

# New species of snake described with the help of a 185-year-old painting

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The new species has been named Joseph's racer, *Platyceps josephi*, after a late colleague of the researchers. Credit: Surya Narayanan

A new snake species has been described from the Indian state of Tamil Nadu. The new species, now known as Joseph's racer, was first collected in the mid-19th Century, but the confusion around this snake goes back over two centuries as it has been mixed up with another similar species found across the rest of India.

The discovery started when in 2016 a colleague of Museum associate Dr. Deepak Veerappan brought him a [snake](#) from Tamil Nadu that looked different from the widespread [species](#) normally thought to be found in the area.

A quick assessment of the reptile, looking at both its morphology and genetics, seemed to confirm it was very likely a [new species](#) to science. But little did Deepak and his colleagues know that they'd just pulled at a thread which would unravel a mix-up of snake species that stretched back some 200 years.

Deepak explains, "This new species isn't like other new species that are described, because it has a very checkered past in terms of the literature. Since it is so widespread, many people have studied these snakes and given them lots of different names."

"But one of the biggest problems is that the names between two of the most common species of snakes found in India have been frequently confused."

This confusion can be traced back to a scientist called Albert Günther, who worked at the Museum between 1875 and 1895 and originally mixed up the species.

The species of snake that has caused all this confusion was previously known as the banded racer, or *Argyrogena fasciolata*. The description of this species was, in part, based on snake skins collected in 1796, which are now part of the Museum's collections.

This gave Deepak the extraordinary chance to go back to these original collections and reassess the snakes. The paintings from 185 years ago were so detailed that they allowed Deepak and his colleagues to use them in the description of the new species.

But what Deepak found showed just how much confusion there was surrounding these old descriptions. None of the skins collected in 1796 were from the banded racer, but instead belonged to a completely different species.

Deepak continues, "It took a while for us to untwine this whole thing, It would have been impossible without the snake skins collected by Patrick Russel, who was a Scottish naturalist based on the east coast of India in the late 1700s.

"When I measured all of them we realized that they were all too small, and none of them matched the racer description."

Following the thread through history brought Deepak and his colleagues to a series of natural history paintings produced in 1836 by a Danish physician and zoologist named Theodore Cantor.

Cantor was working for the British East India Company, during which time he used this position to become the first western scientist to collect and scientifically describe many species, including the Siamese fighting fish and king cobra.

He also collected paintings of many of these animals, including of many snakes. Crucially, these paintings, now held at both the Museum (B.H. Hodgson's collection) and the Bodleian Library in Oxford (Cantor's collection), are so detailed that even the number of scales on the snake's heads can be counted, which can be used to tell species apart.

It turned out that few of the snake paintings drawn some 185 years were misidentified. After studying the paintings and wading through all the literature surrounding the banded racer, including reassessing over 400 different accounts of the snake, they managed to confirm that the racer was not just a single species as had long been thought.

The new species that has now been identified is now known as Joseph's racer, *Platyceps josephi*. The species has been found to have a much more restricted distribution, found only in the south-eastern state of Tamil Nadu, which may have an impact on the snake's conservation.

Deepak concludes, "The Joseph's racer is not particularly common. We have given a recommendation based on their distribution and the data available that it is most likely a Vulnerable species because of its restricted distribution."

This work highlights the importance of clearing up this historical confusion, as researchers now know that the species from Tamil Nadu is different and could face threats to its continued survival. It also shows just how important all aspects of collections held at places such as the Museum are. The work relied not only on specimens of the snakes in jars, but also historical skin collections made 225 years ago and paintings held in the library, all combining to clear up one issue of taxonomy.

The full paper is published in the journal *Vertebrate Zoology*.

Provided by Natural History Museum

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