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# Greater Mekong

# Close Encounters

## New species discoveries 2008

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**Above:** Cat Ba Island, Vietnam.
**Cover:** Cat Ba leopard gecko *(Goniurosaurus catbaensis)*

# Executive Summary

A remarkable **163 new species** discoveries have been made in the past year in the jungles and rivers of the Greater Mekong region of Southeast Asia. **The new finds in 2008 comprise 100 plants, 28 fish, 18 reptiles, 14 amphibians, 2 mammals and 1 bird species** (Appendix), further highlighting the biological importance of this unique and diverse land.


Among the extraordinary new discoveries are 27 new palm trees, 11 lizards, 8 catfish, 7 new snakes, 6 new orchids, 2 wild bananas, 1 bat and 1 shrew species. The new finds also contain rare and potentially endangered species.

The Greater Mekong spans the countries of Cambodia, Lao PDR, Myanmar, Thailand, Vietnam and Yunnan Province of China, through which the mighty Mekong flows. The region boasts 16 global ecoregions, critical landscapes of international biological importance, more than anywhere else on mainland Asia.

The new species are the latest additions to an already impressive list of species found in this globally-unique landscape, including Indochinese tigers, Javan rhinos, rare primates and ungulates, Irrawaddy river dolphins and the Mekong giant catfish. More than 1,000 new species have been discovered here over the past decade[1].


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*Limnonectes megastomias*

But the diverse species and habitats of the Greater Mekong region continue to face a wave of ever-growing threats, including habitat loss, infrastructure development, and unsustainable and illegal natural resource use. As a consequence as little as 5% of the region's natural habitats remain intact today[2]. Climate change is compounding these threats.

**Climate change**

Climate change is profoundly affecting the Greater Mekong's biodiversity. The region has already warmed and experienced more frequent and damaging extreme climate events such as droughts and floods. Climate change is altering the availability of freshwater; important disturbance regimes like flooding duration, timing, and extent; species ranges; and the timing of migration and flowering. Combined with non-climate threats, these changes gravely threaten many of the region's unique species – including some of the newly discovered species reported here.

WWF supports the formulation of Asia's first regional climate change adaptation agreement to provide a legal framework and mechanism for regional cooperation and coordination on climate change.

The extraordinary new species discoveries of 2008 cements the Greater Mekong's place as one of the world's last biological frontiers, but also highlights what could be lost if the increasing impact of climate change is not urgently addressed in a coordinated and proactive way.

# Hidden Highlights: *New rare and unique species*



## A rare and endangered leopard gecko

Cat Ba leopard gecko *(Goniurosaurus catbaensis)*

The extraordinary technicoloured Cat Ba leopard gecko *(Goniurosaurus catbaensis)*[3] known only from Cat Ba Island (a National Park) in northern Vietnam, has a mesmerizing pattern adorning the entire length of its body. Relatively large, orange-brown 'cat-like eyes' are accompanied by a head pattern consisting of a dark marbling; this leads to leopard stripes on the body and five immaculate contrasting black and white bands on the tail. A creature that certainly appears to be from another world, the lizard's long and thin legs, digits and claws add to its fantastical appearance.

The scientific name emphasizes the importance and uniqueness of the Cat Ba Island, the largest of 366 islands in the 285km² large Cat Ba Archipelago. The primary habitat within the National Park is tropical moist forest on limestone, which houses a number of endemic and rare species, foremost amongst which is the Cat Ba Langur *(Trachypithecus p. poliocephalus)*. Scientists believe the high level of endemism might be due to the long separation of the island from continental Vietnam. The island was formed 7,000-8,000 years ago with the melting of glacial ice.

Unfortunately, the other eleven known species of *Goniurosaurus* have become valuable commodities in the herpetocultural trade and the potentially limited distribution of the new species *G.catbaensis* makes it especially susceptible to over-collecting. Scientists believe that the species should be classified as a rare and endangered species, proposing its listing in the Red Data Book of Vietnam as a first step. They are also recommending that the Vietnamese government put sanctions on the collection of *Goniurosaurus* species in order to protect populations and the habitats in which they occur.

## A "bird eating", fanged frog

*Limnonectes megastomias*

A new frog species for Thailand, *Limnonectes megastomias*[4], is an opportunistic-eater, lying in wait for its prey in streams. The species has a diverse diet which includes other frogs and insects. According to scientists, the species is also known to eat birds as feathers were discovered in the faeces of this frog.

The species has a greatly enlarged head and enlarged fangs within its mouth. These fangs are actually growths that protrude from the jawbone. Males of the species use fangs in male-to-male combat situations and scientists have observed frogs with missing limbs, and multiple scars.

There are a number of differences between the males and females of the species. Unlike many other species of frogs, the males are larger than the females, have exceptionally large mouths and powerful jaws that appear to be out of proportion with the rest of its body.

The frog has only been found in three isolated and remote protected areas in eastern Thailand: at medium-to-high altitudes (600-1,500m) at Sakaerat Environmental Research Station (SERS); in Pang Si Da National Park and in the Phu Luang Wildlife Sanctuary. Remarkably, the SERS area has been the subject of scientific study for more than 40 years, but this frog had escaped detection until now.

Scientists state that there is much that remains unknown about this particular species and other closely related frogs in terms of their natural history, reproductive biology, and other aspects of their ecology. For example, it is still not clear whether populations of these frogs are stable or in decline.



## A reluctant flyer

Nonggang babbler *(Stachyris nonggangensis)*

A new bird species was recently discovered in the karst rainforest of the Nonggang Natural Reserve, located on the Sino-Vietnamese border. Named after the place in which it was found, the dark-grayish Nonggang babbler (*Stachyris nonggangensis)*[5] is relatively large in size, has a wing length of 6.5cm, large dark-grayish-brown spots on its white throat and upper breast, and white crescent-shaped patches behind its ear coverts.

Scientists observed 30 individuals in five different locations in the area, with the species occuring in flocks of 5-10 individuals in nonbreeding season, but often seen in pairs during the breeding period.

The Nonggang babblers were observed walking on rocks and were seldom seen in trees or flying, a pattern of behaviour unique to this species within the *Stachyris* genus. It seems that the birds fly mainly short distances, and only when frightened. Nonggang babblers forage in the gaps between rocks, preying on insects and other arthropods.

The principal habitat in the 100km$^2$ Nonggang Natural Reserve is karst rainforest, where the dominant tree species is *Excentrodendron hsienmu,* a protected tree species that thrives in soil that is rich in lime. Because of this specialised habitat, scientists presume that the distribution of the Nonggang babbler is limited to the limestone karst region of the Sino-Vietnamese border area. The species might also be found in the similar habitats that extend westward into adjacent southeast Yunnan Province.

## A tiger-striped pitviper

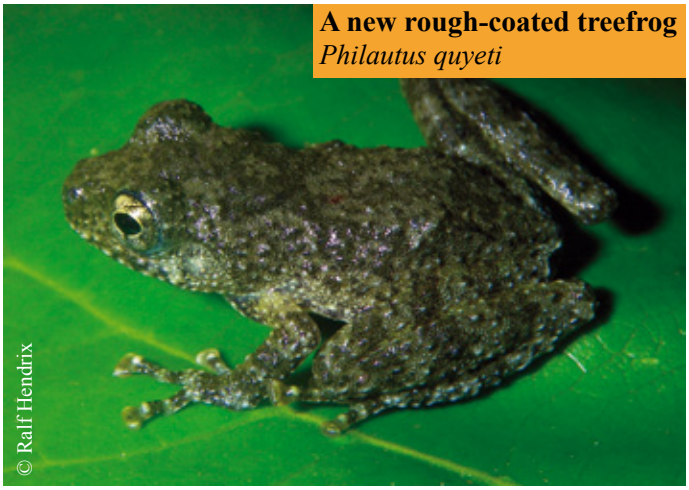
*Cryptelytrops honsonensis*

A voyage to a tiny island off the coast of Vietnam resulted in the discovery of a new species of pitviper, *Cryptelytrops honsonensis*[6]. Named after the Hon Son Island in Rach Gia Bay in the Kien Giang Province of southern Vietnam on which the species was found and which the species is endemic to, the new half-metre-long snake has a straw-yellow body colour with approximately 92 zig-zagged ‘tiger stripes’.

The species is the latest of 45 pitvipers to have been discovered in Southeast Asia belonging to the genus *Trimeresurus sensu lato*, the largest Asian pitviper genus. This genus is generally nocturnal, terrestrial or arboreal and inhabit a wide variety of environments ranging from meadows to plantations, open bushy areas, and from secondary lowland forests to primary cloud forests.

Hon Son is a very small island (ca. 22km$^2$) composed of large granitic boulders that extend from the shoreline to its peaks and there is little to no primary vegetation remaining. At half-metre-long and orange-eyed, *Cryptelytrops honsonensis* was encountered along trails, where the species was first discovered moving over small branches of bamboo that were lying across a small pile of rocks. The species is considered potentially endemic to the small island.

# Close Encounters: *New life revealed*




**A new rough-coated treefrog**
*Philautus quyeti*

This new treefrog, *Philautus quyeti*, was discovered in Vietnam's Truong Son mountain range[7]. Its head and body covered with a rough texture, this frog was found in the mountane evergreen and karst forests within Quang Binh Province. The new species is relatively small among the rhacophorid treefrogs. The species has reduced finger webbing and a unique head as it is longer than it is wide. This species joins the *Philautus* genus that now includes approximately 150 species.

The discovery is the latest in a long line of new and fascinating finds from the Truong Son range, the most celebrated being the saola or Vu Quang ox *(Pseudoryx nghetinhensis)*.

This new gecko lizard, *Cnemaspis biocellata*[8], restricted to the isolated karsts of the Nakawan Range spanning the Thai-Malaysian border, is one of the most highly-coloured of the new species. The lizard displays five yellow, butterfly-shaped blotches extending from the shoulder region to the base of the tail. Males have a ground color of dull yellow which is overlain by gray areas that further highlight the yellow markings and shoulder patches. Females have a base color of light brown and lack shoulder markings.

The species are generally nocturnal, but can be glimpsed by day in the shaded surfaces of large rocks and tree trunks. When encountered by scientists, the lizards were amazingly quick and agile. The name of the species, biocellata, derives from "two" and "little eye" and refers to the two small 'eyes' on the 'face' pattern that is displayed on the back of the gecko's head.

**A painted lizard**
*Cnemaspis biocellata*



## New mysterious mammals

A new species of white-toothed or musk shrew, *Crocidura phuquocensis*, is described from Phu Quoc Island, southern Vietnam[9]. The species was diagnosed based on examinations of skull and comparisons with other species of *Crocidura* known to occur in Vietnam. The new species is the only shrew currently known to occur on the island. The find is particularly significant as despite the *Crocidura* genus containing the largest number of species of any mammal genus (175 species), only four have been newly described since 2004.

A new bat species was also discovered in the country in 2008. In appearance, the new tube-nosed bat *Murina harpioloides* closely resembles the species *Harpiola isodon* (left) and is known only from the mountainous forests of the Da Lat plateau in Lam Dong Province, southeastern Vietnam[10]. Globally, new mammal finds are very rare.

**A new jewel for Asia**
Odessa barb *(Puntius padamya)*


One of 28 new fish species discovered in the Greater Mekong region in 2008, the vibrantly coloured Odessa barb (*Puntius padamya)*[11] was recently described from Myanmar. Males of this species are more colourful than females, displaying a broad red band extending the length of the species' metallic-coloured body.

The species is named after the Burmese word for ruby (padamya), in reference to the name used for the fish in the ornamental fish trade (ruby barb), and to the bright red colour of the males. This species first appeared in the aquarium trade in Odessa, Ukraine, from where it was given its common name and scientists were only able to describe the species after they located the fish in the wild for the first time in 2008.

This new wild banana with spectacularly beautiful red flowers, *Musa rubinea*[12], was officially recorded as a new species in 2008. This species is known only to occur in the Nujiang watershed, Cangyan county in western Yunnan on the border with Myanmar, making it highly endemic to the Greater Mekong.

Given its beauty, the new species has been known locally for a few years and disseminated as an ornamental species in horticulture until it was officially scientifically examined and found to be a new species.

Rhodochlamys is one of the four sections into which the genus *Musa* is divided. The Rhodochlamys species, including *Musa rubinea*, typically have few fruits and are best known for their brights colours, making them popular as ornamental plants. Rhodochlamys consist of the only *Musa* species adapted to withstanding seasonal droughts, which are common in the monsoonal areas to which they are native.

**A striking new species of wild banana**
*Musa rubinea*


**A secretive new snake species**
*Oligodon deuvei*


The new half-metre-long snake, *Oligodon deuvei*[13], is secretive according to scientists, elusive to find and mostly encountered lurking among vegetation and in gardens (small subsistence farms). The species has two strongly enlarged and blade-like fangs and a unique stripe that extends the length of the snake which varies in colour between the male and female of the species. Males display an orange or rusty brown vertebral stripe; females, a more subdued yellowish-brown stripe with darker dots. The snake also has a dark brown heart-shaped or arrow pattern on its head pointing foward.

Due to its elusive nature, the distribution of the species is still largely unknown, but has so far been recorded in southern Vietnam, Vientiane and its vicinity in Lao PDR, and Pursat Province in Cambodia. Scientists expect the species to also occur in Thailand. The species is among four new snakes from the *Oligodon* snake genus discovered in the last year.

# Climate Change: *A global threat to species*

Already climate change is profoundly affecting the Greater Mekong region. More extreme climate events such as droughts and floods are causing extensive damage to property and loss of life. Warmer temperatures, changing precipitation patterns, and sea level rise are affecting the availability of freshwater, impacting freshwater ecosystems, and causing habitat loss[14]. Without deep and rapid cuts in global greenhouse gas emissions and appropriate adaptations, these problems will become much worse in the years ahead.

Rising seas will inundate massive coastal areas and displace millions of people. The Mekong Delta will be especially hard hit – it is now considered one of the three most threatened deltas on Earth from climate change[15]. Land degradation, reduced agricultural productivity and displaced people are just a few of the expected consequences of climate change.

The impacts will not be confined to coastal ecosystems. The most recent climate models for the region suggest continued warming, increased climate variability, and more frequent and damaging climate events. Shifts in rainfall patterns and warmer temperatures will likely alter the region's ecosystems and reduce the productivity of agriculture and fisheries.

**A global threat to species**

Climate change impacts species in different ways. Some species will be able to adapt without dispersing[16], many will not, potentially resulting in massive extinctions[17].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The impacts from climate change are compounding the unintended, but negative effects of the region's rapid unsustainable development, which has converted native habitats and fragmented freshwater and forest ecosystems, making dispersal and migration impossible for some species.

Species at greatest risk of extinction due to climate change are those with low tolerance to warming or altered rainfall patterns, and a limited ability to acclimate or disperse[18].

Rare, endangered and endemic species and those living in mountain ecosystems are especially vulnerable because climate change will further shrink their already restricted habitats. Species that are highly dependent on just a few or even one other species are also at risk because those species may respond to climate change in ways that disrupt the tightly evolved relationships. Many of the Greater Mekong's newly discovered species have at least one of these characteristics and are therefore at a huge risk from climate change.

Changes in precipitation and temperature alter hydrological and fire regimes, species interactions, and the timing of ecological events such as migration and flowering. The combination of these changes causes further shifts in species distributions and also favours non-native invasive species

Consequently, climate change is expected to cause large-scale changes in ecosystem structure, composition and processes. Preliminary evidence indicates shifts in species distributions and substantial changes in forest types[19]. Changes in seasonality will impact wetlands and isolated ponds that are critical sources of water, food, and habitat in the region's extensive dry forests.

**Recommendations**

There are at least three important ways to give the Greater Mekong's extraordinary species and ecosystems a chance to cope with climate change:

- First, to reduce non-climate pressures such as unsustainable resource use, unsustainable infrastructure development and habitat loss so that species are more able to cope with climate pressures.
- Second, key features of the region's ecosystems such as free-flowing rivers and trans-boundary forests are protected. This will allow species to adapt to changes in climate.
- Third, WWF supports the formulation of Asia's first regional climate change adaptation agreement to provide a legal framework for regional cooperation and coordination on climate change.


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**“WWF supports the formulation of Asia’s first regional climate change adaptation agreement to provide a legal framework for regional cooperation and coordination on climate change.”**


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**Top:** New species that are endemic such as *Goniurosaurus catbaensis* and *Cryptelytrops honsonensis* will be highly vulnerable to the impacts of climate change.
**Main:** The Mekong Delta, Vietnam, one of the three most vulnerable deltas on Earth according to the Intergovernmental Panel on Climate Change (IPCC).
**Above:** Mae Moh coal fired electricity-generating plant, Lampang, Thailand.

# **Appendix:** Greater Mekong new species, 2008

| Species | Scientist(s) | Distribution within Greater Mekong |
|---|---|---|
| **AMPHIBIANS** | | |
| *Bufo luchunnicus* | Yang and Rao | Yunnan |
| *Bufo menglianus* | Yang | Yunnan |
| *Hylarana hekouensis* | Fei, Ye, Jiang, and Xie | Yunnan |
| *Hylarana menglaensis* | Fei, Ye, Jiang, and Xie | Yunnan |
| *Limnonectes megastomias* | McLeod | Thailand |
| *Odorrana macrotympana* | Yang | Yunnan |
| *Odorrana rotodora* | Yang and Rao | Yunnan |
| *Odorrana yentuensis* | Tran, Orlov, and Nguyen | Vietnam |
| *Philautus quyeti* | Nguyen, Hendrix, Böhme, Vu, and Ziegler | Vietnam |
| *Polypedates impresus* | Yang | Yunnan |
| *Polypedates spinus* | Yang | Yunnan |
| *Rana cangyuanensis* | Yang | Yunnan |
| *Rhacophorus chuyangsinensis* | Orlov, Nguyen, and Ho | Vietnam |
| *Rhacophorus marmoridorsum* | Orlov | Vietnam |
| | | **14** |
| **BIRDS** | | |
| *Stachyris nonggangensis* | Fang and Aiwu | Vietnam |
| | | **1** |
| **FISH** | | |
| *Akysis vespertinu* | Ng, H.H. | Myanmar |
| *Araiocypris batodes* | Conway, K.W. and M. Kottelat | Vietnam |
| *Aulopus diactithrix* | Prokofiev, A.M | Vietnam |
| *Batasio procerus* | Ng, H.H. | Myanmar |
| *Channa ornatipinnis* | Britz, R. | Myanmar |
| *Channa pulchra* | Britz, R. | Myanmar |
| *Discogobio antethoracalis* | Zheng and Zhou | Yunnan |
| *Discogobio poneventralis* | Zheng and Zhou | Yunnan |
| *Discogobio propeanalis* | Zheng and Zhou | Yunnan |
| *Garra findolabium* | Li, F.-L., W. Zhou and Q. Fu | Yunnan |
| *Glyptothorax coracinus* | Ng, H.K. and W.J. Rainboth | Cambodia |
| *Glyptothorax filicatus* | Ng, H.H. and J. Freyhof | Vietnam |
| *Glyptothorax rugimentum* | Ng, H.H. and M. Kottelat | Myanmar / Thailand |
| *Glyptothorax strabonis* | Ng, H.H. and J. Freyhof | Vietnam |
| *Minyclupeoides dentibranchialus* | Roberts, T.R. | Cambodia |
| *Platygobiopsis dispar* | Prokofiev, A.M. | Vietnam |
| *Pseudecheneis brachyurus* | Zhou, Li and Yang | Yunnan |
| *Pseudecheneis gracilis* | Zhou, Li and Yang | Yunnan |
| *Pseudecheneis longipectoralis* | Zhou, Li and Yang | Yunnan |
| *Pseudecheneis paucipunctatus* | Zhou, Li and Yang | Yunnan |
| *Psilorhynchus breviminor* | Conway, K.W. and R.L. Mayden | Myanmar |
| *Puntius erythromycter* | Kullander, S.O. | Myanmar |
| *Puntius macrogramma* | Kullander, S.O. | Myanmar |
| *Puntius nankyweensis* | Kullander, S.O. | Myanmar |

| Species | Scientist(s) | Distribution within Greater Mekong |
|---|---|---|
| *Puntius padamya* | Kullander, S.O. and R. Britz | Myanmar |
| *Puntius pugio* | Kullander, S.O. | Myanmar |
| *Puntius thelys* | Kullander, S.O. | Myanmar |
| *Triplophysa qiubeiensis* | Li, W.-x., H.-f. Yang, H. Chen, C.-p. Tao, S.-q. Qi and F. Han | Yunnan |
| | | **28** |
| **MAMMALS** | | |
| *Crocidura phuquocensis* | Lei, Abramov, Jenkins, Rozhnov & Kalinin | Vietnam |
| *Murina harpioloides* | Kruskop, S. V., Eger, J. L. | Vietnam |
| | | **2** |
| **PLANTS** | | |
| *Alocasia hypoleuca* | P.C.Boyce | Thailand |
| *Alpinia macrostaminodia* | Chaveer. & Sudmoon | Thailand |
| *Amomum inthanonense* | Chaveer. & Tanee | Thailand |
| *Argyreia leucantha* | Traiperm & Staples | Thailand |
| *Argyreia variabilis* | Traiperm & Staples | Thailand |
| *Aspidistra brachystyla* | Aver. & Tillich | Vietnam |
| *Aspidistra nikolai* | Aver. & Tillich | Vietnam |
| *Bulbophyllum malipoense* | Z.J.Liu, S.C.Chen & S.P.Lei | Yunnan |
| *Calamus acaulis* | A.J.Hend. | Vietnam |
| *Calamus bachmaensis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Calamus centralis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Calamus crispus* | A.J.Hend., N.K.Ban & N.Q.Dun | Vietnam |
| *Calamus fissilis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Calamus kontumensis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Calamus lateralis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Calamus nuichuaensis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Calamus spiralis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Calanthe fugongensis* | X.H.Jin & S.C.Chen | Yunnan |
| *Caulokaempferia phulangkaensis* | Picheans. | Thailand |
| *Caulokaempferia phutokensis* | Picheans. | Thailand |
| *Caulokaempferia phuwoaensis* | Picheans. & Koonterm | Thailand |
| *Cephalanthera ericiflora* | Szlach. & Mytnik | Lao PDR |
| *Chenorchis singchii* | Z.J.Liu, K.W.Liu & L.J.Chen | Yunnan |
| *Chimonocalamus cibarius* | T.P.Yi & J.Y.Shi | Yunnan |
| *Chirita maguanensis* | Z.Yu Li, H.Jiang & H.Xu | Yunnan |
| *Clematis lushuiensis* | W.T.Wang | Yunnan |
| *Clematis tengchongensis* | W.T.Wang | Yunnan |
| *Corydalis ampelos* | Lidén & Z.Y.Su | Yunnan |
| *Corydalis ananke* | Lidén | Yunnan |
| *Corydalis auricilla* | Lidén & Z.Y.Su | Yunnan |
| *Corydalis carinata* | Lidén & Z.Y.Su | Yunnan |
| *Corydalis dongchuanensis* | Z.Y.Su & Lidén | Yunnan |
| *Corydalis helodes* | Lidén & Van De Veire | Yunnan |
| *Corydalis microsperma* | Lidén | Yunnan |
| *Corydalis myriophylla* | Lidén | Yunnan |

| Species | Scientist(s) | Distribution within Greater Mekong |
|---|---|---|
| *Corydalis suzhiyunii* | Lidén | Yunnan |
| *Cotoneaster floridus* | J.Fryer & B.Hylmö | Yunnan |
| *Cotoneaster qungbixiensis* | J.Fryer & B.Hylmö | Yunnan |
| *Curcuma sattayasaiorum* | Chaveer. & Sudmoon | Thailand |
| *Curcuma zedoarioides* | Chaveer. & Tanee | Thailand |
| *Cyclosorus thailandicus* | S.Linds. | Thailand |
| *Dactylicapnos gaoligongshanensis* | Lidén | Yunnan |
| *Dactylicapnos leiosperma* | Lidén | Yunnan |
| *Dendrobium wangliangii* | G.W.Hu | Yunnan |
| *Dubyaea forrestii* | Mamgain & R.R.Rao | Myanmar |
| *Elettariopsis chayaniana* | Yupparach | Thailand |
| *Gaultheria bryoides* | P.W.Fritsch & L.H.Zhou | Myanmar |
| *Goniothalamus aurantiacus* | R.M.K.Saunders & Chalermglin | Thailand |
| *Goniothalamus maewongensis* | R.M.K.Saunders & Chalermglin | Thailand |
| *Goniothalamus rongklanus* | R.M.K.Saunders & Chalermglin | Thailand |
| *Hedychium chayanianum* | Wongsuwan | Lao PDR |
| *Holcoglossum nujiangense* | X.H.Jin & S.C.Chen | Yunnan |
| *Homalomena vietnamensis* | Bogner & V.D.Nguyen | Vietnam |
| *Impatiens fugongensis* | K.M.Liu & Y.Y.Cong | Yunnan |
| *Impatiens pachycaulon* | M.F.Newman | Lao PDR |
| *Impatiens yaoshanensis* | K.M.Liu & Y.Y.Cong | Yunnan |
| *Iris habaensis* | X.D.Dong | Yunnan |
| *Kaempferia champasakensis* | Picheans. & Koonterm | Lao PDR |
| *Kaempferia chayanii* | Koonterm | Lao PDR |
| *Licuala acaulis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Licuala atroviridis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Licuala averyanovii* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Licuala bachmaensis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Licuala bidoupensis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Licuala cattienensis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Licuala centralis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Licuala ellipsoidalis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Licuala longiflora* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Licuala magalonii* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Licuala manglaensis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Licuala pitta* | Barfod & Pongsatt. | Thailand |
| *Lilium eupetes* | J.M.H.Shaw | Vietnam |
| *Manglietia zhengyiana* | N.H.Xia | Yunnan |
| *Michelia concinna* | H.Jiang & E.D.Liu | Yunnan |
| *Musa rubinea* | Häkkinen & C.H.Teo | Yunnan |
| *Musa zaifui* | Häkkinen & H.Wang | Yunnan |
| *Mussaenda lancipetala* | X.F.Deng & D.X.Zhang | Yunnan |
| *Ornithoboea emarginata* | D.J.Middleton & N.S.Ly | Vietnam |
| *Paraboea argentea* | Z.R.Xu | Thailand |
| *Paraboea graniticola* | Z.R.Xu | Vietnam |
| *Paracladopus chantaburiensis* | Koi & M.Kato | Thailand |
| *Pararuellia alata* | H.P.Tsui | Yunnan |

| Species | Scientist(s) | Distribution within Greater Mekong |
|---|---|---|
| *Pinanga cattienensis* | Andr.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Pinanga cupularis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Pinanga declinata* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Pinanga humilis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Pinanga kontumensis* | A.J.Hend., N.K.Ban & N.Q.Dung | Vietnam |
| *Piper maculaphyllum* | Chaveer. & Sudmoon | Thailand |
| *Piper rubroglandulosum* | Chaveer. & Mokkamul | Thailand |
| *Ranunculus pianmaensis* | W.T.Wang | Yunnan |
| *Ranunculus tengchongensis* | W.T.Wang | Yunnan |
| *Rhapis puhuongensis* | M.S.Trudgen, T.P.Anh & A.J.Hend. | Vietnam |
| *Rhododendron yaoshanense* | L.M.Gao & Shu D.Zhang | Yunnan |
| *Rohdea lihengiana* | Q.Qiao & C.Q.Zhang | Yunnan |
| *Smilax petiolatumida* | B.R.Moore, Narkkong, Th.Moore & Lutat | Thailand |
| *Tectaria phanomensis* | S.Linds. | Thailand |
| *Thismia angustimitra* | Chantanaorr. | Thailand |
| *Typhonium conchiforme* | Hett. & A.Galloway | Thailand |
| *Typhonium sinhabaedyae* | Hett. & A.Galloway | Thailand |
| *Yushania yongdeensis* | T.P.Yi & J.Y.Shi | Yunnan |
| | | **100** |
| **REPTILES** | | |
| *Cnemaspis biocellata* | Grismer, Onn, Nasir & Sumontha | Thailand |
| *Cryptelytrops honsonensis* | Grismer, Ngo & Grismer | Vietnam |
| *Cyrtodactylus eisenmani* | Ngo | Vietnam |
| *Cyrtodactylus grismeri* | Ngo | Vietnam |
| *Cyrtodactylus hontreensis* | Grismer, Ngo & Grismer | Vietnam |
| *Cyrtodactylus huynhi* | Ngo & Bauer | Vietnam |
| *Cyrtodactylus pseudoquadrivirgatus* | Rösler et al | Vietnam |
| *Cyrtodactylus takouensis* | Ngo & Bauer | Vietnam |
| *Cyrtodactylus ziegleri* | Nazarov et al | Vietnam |
| *Fimbrios smithi* | Ziegler, David, Miralles, van Kien & Quang Truong | Vietnam |
| *Gekko nutaphandi* | Bauer, Sumontha & Pauwels | Thailand |
| *Goniurosaurus catbaensis* | Ziegler, Truong, Schmitz, Stenke, Rosler | Vietnam |
| *Oligodon deuvei* | David, Vogel & van Rooijen | Vietnam / Lao PDR / Cambodia / Thailand |
| *Oligodon moricei* | David, Vogel & van Rooijen | Vietnam |
| *Oligodon pseudotaeniatus* | David, Vogel & van Rooijen | Thailand |
| *Oligodon saintgironsi* | David, Vogel & Pauwels | Vietnam / Cambodia / Lao PDR /Thailand |
| *Opisthotropis tamdaoensis* | Ziegler, David & Vu | Vietnam |
| *Pseudocalotes khaonanensis* | Chanard, Cota, Makchai & Laoteow | Thailand |
| | | **18** |
| | | **GRAND TOTAL** |
| | | **163** |

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WWF is working to conserve 600,000km² of the world's most biologically diverse, economically viable, and seriously threatened forests and rivers within the Greater Mekong region. Home and life source for over 300 million people in Cambodia, Lao PDR, Myanmar, Thailand, Vietnam and China.


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