

# *Astyanax intermedius* Eigenmann, 1908 (Actinopterygii: Characiformes: Characidae): Distribution extension in eastern Brazil

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**ABSTRACT:** *Astyanax intermedius* is known to occur at Paraíba do Sul River basin and coastal rivers of Rio de Janeiro state. A detailed study is presented in order to clearly assign the species to the Doce River basin, in Minas Gerais state.

*Astyanax scabripinnis intermedius* Eigenmann, 1908, was described to include specimens Eigenmann (1927) considered morphologically intermediary between *Astyanax scabripinnis* and *A. taeniatus*, and that were collected in Rio Paraíba (= Paraíba do Sul River), Rio Mucari (= Mucuri River) at Santa Clara, Itapemirim River at Muniz Freire and Velhas River at Sete Lagoas. Eigenmann (1927) cited one specimen from Doce River, between Linhares and Porto Souza, as “probably” belonging to *A. scabripinnis intermedius*. Fowler (1948) mentions the Paraíba River at Santa Clara as the type locality of the species but regards the type series as including specimens from Entre Rios (Paraíba River), Muniz Freire (Itapemirim River), Barra do Piraí (Paraíba River), Jacareí (Paraíba River) and Sete Lagoas (Velhas River), that is, originally the species was clearly recognized to occur in the basins of Paraíba do Sul River, Itapemirim River, and São Francisco River. Melo (2001) elevated the subspecies to species level, as *A. intermedius*, distinguished it from other congeners from Serra dos Órgãos region, in Rio de Janeiro state, as well as redescribed it based on type specimens and complementary material; further, the author designated a lectotype and paralectotypes. Buckup (2003) recognizes the range of distribution of the species as including the Paraíba do Sul River basin and “coastal rivers of Rio de Janeiro state”.

Specimens (Figure 1) were collected in a private reserve of natural patrimony, belonging to Centrais Energéticas de Minas Gerais (CEMIG), including part of the Santa Bárbara River and tributaries, at the municipality of São Gonçalo do Rio Abaixo, 19°52'52" S, 43°22'31" W (Figure 2), Minas Gerais state. The Santa Bárbara River is a left bank tributary of Piracicaba River, itself a left bank tributary of Doce River. Examined specimens are: DZUFMG (Departamento de Zoologia da Universidade Federal de Minas Gerais) n° 054 (20, 69.5-82.5 mm SL) and n° 055 (2, 67.4-75.9 mm SL). Studied specimens of *Astyanax intermedius* from the type locality basin include 25 specimens (33.4-90.7 mm

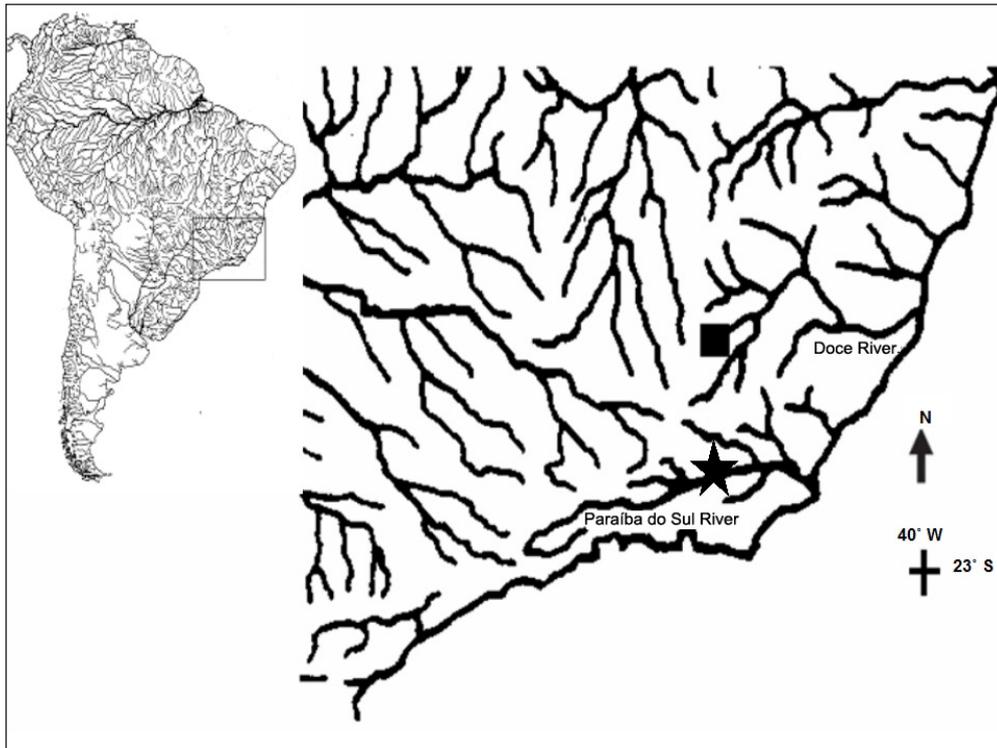
SL), taken from MZUSP 16708 (10 specimens), MZUSP 43830 (10 specimens) and MZUSP 47737 (5 specimens).

Measurements and counts were taken following Fink and Weitzman (1974). Additional measurements are: (1) postorbital distance (from the posterior bony orbital margin to the bony posterior margin of opercle), (2) length of the dorsal-fin base, (3) length of the anal-fin base, (4) head depth (at a vertical through the posterior tip of the supraoccipital spine) and (5) gape width (from anterior snout tip to posterior tip of maxillary bone). All measurements were taken point-to-point as straight-line distances, using calipers. Body measurements



**FIGURE 1.** Lateral view of *Astyanax intermedius*, 75.0 mm SL, DZUFMG 054.

were transformed into percentages of standard length and cephalic measurements were transformed into percentages of the head length. Measurements and counts were made on the left side of the specimens. Two specimens were cleared and stained for teeth count, as in Taylor and Van Dyke (1985). The literature used in comparisons include: Bertaco and Lucena (2006), Eigenmann (1921, 1927), Casciotta *et al.* (2005), Géry (1977), Melo (2001), Miquelarena and Menni (2005) and Vari and Castro (2007).



**FIGURE 2.** Map of the distribution of *Astyanax intermedius* in Doce River basin and in the type locality basin. Star: type-locality (Paraíba do Sul River); square: new record of *A. intermedius* (tributary of Doce River).

*Astyanax intermedius* differs from most species of the genus by having the origin of the dorsal fin slightly anterior to the middle of standard length; 31-40 lateral line scales; conspicuous and vertically elongate humeral spot, surrounded by a clear area; a dark caudal spot continued onto middle caudal-fin rays; a silvery longitudinal midlateral stripe, covering a dark stripe running anteriorly from the caudal peduncle spot; 17 to 26 anal-fin rays; four teeth in the outer row of the premaxillary. Other species of *Astyanax* with similar characteristics are *A. eigenmanniorum*, *A. giton*, and *A. pampa*.

*Astyanax intermedius* is distinguished from *A. eigenmanniorum* by the pectoral-fin tip about one eye diameter from pelvic-fin origin (vs tip of pectoral fin surpassing pelvic-fin origin, in *A. eigenmanniorum*; Eigenmann, 1921: pl. 48, figs. 1-2). *Astyanax intermedius* differs from *A. giton* by the presence of four teeth in the front row of the premaxillary (two or three in *A. giton*; Eigenmann, 1921: 281). *Astyanax intermedius* differs from *A. giton* by the presence of dentary teeth decreasing abruptly from 4-8 teeth (vs. gradual decrease, from the symphyseal to the last tooth, in *A. giton*; Melo, 2001: 7). *Astyanax intermedius* differs from *A. pampa* by having one to three teeth with 5 to 6 cusps in the maxilla (vs. only one maxillary tooth, with one to three cusps, in *A. pampa*; Casciotta et al., 2005). Further, the collected specimens did not show any differences from the redescription presented by Melo (2001) and can only be identified as *A. intermedius*.

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