

New fish species discovered after decades of popularity in the aquarium trade

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Redtail garra fish have siskin and olive green scales that abruptly transition to bright orange and red along the tail, making them easy to spot at the bottom of clear streams. Credit: Tangjitjaroen et al. (2023).

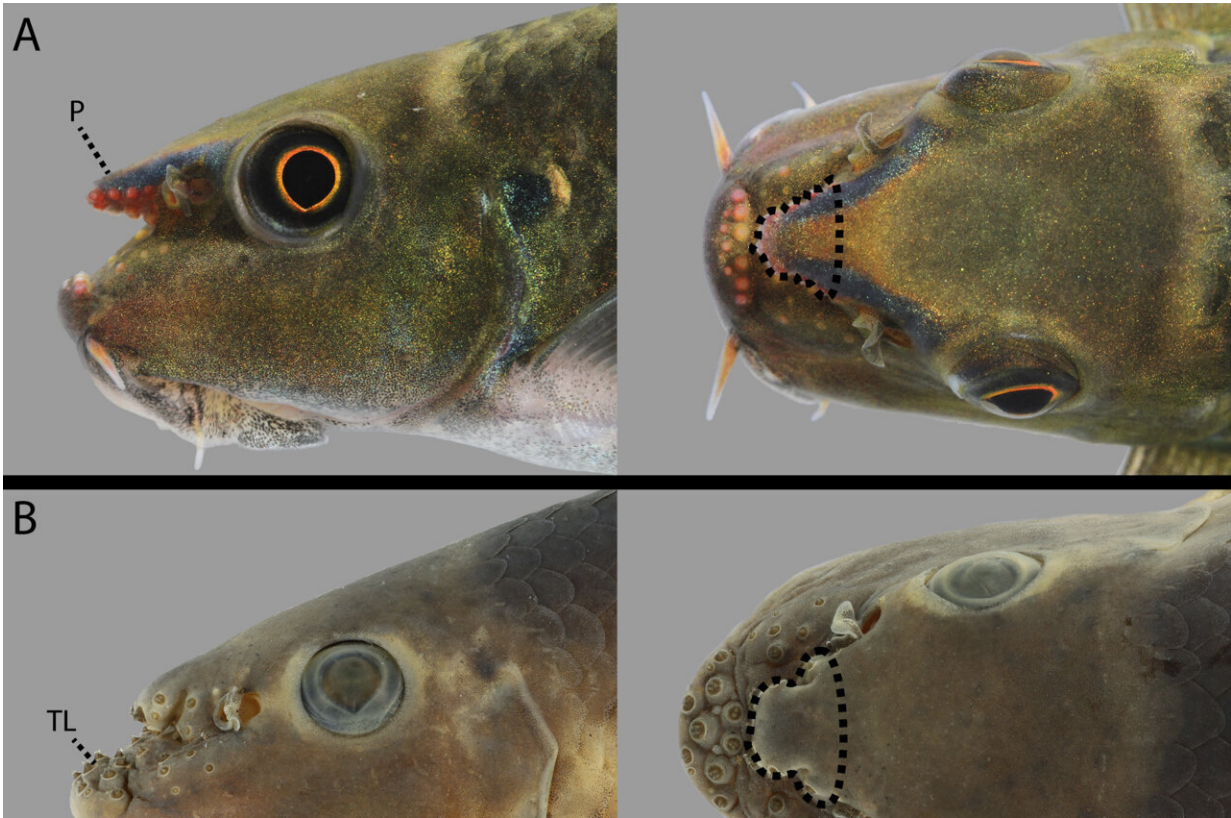
With just a few clicks of a mouse, you can purchase your very own redbtail garra, a type of fish that feeds on algae. Information about the fish's biology, however, is much less easily obtained. That's because redbtail garra, although popular in the aquarium trade since the early 2000s, has until now been unknown to science.

Researchers were peripherally aware of the fish's existence, but "discovering" a new species requires scientific description based on specimens collected in their natural environment. Redtail garras appear to be restricted to a small stretch of river straddling the border between Thailand and Myanmar. The locality is isolated and difficult to reach, so wild redtail garras have existed in relative obscurity, despite their global appeal.

Larry Page, curator of ichthyology at the Florida Museum of Natural History, has surveyed fishes in Thailand every year since 2007. He recently encountered a few redtail garras while conducting fieldwork along the Kasat River, a tributary of the Ataran River in neighboring Myanmar.

"When we first collected specimens, we thought it must be widespread in Myanmar because of its popularity in the aquarium trade. But it turns out it's not. It's only in the Ataran River basin," he said.

Page and his colleagues published the new species description in the journal *Zootaxa*. Redtails take their place among nearly 200 additional species in the genus *Garra*, one of the most diverse and widely distributed fish groups anywhere on Earth. *Garra* can be found in streams and rivers from the farthest reaches of western Africa through the Middle East, India and southern and eastern Asia, including parts of China. Yet their ubiquity has not resulted in a corresponding amount of research on the group.



Many *Garra* species have faces and snouts encrusted with barbed nodules called tubercles, which may be used to attract mates or to fend off adversaries. Credit: Tangjitjaroen et al. (2023), CC-BY

"There's surprisingly little information on their natural history," Page said. There are few studies that broadly assess diversity in the genus, and little is known about relationships or how various groups within *Garra* have diversified.

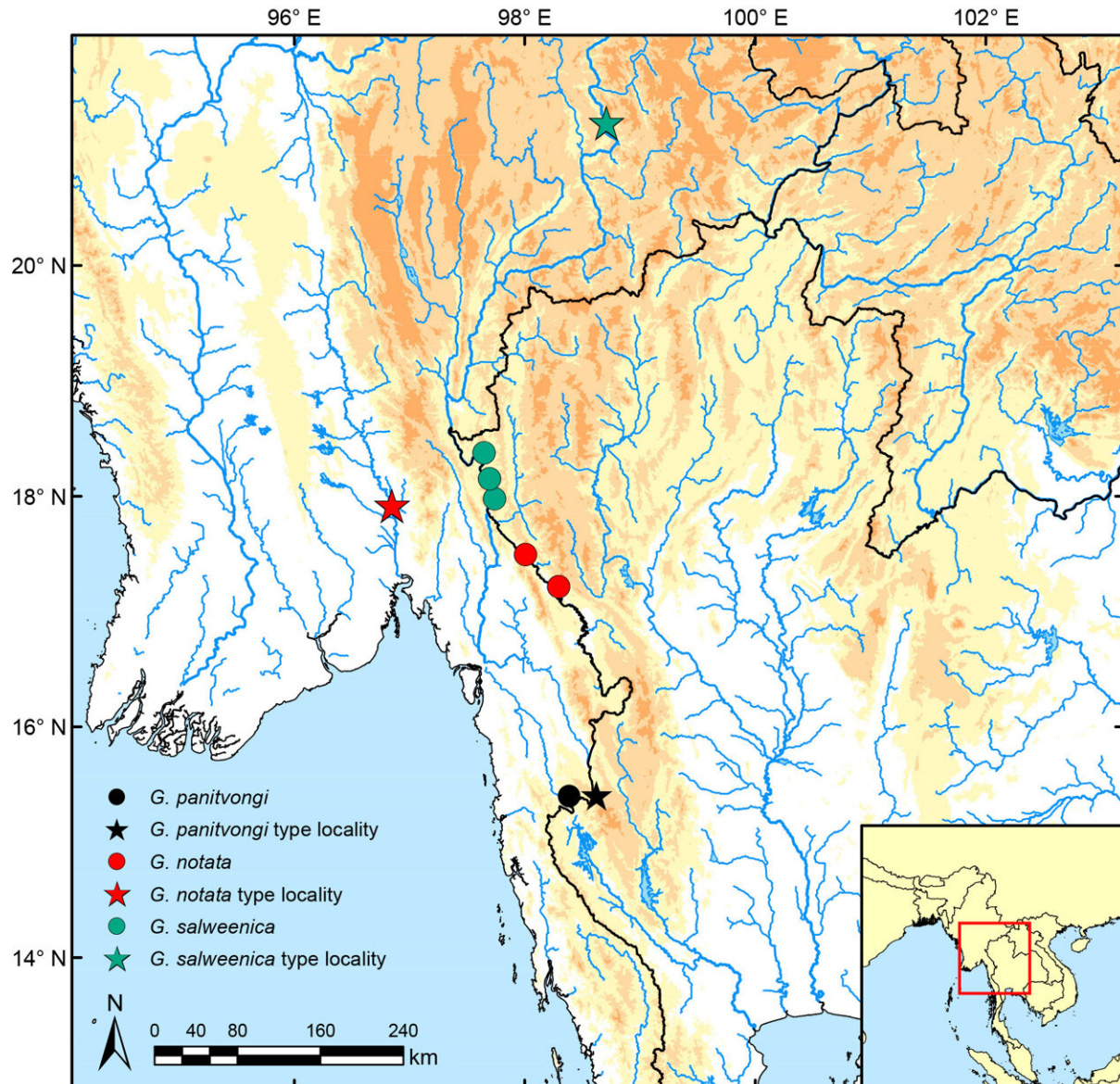
According to Page, basic information about the fishes' biology is available, but often in the form of studies on individual species or regions. "Most of them live in fast-moving water, and they have a disclike structure formed from a modification of the lower lip, which they use as an adhesive pad to cling to rocks and maintain their position

in the water column as they feed," he said.

Garra primarily subsist on algae and the occasional arthropod, which they eat by scraping detritus off rocks with specialized mouth parts. Like other species in the genus, redtails lack stomachs, and have a snout encrusted with modified and hardened scales called tubercles. Similar structures in other fish groups are temporary; they're used to defend nests but fall off after the breeding season has ended. Redtail tubercles are permanently attached and seem to be used as weapons, based on aggressive behavior observed in aquaria.

Redtail garra can be distinguished by their unique, elongated [snout](#), covered in even more tubercles, which they can raise or lower, ostensibly as a means of intimidating opponents during combative encounters. As their common name suggests, their tails are emblazoned in red like a signal fire.

Their unique color pattern and their industrious ability to clear away algae have made them a coveted component of aquarium tanks, but their late addition to the roster of scientifically described species underscores a pressing need to take stock of biodiversity in understudied regions.



Populations of redtail garra appear to be restricted to a small river basin that crosses the border between Thailand and Myanmar. Credit: Tangjitjaroen et al. (2023)

Page, who is working on a book describing the fishes of the Mae Klong River basin in Thailand, said the belated description of redtail garra is

part of a larger recurring pattern. "Many of the fishes in Southeast Asia are referred to by names given to species discovered in India or Indonesia because they look similar." People know particular species exist, Page said, but they are mistaken for those from other geographic areas, and their diversity has consequently been drastically underestimated.

Page and his colleagues named the [new species](#) *Garra panitvongi*, after the author of another book on Thailand's fishes, Nonn Panitvong. Lauded as a biodiversity hero by the Association of Southeast Asian Nations, Panitvong is both a businessman and an avid naturalist. He's nurtured a passion for nature since his childhood days spent translating books about animals written in English with the help of his mom. He developed a special appreciation for Thailand's aquatic life from his dad, who took him on fishing trips.

"Over the years, I found that in many of the places we went fishing, the environments were getting worse. There were fewer fish overall, and the fish assemblage changed for the worse, with a decreasing number of native species and more invasives," he said.

Panitvong obtained a Master of Business Administration at the University of North Carolina Wilmington so he could effectively run his family's sugarcane farm, but when it came time for a doctorate, he opted to study environmental science. After returning to Thailand, he created the website Siamensis.org, an open platform on which nature enthusiasts could share information about Thailand's flora and fauna and plan excursions to wilderness areas.

In 2006, Panitvong and a friend discovered one of Thailand's redbtail garra populations and helped introduce the [fish](#) to the aquarium trade. Now, more than 15 years later, he said the official naming of redbtail garra—and the discovery of species like it—help bring the world into

clearer focus.

"I like to imagine humanity in a big room, painted in white. As we turned around, we would have no conception of which direction we were facing," he said. "With each new discovery, a dot is added, a point made, and we know more and more about where we stand as a species."

More information: Weerapongse Tangjitjaroen et al, 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* (2023). [DOI: 10.11646/zootaxa.5311.3.3](https://doi.org/10.11646/zootaxa.5311.3.3)

Provided by Florida Museum of Natural History

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