

**First record and range extension of *Hypostomus khimaera*
(Siluriformes: Loricariidae) in lowlands of Bolivia**

**Primer registro y ampliación de la distribución de *Hypostomus khimaera*
(Siluriformes: Loricariidae) en tierras bajas de Bolivia**

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Hypostomus khimaera Tencatt, Zawadzki & Froehlich was originally described from the state of Mato Grosso do Sul, Brazil (15°39'03"S 57°12'54"W) and is known as a semipopular species in the international ornamental fish trade. The type locality of *H. khimaera* is located around 400 km in the north-east of the herein described new location. This is the first record from Bolivia and increases the species' extension range drastically to the west.

IDENTIFICATION OF *Hypostomus khimaera*

H. khimaera can be distinguished from congeners, except the species in the *H. cochliodon* group, by the absence of a notch between metapterygoid and hyomandibula; and by the strongly angled dentaries, with up to about 80° between dentaries (vs. more obtusely angled dentaries, with clearly more than 80° between dentaries) (Tencatt *et al.* 2014). *H. khimaera* can be distinguished from all species of the *H. cochliodon* group, except *H. basilisko* Tencatt, Zawadzki & Froehlich 2014 and *H. soniae* Hollanda Carvalho & Weber 2005 by the presence of a dark lateral stripe on the side. *H. khimaera* can be distinguished from *H. basilisko* and *H. soniae* by the presence of small dark spots on the body and the fins (Tencatt *et al.* 2014).

We collected 13 specimens in two sites and identified all of them based on the phenotypical characteristics from the species description. Three specimens were conserved, examined and additionally identified on the morphological characteristics from the species description. In juvenile specimens the dark spots can fade and perish in the reddish-brown base color. Spots tend to get more numerous with aging and spread almost all over the body. Juvenile specimens often show no spots at all in the fins (Figure 1), but multitudinous once adult (Figure 2). Spots can be seen better if the fish is stressed and are always present behind the eye and below the dorsal fin, even if small and few.



Figure 1. Juvenile specimen of *H. khimaera* (58 mm TL).



Figure 2. Adult specimen of *H. khimaera* (140 mm TL).

Farrel & Cancino 2007 collected one specimen of the genus *Hypostomus* in Río Tucavaca downstream of our collection site and identified it as *Hypostomus cochliodon*. They do not provide a picture or collection number to compare the specimen to *H. khimaera*, but it is possible they already collected this species. *H. khimaera* can be distinguished from *Hypostomus cochliodon* by the presence of a dark stripe along the midline on flank (vs. absence of midline stripe). Furthermore, the opercle in *H. khimaera* has a different morphology, it resembles that seen in *H. plecostomoides* and *H. soniae*. In *H. cochliodon* the opercle resembles that observed in *H. ericius* and *H. pyrineusi* (Armbruster, 2003).

Before the species description specimens of *H. khimaera* were considered to be a variation of *H. cochliodon*, this is another possible explanation for the identification. But, as Lopes *et al.* (2024) state, *H. cochliodon* and *H. khimaera* often occur in syntopy

in the Rio Paraguay basin in Brazil, and it is therefore also possible they correctly identified the captured specimen as *H. cochliodon*.

LOCATIONS AND BIOTOPE DESCRIPTIONS

Río Aguas Calientes (18°27'20.70"S 59°30'37.80"W, Figure 3 & 5)

On 21st of February 2022 the water was slightly greenish, but clear. The current was slow. While the bottom substrate consisted of fine sand, depressions and areas with no current were covered with leaf litter from trees surrounding the place. Both banks of the stream were overgrown by terrestrial plants, branches and leaves were extending into the water. No macrophytes were found. At a narrow point of the stream bigger branches and stems were forming a small natural dam, peppered with leaves and debris from upriver. Numerous juvenile individuals of *H. khimaera* were observed in this accumulation of wood, as they were grazing on its surfaces. At one point the stream, a wooden stay had been built, attached to which we also found specimens of *H. khimaera*. Specimens collected at this location measured between 25 - 58 mm TL. Five specimens were collected, none were conserved because of their small size and therefore relatively low value as comparative material.



Figure 3. Río Aguas Calientes at the described location.

Río Tucavaca (18°12'55.00"S 59°28'4.98"W, figure 4 & 5)

The Tucavaca at this location is a small, typical lowland stream. On 26th of February 2022 the water level was very low and did not exceed 40 cm at the deepest point. The water was clear and relatively fast flowing. No macrophytes were found. All collected specimens of *H. khimaera* were found attached to dead wood. It had fallen into the water and was in parts natural, and in parts construction wood from the nearby wooden bridge. This represents a typical habitat to find *Hypostomus* of the *Cochliodon*-group in. The

bottom substrate consisted of fine sand, and fewer semi large rocks. They were covered in algae and biofilm, a potential nutrition source for *H. khimaera*. Most of the stream's banks were shaded by treetops, only the centre of the stream was laying open to the sun. Specimens collected at this location measured between 50 - 140 mm TL. Nine specimens were collected; three individuals were conserved in 96 % EtOH (MNKP-16534) the others were released.



Figure 4. Río Tucavaca at the described location, where MNKP-16534 was collected and conserved.

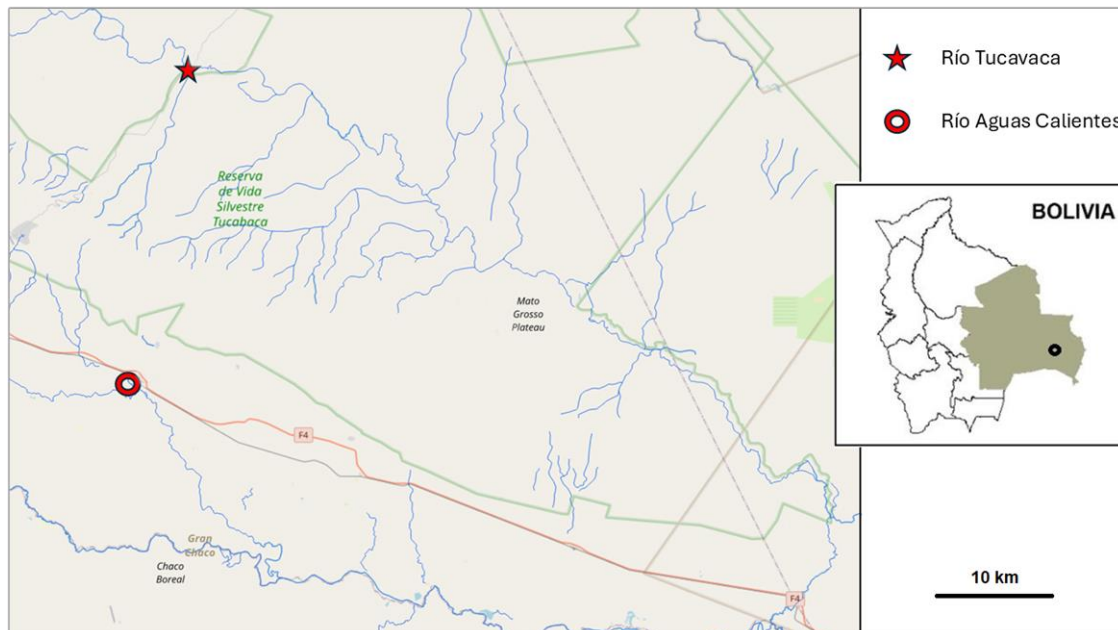


Figure 5. Map showing the reported locations in the east of Bolivia.

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