

New snake species and genus discovered in Myanmar

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Mud snake *Myanophis thanlyniensis*. Credit: Gunther Köhler

Mud snakes (family Homalopsidae) live in wetlands across Southeast Asia. Their habitats include natural swamps and open lands flooded during the rainy season, typically rice paddies. Scientists of the Senckenberg Research Institute in Frankfurt and the East Yangon University have now discovered a new species in a wetland near the

university campus. "We collected four individuals with short tails during fieldwork. We could not assign them to any known mud snake species," explains Prof. Dr. Gunther Köhler, herpetologist at the Senckenberg Research Institute and Natural History Museum Frankfurt.

Morphological analyses initially showed that the individuals are closely related to the mud snake genera *Myrophis* and *Gyiophis*. "However, their smooth dorsal scales, relatively short tail, separate nasal scales, the unusual number of their ventral, dorsal and subcaudal scales, and the two-lobed mating organ, the hemipenis showed that these individuals belong to a distinct new [species](#) and genus," explained herpetologist Gunther Köhler. "The species must have a very small distribution, otherwise it would have certainly been discovered earlier. Their ecology and population dynamics is basically unknown." Prof. Dr. Gunther Köhler has already discovered and described more than 120 new species of amphibians and reptiles during his career.

Additional genetic analyses confirmed the finding. When new species are described, a 'typical' specimen, the so-called holotype is deposited in a museum collection for future reference and comparison. As a novelty to the classic species description process, the holotype of the new species was genome-sequenced at LOEWE-TBG. The genome has been assembled into a draft nuclear genome and a complete, annotated [mitochondrial genome](#). "The genome of a holotype is an invaluable resource," explains Prof. Dr. Axel Janke, spokesman of LOEWE-TBG. "On one hand, it provides us with information about the genetic variation of the holotype, and on the other hand, it enables us to genetically compare the holotype with other specimens during future phylogenetic and taxonomic research projects."

Until recently, this comparison has been made almost exclusively on the basis of morphological characters or a few mitochondrial markers. The genome generated by holotype sequencing is similar to a genetic

fingerprint of the new species. "Such genetic fingerprints are enormously important in future biodiversity research," says Janke. "The newly discovered species are often already threatened with extinction, and rare genetic variants may disappear along with the individuals. The genetic material of the holotype may contain information that can be important for the conservation of the species."

The mud snake *Myanophis thanlyinensis* is the first species whose holotype was sequenced in collaboration between the Herpetology Section of Senckenberg and LOEWE-TBG. In the future, the researchers plan to sequence additional holotypes of new frog species from Myanmar, several [new species](#) of lizards, and four new crayfish species from the Antarctic deep sea. The genus name *Myanophis* was derived from Myanmar's abbreviated name 'Myan' and the Greek word 'Ophis' (snake). The species' name refers to the city of Thanlyin where the mud snake was discovered, an important port in Myanmar. The holotype of the *Myanophis thanlyinensis*—the specimen to which the scientific name was formally attached—is now part of the Senckenberg Research Institute and Natural History Museum collections in Frankfurt.

More information: Gunther Köhler et al.

A new genus and species of mud snake from Myanmar (Reptilia, Squamata, Homalopsidae)

, *Zootaxa* (2021). [DOI: 10.11646/zootaxa.4915.3.1](https://doi.org/10.11646/zootaxa.4915.3.1)

Provided by Senckenberg Research Institute and Natural History Museum

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