L. V., Nguyen, Q. B., Van Son, D. A. N. G., Maisak, T. V., & Truong, B. V.	Vietnam
<i>Begonia datii</i>	Hoang, T. S., & Lin, C. W.	Vietnam
<i>Truongsonia lecongkietii</i> Cau lê công kiệt (English not provided)	Sâm, L. N., Baker, W. J., Bellot, S., Dransfield, J., Eiserhardt, W. L., & Henderson, A.	Vietnam
<i>Sanjappa vietnamica</i>	Thulin, M.	Vietnam
<i>Billolivia maiana</i> Luru hoa Mai (English not provided)	Vu, N. L., Nguyen, H. C., Tran, H. D., & Luu, H. T.	Vietnam
<i>Camellia maianhii</i> Chèmaianh (English not provided)	Nguyen, T. T., Luong, V. D., & Do, N. D.	Vietnam
<i>Spelaeanthus vietnamensis</i>	Middleton, D. J.	Vietnam
<i>Allocheilos villosus</i>	Middleton, D. J.	Vietnam
<i>Didymocarpus tamdaoensis</i>	Middleton, D. J.	Vietnam
<i>Didymocarpus dalatensis</i>	Middleton, D. J.	Vietnam
<i>Loxostigma vietnamensis</i>	Middleton, D. J.	Vietnam
<i>Strobilanthes spathulatibracteata</i>	Do Van, H. A. I., Thuy, N. T., Lin, Z., & Deng, Y.	Vietnam
<i>Camellia vanlangensis</i> Trà hoa vàng Văn Lang (English name not provided)	Trinh, N. B., & Le, N. H. N.	Vietnam

<i>Peliosanthes annamensis</i>	Averyanov, L. V., VAN CANH, N. G. U. Y. E. N., Tanaka, N., Nguyen, K. S., & Maisak, T. V.	Vietnam
<i>Peliosanthes virescens</i>	Averyanov, L. V., VAN CANH, N. G. U. Y. E. N., Tanaka, N., Nguyen, K. S., & Maisak, T. V.	Vietnam
<i>Millettia fulva</i>	Mattapha, S., Forest, F., Schrire, B. D., Lewis, G. P., Hawkins, J., & Suddee, S.	Vietnam
<i>Cinnamomum damhaense</i>	De Kok, R. P.	Vietnam, Cambodia
<i>Cinnamomum auricolor</i>	De Kok, R. P.	Vietnam
<i>Heliacria maritima</i>	Li, B., Hoang, T.S., Nuraliev, M.S., Tai, V. A., Kuznetsov, A.N.	Vietnam
<i>Polystichum pseudodangii</i>	Lu, N. T., Zhang, L., Thanh, N. T., Le Chi, T. O. A. N., & Zhang, L. B.	Vietnam
<i>Sterculia konchurangensis</i>	Kieu, C. N., Tran, D. B., Le, N. H., Duong, T. H., Bui, T. H., Nguyen, T. T., Bui, H. Q., & Tran, T. B.	Vietnam
<i>Cinnamomum kostermannii</i> Dang Dao (no English name)	De Kok, R. P.	Cambodia, Vietnam
<i>Peliosanthes laotica</i>	Vislobokov, N. A., Romanov, M. S., Tanaka, N., & Nuraliev, M. S.	Laos
<i>Alseodaphne hirsuta</i>	de Kok, R. P.	Thailand
<i>Mitrephora langsuanensis</i> Phrom lang suan	Leeratiwong, C., Chalermglin, P., & Saunders, R. M.	Thailand
<i>Mitrephora sirindhorniae</i> Maha phrom sirinthon	Leeratiwong, C., Chalermglin, P., & Saunders, R. M.	Thailand
<i>Mitrephora sukhothaiensis</i> Phrom sukho	Leeratiwong, C., Chalermglin, P., & Saunders, R. M.	Thailand
<i>Curcuma suraponii</i> Khamin Ajarn Sauce (English not provided)	BOONMA, T.	Thailand
<i>Litsea banaensis</i>	De Kok, R. P.	Vietnam
<i>Litsea honbaensis</i>	De Kok, R. P.	Vietnam
<i>Litsea rubrobrunnea</i>	De Kok, R. P.	Vietnam
<i>Litsea salmonea</i> Bòì lòi thit cá hời (no English name)	De Kok, R. P.	Vietnam
<i>Machilus coriacea</i> Kháo dai (no English name)	De Kok, R. P.	Vietnam
<i>Aspidistra phongdiensis</i> Tỏi đá phong điền (no English name)	Chinh, V. T., Dinh, D., Le, T. A., Doan, Q. T., Le, N. T., Le, V. H., Tran, N. T., & Vislobokov, N. A.	Vietnam
<i>Phaius Duongae</i>	Nguyen, T. L. T., Averyanov, L. V., Maisak, T. V., Van Canh, N. G. U. Y. E. N., Pham, T. T. D., Nguyen, D. D., & Truong, B. V.	Vietnam
<i>Oreocharis thanhii</i> Nhạc Ngựa Thành (English name not provided)	Tran, T. P. A., Nguyen, K. S., Tan, K., & Averyanov, L. V.	Vietnam
<i>Typhonium hangiae</i>	Pham, T. K. T., Nguyen, D. D., Nguyen, V. C., Du Nguyen, V., & Tran, V. T.	Vietnam
<i>Perilimnastes multisejala</i>	Dai, J. H., Van Do, T., & Liu, Y.	Vietnam
<i>Perilimnastes setipetiola</i>	Dai, J. H., Van Do, T., & Liu, Y.	Vietnam
<i>Perilimnastes uniflora</i>	Dai, J. H., Van Do, T., & Liu, Y.	Vietnam
<i>Perilimnastes banaensis</i>	Dai, J. H., Van Do, T., & Liu, Y.	Vietnam
<i>Wrightia vietnamensis</i>	Hazell, E. C., Baines, R. A., Nguyen, V. D., Francis, J. V., & Middleton, D. J.	Vietnam

<i>Parahellenia trongduyii</i> Mía dò Trọng Duy (English name not provided)	Chen, J., Van Canh, N. G. U. Y. E. N., Nguyen, K. S., Nuraliev, M. S., & Xia, N.	Vietnam
<i>Geostachys aristata</i>	Leong-Škorničková, J. A. N. A., Bình, N. Q., Đăng, T. H., Trường, L. H., & Nuraliev, M. S.	Vietnam
<i>Jasminum binhchauense</i> Nhài bình châu (English not provided)	Thanh, N. T.	Vietnam
<i>Bulbophyllum viridipallidum</i>	Nguyen, V. C., Averyanov, L. V., Maisak, T. V., Nguyen, T. L. T., Nguyen, V. K., Pham, T. T. D., Nguyen, D. D., Dang, V. S., Aromyen, W., & Truong, B. V.	Vietnam
<i>Lasianthus bachmaensis</i> Xú hương bạch mã (English not provided)	Dang, V. S., & Naiki, A.	Vietnam
<i>Lasianthus chii</i> Xú hương chi (English not provided)	Dang, V. S., & Naiki, A.	Vietnam
<i>Lasianthus yersinii</i> Xú hương yersin (English not provided)	Dang, V. S., & Naiki, A.	Vietnam
<i>Begonia tui</i>	Bon, T. N., Gratzfeld, J., Tuyet, T. T. A., & Lin, C. W.	Vietnam
<i>Bulbophyllum sondangii</i>	Dang, M. Q., Averyanov, L. V., Maisak, T. V., Nguyen, Q. B., Bui, V. H., Tu, B. N., Nguyen, V. C., & Truong, B. V.	Vietnam
<i>Cheilocostus phuongii</i> Mía dò Như Phương (English name not provided)	Nguyen, V. C., Truong, B. V., Böhmová, A., Dang, V. S., Nguyen, Q. B., Pham, Q. T., Nguyen, V. K., & Leong-Škorničková, J.	Vietnam
<i>Homalomena perplexa</i> Thiên niên kiện nhảm (English name not provided)	Truong, B. V., Nguyen, Q. B., Pham, Q. T., Le, H. S., Bustamante, R. A. A., & Hein, K. Z.	Vietnam
<i>Psychotria ngotphamii</i> Lấu Phạm Văn Ngọt (English name not provided)	Nguyen, Q. B., Quach, V. T. E., Huynh, H. D., Pham, Q. T., Truong, B. V., Yahara, T., Tagane, S., & Dang, V. S.	Vietnam
<i>Cinnamomum inconspicuum</i>	De Kok, R. P.	Vietnam, Cambodia
<i>Cinnamomum petelotii</i> Re petelot (no english name)	De Kok, R. P.	Vietnam, Laos
<i>Litsea nhatrangensis</i> Toc poc (no English name)	De Kok, R. P.	Vietnam, Laos
<i>Cinnamomum scalarinervium</i> Re gân hình thang (no english name)	De Kok, R. P.	Vietnam, Laos, Cambodia
<i>Yersinochloa nghiana</i>	Thai Vinh, T., Van Duy, N., Thanh Truong, H., & Van Tien, T.	Vietnam
<i>Begonia saxifragoides</i>	Lin, W.	Vietnam
<i>Bulbophyllum thangii</i>	Truong, B. V., Averyanov, L. V., Maisak, T. V., Dang, M. Q., Nguyen, V. C., Amlser, R., Nguyen, Q. B., & Dang, V. S.	Vietnam
<i>Camellia hiepji</i> Trà Hiệp (no English common name)	Thuong-Nguyen, T. L., Nguyen, V. C., Truong, Q. C., Nguyen, V. K., Luong, V. D., Truong, B. V., & Dang, V. S.	Vietnam
<i>Actinodaphne kontumi</i>	De Kok, R. P.	Vietnam
<i>Balanites vietnamica</i> Ca tha (no English name)	Tran, Q. T. N., Thanh, T. N., Van, T. T., & Hong, T. L.	Vietnam
<i>Polystichum xuansonense</i>	Lu, N. T., Zhang, L., Thanh, N. T., Le Chi, T. O. A. N., & Zhang, L. B.	Vietnam
<i>Polystichum unicum</i>	Lu, N. T., Zhang, L., Thanh, N. T., Le Chi, T. O. A. N., & Zhang, L. B.	Vietnam
<i>Coelogyne phitamii</i>	Averyanov, L. V., Nguyen, V. C., Truong, B. V., Nguyen, K. S., Nguyen, C. H., Maisak, T. V., Doan, N. T., Nguyen, T. H., Pham, V. T., Dat, P. T. T., Thai, T. H., Nguyen, V. K., & Trinh, N. B.	Vietnam
<i>Cymbidium sangii</i>	Averyanov, L. V., Nguyen, V. C., Truong, B. V., Nguyen, K. S., Nguyen, C. H., Maisak, T. V., Doan, N. T., Nguyen, T. H., Pham, V. T., Dat, P. T. T., Thai, T. H., Nguyen, V. K., & Trinh, N. B.	Vietnam

<i>Begonia wiformis</i>	Hoang, T. S., & Lin, C. W.	Vietnam
<i>Cyrtomium calcis</i>	Lu, N. T., Wei, H. J., Vuong, L. D., Le Chi, T. O. A. N., Zhang, L. B., & Zhang, L.	Vietnam, China
REPTILES		
<i>Calotes wangi</i> Wang's garden lizard	Huang, Y., Li, H., Wang, Y., Li, M., Hou, M., & Cai, B.	China, Vietnam
<i>Dixonius muangfuangensis</i> Muangfuang leaf-toed gecko	Luu, V.q., Nguyen, T.h., Le, M.d., Grismer, J.l., Ha, H.b., Sitthivong, S., Hoang, T.t. And Grismer, L.l.	Laos
<i>Laodracon carsticola</i> Khammouan Karst Dragon	Sitthivong, S., Brakels, P., Xayyasith, S., Maury, N., Idiatullina, S., Pawangkhanant, P., Wang, K., Nguyen, T.v. & Poyarkov, N. A.	Laos
<i>Bungarus daranini</i>	Hoser, R. T	Laos, China, Myanmar, Thailand, Cambodia, Vietnam
<i>Trimeresurus uetzi</i>	Vogel, G., Nguyen, T. V., & David, P.	Myanmar
<i>Trimeresurus ayeyarwadyensis</i> Ayeyarwady pit viper	Chan, K. O., Anuar, S., Sankar, A., Law, I. T., Law, I. S., Shivaram, R., Christian, C., Mulcahy, D. G., & Malhotra, A.	Myanmar
<i>Boiga multomaculata septentrionalis ssp. nov.</i> Northern Polymorphic Asian Cat Snake	Köhler, G., Charunrochana, P. T., Mogk, L., Than, N. L., Kurniawan, N., Kadafi, A. M., DAS, A., Tillack, F., & O'Shea, M.	Myanmar, India
<i>Cyrtodactylus sungaiupe</i> Thung Wa Bent-toed Gecko	Termprayoon, K., Rujirawan, A., Grismer, L. L., Wood Jr, P. L., & Aowphol, A.	Thailand
<i>Cyrtodactylus wangkhramensis</i> Wangkhram Bent-toed Gecko	Termprayoon, K., Rujirawan, A., Grismer, L. L., Wood Jr, P. L., & Aowphol, A.	Thailand
<i>Cyrtodactylus denticulatus</i> Spiny-tailed bent-toed gecko	Chomdej, S., Suwannapoom, C., Pradit, W., Phupanbai, A., & Grismer, L. L.	Thailand
<i>Cyrtodactylus thongphaphumensis</i> Thong Pha Phum Bent-toed Gecko	Grismer, L. L., Rujirawan, A., Chomdej, S., Suwannapoom, C., Yodthong, S., Aksornneam, A., & Aowphol, A.	Thailand
<i>Cyrtodactylus disjunctus</i> Pawang Bent-toed Gecko	Grismer, L. L., Pawangkhanant, P., Idiatullina, S. S., Trofimets, A. V., Nazarov, R. A., Suwannapoom, C., & Poyarkov, N. A.	Thailand
<i>Trimeresurus ciliaris</i> Limestone Eyelash Pitviper	Idiatullina, S. S., Pawangkhanant, P., Tawan, T., Worrannuch, T., Dechochai, B., Suwannapoom, C., Nguyen, T. V., Chanhome, L., & Poyarkov, N. A.	Thailand, also highly likely in Malaysia as on border
<i>Bungarus crotalusei</i>	Hoser, R. T	Thailand, Malaysia
<i>Dendrelaphis binhi</i> Binh's Bronzeback Snake	Nguyen, S. N., Nguyen, V. D. H., LE, M. V., Nguyen, L. T., Vo, T. D., Vo, B. D., Che, J., & Murphy, R. W.	Vienam
<i>Hemiphyllodactylus cattien</i> Cat Tien Slender Gecko	Yuschenko, P.V., Grismer, L. L., Bragin, A. M., Dac, L. X., Poyarkov, N. A.	Vietnam
<i>Dibamus tropcentr</i> Ninh Thuan Blind Skink	Kliukin, N. S., Nguyen, T. V., Le, S. X., Bragin, A. M., Tran, T. T. V., Gorin, V. A., & Poyarkov, N. A.	Vietnam
<i>Dixonius fulbrighti</i>	Luu, V. Q., Grismer, J. L., Hoang, T. T., Murdoch, M. L., & Grismer, L. L.	Vietnam
<i>Hemiphyllodactylus lungcuensis</i> Lungcu Slender Gecko	Luu, V.Q., Nguyen, T.H., Do, Q.H., Pham, C.T., Hoang, T.T., Nguyen, T.Q., Le, M.D., Ziegler, T., Grismer, J.L. and Grismer, L.L	Vietnam
<i>Rhabdophis hmongorum</i> H'mong keelback	Kane, D., Tapley, B., VAN LA, T. O. I., & Nguyen, L. T.	Vietnam
<i>Achalinus quangii</i> Quang's Odd-Scaled Snake	Pham, A. V., Pham, C. T., MD, L., Ngo, H. T., Ong, A. V., Ziegler, T., & Nguyen, T. Q.	Vietnam

<i>Cyrtodactylus tayhoaensis</i> Tay Hoa Bent-toed Gecko	Do, D. T., Do, Q. H., Le, M. D., Ngo, H. T., Ziegler, T., & Nguyen, T. Q.	Vietnam
<i>Cyrtodactylus chumuensis</i> Chu Mu Bent-toed Gecko	Ngo, H. T., Hormann, H., Le, M. D., Pham, C. T., Phung, T. M., Do, D. T., Ostrowski, S., Nguyen, T. Q., & Ziegler, T	Vietnam
<i>Cyrtodactylus sp.</i>	Grismer, L. L., & Smith, J. A. C. O. B.	
<i>Dixonius gialaiensis</i> Gialai leaf-toed gecko	Luu, V.Q., Nguyen, T.H., Le, M.D., Grismer, J.L., Ha, H.B., Sitthivong, S., Hoang, T.T. and Grismer, L.L.	Vietnam
<i>Cyrtodactylus arndti</i> Arndt's Bent-toed Gecko	Ngo, H. T., Hormann, H., Le, M. D., Pham, C. T., Phung, T. M., Do, D. T., Ostrowski, S., Nguyen, T. Q., & Ziegler, T	Vietnam



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