



WWF

REPORT

New Blood
Greater Mekong
New Species Discoveries
2009



DRACULA FISH

(*DANIONELLA DRACULA*)

Britz, Conway & Rüber, 2009

Myanmar

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Front cover photo: *Danionella dracula*, dracula minnow species ©
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WWF is one of the world's largest and most experienced independent conservation organizations, with over 5 million supporters and a global Network active in more than 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans 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.

EXECUTIVE SUMMARY

A fanged fish and a fangless snake, five new mammal species, a bald bird and a frog that sounds like a cricket are among the 145 species newly described by science in the Greater Mekong region during 2009.



**145 SPECIES
DISCOVERED IN 2009 IN
THE GREATER MEKONG**

The Greater Mekong region of Southeast Asia through which the Mekong River flows comprises the countries of Cambodia, Laos, Myanmar, Thailand, Vietnam and Yunnan Province in southern China. The region is home to some of the planet's most endangered wild species including tiger, Asian elephant, Mekong dolphin and Mekong giant catfish, in addition to hundreds of newly discovered species. Between 1997 and 2008 an incredible 1,231 species were discovered by science across this region alone^{1,2}.

While these discoveries reinforce the conclusion that the Greater Mekong is a biodiversity hotspot, with some being considered for IUCN Red List status, they also highlight the fragility of this region's diverse species and habitats. The plight of the wild tiger whose numbers have dropped by a dramatic 70 percent in a little over a decade, and the likely local extinction of the Javan rhino in Vietnam are urgent reminders that biodiversity is still being lost at an alarming rate as a consequence of human activities.

Rapid unsustainable development is profoundly affecting biodiversity and ecosystem services and consequently the millions of people who depend on them. Climate change will likely amplify these changes.

The combination of warming and shifting rainfall patterns are causing more extreme floods, droughts and storms. These changes are exacerbating non-climate pressures such as agricultural expansion and unsustainable infrastructure on natural ecosystems and the services they provide³.

To resolve these growing regional pressures, a new, shared regional vision across the Greater Mekong is required, whereby biodiversity and ecosystems are conserved, in recognition of their vital role in maintaining resilience to climate change and reducing climate-related disaster risks.

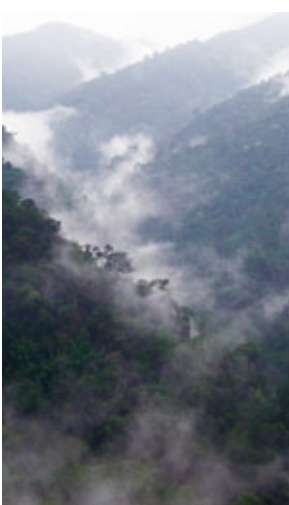
Environment Ministries cannot act alone. All sectors of government including economics, trade, fisheries and agriculture, must play a part if biodiversity loss is to be halted.

One opportunity to coalesce regional coordination is the Global Environment Facility (GEF) under the UN Convention of Biological Diversity (CBD). This facility provides grants to countries for projects that benefit the global environment and promote sustainable livelihoods, and offers a large scale financing opportunity to support conservation efforts. If the countries of the region commit a percentage of their GEF national allocations to a regional ecosystem-based climate change adaptation approach, additional GEF resources will be leveraged. This regional commitment and the associated financial resources would deliver coordinated ecosystem-based adaptation at the scale necessary to maintain the region's resilience for the benefit of its people, economies and stunning biodiversity.

Biodiversity concerns must be integrated across all parts of government and business, and the full value of biodiversity needs to be accounted for adequately in decision-making. Only then will we be able to address the problem and ensure a future for people and nature.



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**Flooded forest, Kratie-Stung Treng, Cambodia,
in the Mekong River Ecoregion.**



A CLOSER LOOK...

An average of 3 new species are recorded by science each week in the Greater Mekong – a rate of discovery that marks this region as one of the frontiers for new species discoveries on our planet.

DRACULA FISH

(DANIONELLA DRACULA)

Discovered in a small stream in Myanmar, the Dracula minnow is one of the most unique newly described species of 2009⁴.

It is largely translucent and a maximum of 16.7mm long, making it similar in many ways to other *Danionella* species. However, there is one fundamental difference between this species and its brethren: the presence of fangs at the front of each jaw. Although the evolutionary cause of these fangs is unknown, they appear to be part of the skeleton of fish in the species *Danionella dracula*.

It is after this distinctive feature that the species was aptly named dracula, after the fanged Count Dracula in Bram Stoker's novel. In addition to the fangs, this species can be distinguished because of its smaller skeleton. Already a miniature fish, the *Danionella dracula* is made shorter by the absence of 44 bones usually found in the *Danionella* genus. Scientists attribute this size difference to “a relatively simple case of developmental truncation”, where the last 44 bones just failed to mature.

Much about this unique species is still unknown, including its full range and endangered status. Despite the fact that it was found in high numbers in a small stream, it is yet hard to distinguish whether this unique species is endemic to a single ecosystem within Myanmar, or spread throughout the region as a whole.

Danionella dracula was selected as one of “The Top 10 New Species” described in 2009 by The International Institute for Species Exploration at Arizona State University and an international committee of taxonomists⁵.



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+ 26 in 2009
TWENTY-SIX NEW FISH
SPECIES WERE DISCOVERED
IN THE GREATER MEKONG IN 2009

A BARE-FACED BULBUL

(PYCNONOTUS HUALON)

First seen by scientists over 15 years ago, the Bare-Faced Bulbul has evaded discovery due to its remote location and seemingly outrageous appearance. It is only known to live in the sparse, deciduous forest on limestone karsts in central Laos, where it was originally discovered⁶.

In 1995, R.J. Timmins saw the bare-headed birds pass overhead, but after relating the sight to the rest of the group, he “subsequently weathered a fair amount of good-natured ribbing on relating the sighting to sceptical colleagues”. Scientists continued to think little of this unusual bulbul species until 2008, when Timmins sighted the species again, and described it in full. It is possible that other populations of the species

may be living in karst areas of Thailand and Vietnam, however the unique habitat of that specific Lao region makes separate populations unlikely. In addition, the bird’s distinctive appearance suggests that, if other populations do exist, we would have found them by now! If the Bare-Faced Bulbul is indeed only found in central Laos, it would be the country’s only endemic bird species discovered.

The species is distinguished from other bulbuls by its appearance and vocalizations. Unlike other species, Bare-Faced Bulbul lacks feathering on the face and the side of the head, and has extensive pale blue skin on the rear of the head and around the eyes. Its most common vocalizations consist of “a

short series of whistled, dry bubbling notes”.

Its tendency toward karsts makes this species safe from habitat-loss in the short-term, as limestone formations with suitable habitat are protected under Lao national law. Thus, chances are high that the majority of Bare-Faced Bulbuls are currently residing within protected areas. However, such limestone habitats are threatened in the long-term by factors such as quarrying and habitat conversion. There is currently insufficient data for this species to be included on the IUCN Red List.

The bird is the first bulbul discovered in Asia in a century, and is Asia’s only known species of bald songbird.



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+ 2 in 2009
TWO NEW BIRD SPECIES
WERE DISCOVERED IN THE
GREATER MEKONG IN 2009

A VENOMOUS PITVIPER (PROTOBOTHROPS TRUNGKHANHENSIS)

A new species of venomous pitviper was recorded in karst region in Trung Khanh Nature Reserve, Cao Bang Province in northeastern Vietnam⁷. According to scientists, the pitviper *Protobothrops trungkhanhensis* is an extremely small size for the *Protobothrops* genus, measuring 70cm in length. Both males and females of the species are grayish-brown with dark-brown patterns. The coloration perfectly camouflages these snakes on karst rocks covered by various plants and tree waste.

The new species is known only from Trung Khanh Nature Reserve, Cao Bang Province, at elevations of 500-700m above sea level.

Asian pitvipers typically feed on a variety of other animals, including rodents, lizards, amphibians, birds and even other snakes including other pitvipers. There are now more than 35 recognised species, with many known to inhabit the Greater Mekong region.

The area could be rich in undiscovered reptile species as a second, yet unnamed species of pitviper from the *Viridovipera* genus, was also discovered in the karst region of Cat Ba National Park, Hai Phong Province. Practically all the species of pitvipers in Vietnam are associated with karst habitats. With these two additions the total number of karst-associated vipers will be increased to seven.



+ 10 in 2009
TEN NEW REPTILES
WERE DISCOVERED IN THE
GREATER MEKONG IN 2009

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A LIPSTICK GECKO (DIXONIUS AARONBAUERI)

This new species of leaf-toed gecko, *Dixonius aaronbaueri*, is characterized by its tiny size, the dark line across its face, and the dark barred pattern that runs across its lips⁸. It was discovered by a team of scientists in Nui Chua National Park in Vietnam, where it is

thought to reside in arid climates near bodies of water.

This discovery continues a long line of *Dixonius* discoveries in the Greater Mekong region, and particularly in Vietnam. However, many of these prized species are now

threatened by the construction of roads and dams in coastal areas. More fieldwork still needs to be done to determine the range of the *Dixonius* genus, and the conservation measures that should be taken to protect these species.



© Ngo Van Tri

NEW MAMMALS

A FORGOTTEN
WHITE-TOOTHED
SHREW AND NEW BATS

Three of the five mammal species newly described in 2009 were white-toothed-shrews. *Crocidura annamitensis* was first seen in Vietnam in 1998⁹. However, because it was caught in the same area at about the same time as the striped rabbit and Saola, it caused little excitement within the scientific community. However, after the scientists set to work examining their samples. And, over ten years later, they have finally been described as new mammal discoveries.

The *Crocidura annamitensis* is a brown shrew with a very short torso and tail, occurring at higher elevations in the northern Annamite mountain range. It is one of 14 *Crocidura* species to occur in the region, “however, the group remains poorly known, and it is likely that there are still more unrecognized species within the genus.” It exhibits only subtle morphological distinctions from other species in the genus; unique due to its skeletal proportions and

short tail. It was named after the Annamite mountains where it was found, and its conservation status is currently unknown.

Two new bats were also identified, including *Murina eleryi* from forest over limestone karst in north Vietnam.



+ 5 in 2009
FIVE NEW MAMMALS WERE
DISCOVERED IN THE
GREATER MEKONG IN 2009

A GIANT CARNIVOROUS PITCHER PLANT (*NEPENTHES BOKORENSIS*)

While walking through a forest of greenery, the *Nepenthes bokorensis*¹⁰ is a sight to behold. With a climbing length of up to 7m, this species produces pitchers that are a green with accents of a startling shade of bright red. The pitchers alone can be up to 25cm in length, and are used to trap ants and other insects, which are then broken down to provide nourishment to the plant. The plant also has broad green leaves, yellow stems, and faint purple blotching all over. The root of this plant has traditionally

been boiled and given to pregnant women to ease their pains.

The species was found on Bokor Hill in southern Cambodia, and tends to occur in seasonally wet upland scrub. It is similar to three other pitcher plants in the area, *N. kampfiana*, *N. smilesii*, and *N. thorelii*, but has much wider and more oblong leaves. Its exact range in the region is unknown, however the potential endemism of this species puts it at great risk. Bokor Hill is currently a

protected area, however, the Cambodian government has leased much of the land to private developers to expand the tourism industry. Road construction has already started on the site, and shows no signs of heeding to local and endangered wildlife. Scientists are thus currently petitioning that *Nepenthes bokorensis* be added to the IUCN Red List, as this development puts the species at risk for extinction.



© Francois Mey

+ 96 in 2009
NINETY-SIX NEW PLANTS
WERE DISCOVERED IN THE
GREATER MEKONG IN 2009

NEW PLANTS

TEN NEW SPECIES OF STROBILANTHES

Ten new species within the *Strobilanthes* genus were newly described in the Greater Mekong region in 2009¹¹. They were discovered in Laos, Myanmar, Thailand and Yunnan, in areas as diverse as dense forests and highway medians.

These species are known for their unique flowers and social growth patterns; always growing in large numbers very close together. However, this does not make them noticeable to the untrained eye, as they spend the

majority of their lifecycle in a flowerless state.

Strobilanthes species flower in a pliestial pattern, which means that they will live for 10-12 years without flowering, and then flower and quickly die. This unique pattern often makes them difficult to discover, despite being locally abundant in the region. According to the discovering scientist, *Strobilanthes* species are “rarely collected by visiting botanists unless present at flowering time although they are usually well-known

to local communities who often have traditions of the kind of year when mass flowering occurs, associating with unusual drought or high crop yields or some other event.”

There are 400 *Strobilanthes* species on the Asian continent, but their exact population and conservation statuses remain largely unknown.



© Martin van der Bult

A SPOTTED DANIO FISH (DANIO TINWINI)

One of the 26 fish that were newly described in 2009, the *Danio tinwini* was found in the upper reaches of the Mogaung Chaung River in Myanmar¹². It is a small fish, less than 24mm long, that fits well with other species of the *Danio* genus. However, it does exhibit one difference that puts it apart: its spots! While other known *Danio* species

have stripes extending the length of their skeleton, the *Danio tinwini* is completely spotted instead. It is a yellowish translucent color with dark black spots, making it easily recognizable as an exciting new species. It is only known to exist in that one river, which coincidentally happens to be the habitat of another new species, the Dracula

minnow or *Danionella dracula*. One *Danionella dracula* specimen was even caught with the samples of *Danio tinwini*, however, at that point, it had already been described. The Spotted *Danio* Fish may also be found elsewhere in Myanmar, and its exact range is subject for further investigation.



© Sven Kullander

It is estimated that over 780 species of fish are found in the waters of the Mekong¹³

A CRICKET-CHIRPING FROG

(LEPTOLALAX APPLEBYI)

First encountered in the Quang Nam Province of Vietnam, the new frog species *Leptotalax applebyi* was nearly overlooked¹⁴. It was not seen but rather heard, making a faint call that sounded like a cricket. According to the principle discoverer, “everyone on the trip was convinced the faint rasping noise coming from the leaf litter was a cricket, and I wasn’t sure at all. After recording the call, I began to hunt for whatever was making the noise- insect or frog - and after maybe 5 minutes on searching through the leaf litter, I was pretty convinced myself that it was a cricket after all. Shortly after that, I found the tiny brown frog hidden in the leaf litter.”

Such determination was crucial to the discovery and description of this species, which is very small and often hidden amongst brush and leaves. All specimens of this species were also found at the headwaters of rocky streams in evergreen forests over 1,300 m in elevation, indicating that as their primary range. In addition to the unique and cricket-like call, the *Leptotalax applebyi* species can be distinguished from other species by its small body size and flecked brown appearance.

Due to the difficulty of finding them, very few specimens of this species have been collected. Their exact conservation status is

unknown, although the lead scientist suspects there to be only several thousand in existence.

A recent scientific study highlighted that amphibians and reptiles will be adversely affected by projected rapid changes in climate in the coming decades, with those in the Greater Mekong being put under the most pressure in Southeast Asia. Because higher ground for species to migrate to does not exist in the region, scientists believe that climate changes will exceed the ability of lowland species to adapt and as a result many will become extinct¹⁵.



© Jodi Rowley

+ 6 in 2009
SIX NEW AMPHIBIAN SPECIES
WERE DISCOVERED IN THE
GREATER MEKONG IN 2009

NEW SUCKER FISH

EIGHT NEW SPECIES OF
OREOGLANIS

Until 2009, only one species of *Oreoglanis* catfish had ever been recorded in Thailand. However, after a groundbreaking study this past year, that number has now been increased to almost ten!¹⁶ These discoveries are a true testament to the depth of untapped biodiversity in the Greater Mekong region, and especially in its waters. These new species of the *Oreoglanis* genus were found in rocky, fast-flowing streams all

over Thailand, and are expected to be present in neighboring countries as well. They are recognizable by their coloring (mostly brown with yellow spots), large pointed teeth, and the notch in their lower lip. They are also notable among Thai people for their behavior as a “stone-sucking fish.” According to one scientist, the *oreoglanis* catfish “have greatly enlarged paired fins that, together with their unique body shape, form a huge sucker. This enables

the fish to stick to the substrate in torrential hill streams.”

The ranges of these new *Oreoglanis* species are yet unknown, although they are suspected to be limited to endemic to the sites in which they were discovered. Studies are also underway to determine whether similarly diverse *Oreoglanis* populations exist elsewhere in the region.



© Nonn Panitwong

A FANGLSS SNAKE (COLUBEROELAPS NGUYENVANSANGI)

One of ten reptiles newly described in the region in 2009, the *Coluberoelaps nguyenvansangi* introduces not only a new species to science, but a new genus as well¹⁷. Scientifically known as a dwarf fossorial snake, this cryptic species is very small and rare. Like most Elapid snakes, it is thin with dark blue sides and a narrow dark band along the spine. However, it is missing the

venom and fangs that characterize elapid snakes and make them so dangerous. This new *Coluberoelaps* genus has thus been categorized as part of the colubrid snake family, despite its differing appearance.

Specimens of the new species were first discovered in the Lam Dong Province of southern Vietnam, indicating that

area as the genus' primary range. The species seems to prefer leaf litter in secondary evergreen forest, and feeds on earthworms, snakes, small lizards, amphibians and fishes. It is one of four colubrid snakes that were newly described last year, and its range and conservation status have not yet been fully determined.



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Cloud forest, Vietnam.

FUTURE-MAKING IN THE GREATER MEKONG

Preparing for a climate-changing region.

Climate change will profoundly affect the Greater Mekong region's biodiversity and ecosystem services, and as a result the millions of people who depend on them. The region is already warming and experiencing more extreme floods, droughts, and storms as a result of shifting weather patterns. As the impacts of climate change increase, 'free' ecosystem services including food, timber and non-timber forest products, water, pharmaceuticals, energy (hydropower, biomass fuels), carbon sequestration and climate regulation, purification of water and air, will become significantly more valuable.



The Greater Mekong ranks as one of the top five most threatened biodiversity hotspots in the world.

There is an urgent need for a region-wide approach to the way that natural resources are managed. The Global Environment Facility (GEF) could provide the resources required to make this happen. If the countries of the region commit a percentage of their GEF national allocations to a regional ecosystem-based climate change adaptation approach^[1], additional GEF resources will be leveraged. Such a strong signal by the Greater Mekong countries would facilitate additional co-financing from the GEF and other sources. This would deliver coordinated ecosystem-based adaptation at the scale necessary to maintain the region's climate change resilience for the benefit of its people, economies and biodiversity.

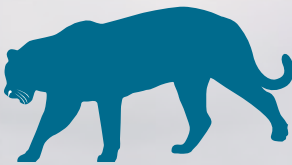
Ecosystem-based adaptation recognises the role of large, well-connected, biologically diverse ecosystems in providing resilience to climate change impacts and reducing climate-related disaster risks. It includes the sustainable management, protection and restoration of ecosystems. A regional programmatic approach centred on ecosystem-based adaptation would help countries deliver on several of the GEF 5's priority themes specifically biodiversity, climate change and land degradation. This programmatic approach would help promote and finance commitment to a regional mechanism that ensures ecosystem-based adaptation is a primary strategy to address climate change for the region.

[1] Climate change adaptation refers to initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects. Ecosystem-based approaches to adaptation refer specifically to the management, protection and restoration of ecosystems to provide resilience to climate change impacts for people and ecosystems.

View of the Khao Yai National Park, Thailand,
in the Lower Mekong Dry Forests Ecoregion.

This approach will not only preserve a Greater Mekong for future generations, but also maintain the valuable ecosystem services on which the people and economies of Cambodia, Laos PDR, Myanmar, Thailand and Vietnam depend.

2010 has been declared International Year of Biodiversity by the United Nations. This offers an unprecedented opportunity to highlight the role biodiversity plays in underpinning development and call for effective action from governments to address biodiversity loss.



Tigers, elephants and Javan rhinos are among the endangered large mammals found in the region.

The Convention on Biological Diversity (CBD) is the world's conservation convention. In 2002, world leaders committed through the CBD to achieving a significant reduction in the rate of biodiversity loss by 2010, the International Year of Biodiversity. Unfortunately, 2010 will not be the year that biodiversity loss was halted. However, it does need to be the year in which governments start taking the issue seriously and substantially increase efforts to take care of what is left of the Greater Mekong's diversity. There is huge potential to better human wellbeing, providing food security, water, medicine as well as mitigating climate change and natural disasters. Therefore it is in their national interests, for the governments to work together and make regional biodiversity conservation a political priority.

For more information, please visit:
panda.org/greatermekong

APPENDIX

Greater Mekong
new species 2009

At a glance, by country..

Cambodia	3
Laos	9
Myanmar	16
Thailand	58
Vietnam	21
Yunnan (China)	47

Note: The sum of the above figures does not equal the total number of new species discovered, as some species have a distribution spanning more than one country.

PLANTS

Species	Scientist(s)	Location
<i>Acampe hulae</i>	Telepova	Laos
<i>Aeschynanthus cambodiensis</i>	Middleton	Cambodia
<i>Aeschynanthus juyi</i>	Middleton	Vietnam
<i>Aeschynanthus pedunculatus</i>	Middleton	Vietnam
<i>Anadendrum badium</i>	Boyce	Thailand
<i>Anadendrum griseum</i>	Boyce	Thailand
<i>Anadendrum marcesovaginatum</i>	Boyce	Thailand
<i>Atalantia acuminata</i>	Huang	Yunnan
<i>Callicarpa kerrii</i>	Leerat. & Paton	Thailand
<i>Callicarpa phuluangensis</i>	Leerat. & Paton	Thailand
<i>Caryota kiriwongensis</i>	Hodel	Thailand
<i>Ceropegia thailandica</i>	Meve	Thailand
<i>Chirita grandibracteata</i>	Li & Mich.Möller	Yunnan
<i>Cotoneaster atuntzensis</i>	Fryer & Hylmö	Yunnan
<i>Cotoneaster beimashanensis</i>	Fryer & Hylmö	Yunnan
<i>Cotoneaster campanulatus</i>	Fryer & Hylmö	Yunnan
<i>Cotoneaster chulingensis</i>	Fryer & Hylmö	Yunnan
<i>Cotoneaster daliensis</i>	Fryer & Hylmö	Yunnan
<i>Cotoneaster fruticosus</i>	Fryer & Hylmö	Yunnan
<i>Cotoneaster huahongdongensis</i>	Fryer & Hylmö	Yunnan
<i>Cotoneaster hypocarpus</i>	Fryer & Hylmö	Yunnan
<i>Cotoneaster leveillei</i>	Fryer & Hylmö	Yunnan
<i>Cotoneaster naoujanensis</i>	Fryer & Hylmö	Yunnan
<i>Cotoneaster natmataungensis</i>	Fryer & Hylmö	Myanmar
<i>Cotoneaster noheli</i>	& Nelson	Yunnan
<i>Cotoneaster omissus</i>	Fryer & Hylmö	Yunnan
<i>Cotoneaster teijiashanensis</i>	Fryer & Hylmö	Yunnan
<i>Cymbidium recurvatum</i>	Liu, Chen & Cribb	Yunnan
<i>Cypripedium singchii</i>	Liu & Chen	Yunnan
<i>Dasymaschalon acuminatum</i>	Wang & Saunders	Cambodia / Thailand/ Vietnam
<i>Dasymaschalon angustifolium</i>	Wang & Saunders	Thailand
<i>Dasymaschalon echinatum</i>	Wang & Saunders	Thailand
<i>Dasymaschalon grandiflorum</i>	Wang, Chalermglin & Saunders	Thailand
<i>Dasymaschalon obtusipetalum</i>	Wang, Chalermglin & Saunders	Thailand
<i>Dendrobium elliottianum</i>	O'Byrne	Thailand
<i>Dendrocalamus xishuangbannaensis</i>	Li & Yang	Yunnan
<i>Eclecticus chungii</i>	O'Byrne	Thailand
<i>Glycosmis longipetala</i>	Mou & Zhang	Yunnan
<i>Habenaria anomaliflora</i>	Kurzweil & Chantanaorr.	Laos/ Thailand
<i>Hedychium muanwongyathiae</i>	Picheans. & Wongsuwan	Thailand
<i>Hedychium phuluangense</i>	Picheans. & Wongsuwan	Thailand
<i>Holcoglossum calcicola</i>	Schuit. & Bonnet	Laos
<i>Hydrobryum phetchabunense</i>	Kato & Koi	Thailand
<i>Impatiens adenoides</i>	Suksathan & Keerat.	Thailand
<i>Impatiens charisma</i>	Suksathan & Keerat.	Thailand
<i>Impatiens daraneanae</i>	Suksathan & Triboun	Thailand
<i>Impatiens doitungensis</i>	Triboun & Sonsupab	Thailand
<i>Impatiens jiewhoei</i>	Triboun & Suksathan	Thailand
<i>Impatiens oreophila</i>	Triboun & Suksathan	Thailand
<i>Impatiens ruthiae</i>	Suksathan & Triboun	Thailand
<i>Impatiens sirindhorniae</i>	Triboun & Suksathan	Thailand
<i>Impatiens spectabilis</i>	Triboun & Suksathan	Thailand
<i>Impatiens tigrina</i>	Suksathan & Triboun	Thailand
<i>Indigofera shipingensis</i>	Gao	Yunnan
<i>Kaempferia sawanensis</i>	Picheans. & Koonterm	Laos
<i>Kaempferia sisaketensis</i>	Picheans. & Koonterm	Thailand
<i>Mahonia dulongensis</i>	Li	Yunnan
<i>Mahonia lushuiensis</i>	Ying & Li	Yunnan
<i>Manglietia lawii</i>	Xia & Liao	Yunnan
<i>Mastixia microcarpa</i>	Liu & Peng	Yunnan
<i>Meconopsis bijiangensis</i>	Ohba, Tosh.Yoshida & Sun	Yunnan
<i>Meconopsis castanea</i>	Ohba, Tosh.Yoshida & Sun	Yunnan
<i>Michelia viridipetala</i>	Law, Zhou & Yi	Yunnan
<i>Musa chunii</i>	Häkkinen	Yunnan
<i>Nepenthes bokorensis</i>	Mey	Cambodia
<i>Nepenthes thai</i>	Cheek	Thailand

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new species discovered in 2009, adding to the 1200 newly identified since 1999



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declared International Year of Biodiversity by the United Nations and presents an opportunity for countries in the region to make ecosystem-based adaptation a primary strategy for building resilience to climate change

5

themes of the Global Environment Facility (GEF) could support greater region-wide natural resource management. The six countries of the region should commit to this mechanism to leverage further resources



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To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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