

Rediscovery of the missing type specimens of *Farlowella hahni* (Siluriformes: Loricariidae)

Wiederentdeckung der verschollenen Typusexemplare von *Farlowella hahni*
(Siluriformes: Loricariidae)

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Summary: The original syntypes of *Farlowella hahni* Meinken, 1937 have been considered to be lost since World War II. The recent rediscovery allowed us to compare these specimens with the original description and confirm their identity. The designated neotype is set aside as it loses the status of type specimen by the rediscovery of the original types. The Western arm of the río Paraguay's mouth into the río Paraná just north of the city of Corrientes is determined as the original type locality.

Key words: Argentina, Corrientes, Paraguay, Paraná, invalid neotype

Zusammenfassung: Die originalen Syntypen von *Farlowella hahni* Meinken, 1937 galten seit dem Zweiten Weltkrieg als verschollen. Deren Wiederauffindung hat es möglich gemacht, diese Exemplare mit den Angaben in der Beschreibung zu vergleichen und deren Identität zu bestätigen. Der nachträglich festgelegte Neotypus verliert durch die Wiederauffindung der Originaltypen seinen Status als Typusexemplar. Der westliche Mündungsarm des Río Paraguay in den Río Paraná nördlich der Stadt Corrientes wird als die originale Typuslokalität festgelegt.

Schlüsselwörter: Argentinien, Corrientes, Paraguay, Paraná, ungültiger Neotypus

1. Introduction

During the mid 1930s Carlos HAHN had sent several times specimens of fishes for determination to Hermann MEINKEN, Bremen, which he had collected in the area of his hometown Corrientes, Argentina (MIRANDE et al. 2020). The activities of both gentlemen today would be classified as 'Citizen Science' (HAKLAY et al. 2021). HAHN was very interested in the nature of his surround and anxious to know the identity of the specimens of fishes he collected (MIRANDE et al. 2020), while MEINKEN, by profession a high school teacher in natural sciences, was an advanced amateur in ichthyological taxonomy, cooperating with Ernst AHL (KORTHAUS 1976; ZARSKE & BERKENKAMP 2015), during the 1920s

and 1930s ichthyologist at the Museum for Natural History in Berlin.

Of those specimens received from Argentina he used two to describe *Farlowella hahni* Meinken, 1937 as a new species (MEINKEN 1937). For all species treated in this publication MEINKEN did not indicate individual localities, but only mentioned that HAHN had collected them near Corrientes. These syntypes have been subsequently considered lost (ISBRÜCKER 1979); RETZER & PAGE (1997) designated a neotype from a close-by locality in Paraguay, on the opposite side of the Paraná River. In early 2019, the two original type specimens have been rediscovered in the ichthyological collection at the Museum für Naturkunde in Berlin, Germany and the first author of the

present article has been notified about that discovery by Peter BARTSCH, the responsible curator of fishes in this institution. This is the third time that specimens originally deposited by MEINKEN could be found in Berlin over 80

years later and have been generously offered to us for investigation (KOERBER & WEBER 2014; AZPELICUETA & KOERBER 2015). The objectives of the present article are comparisons between original description and these two specimens,

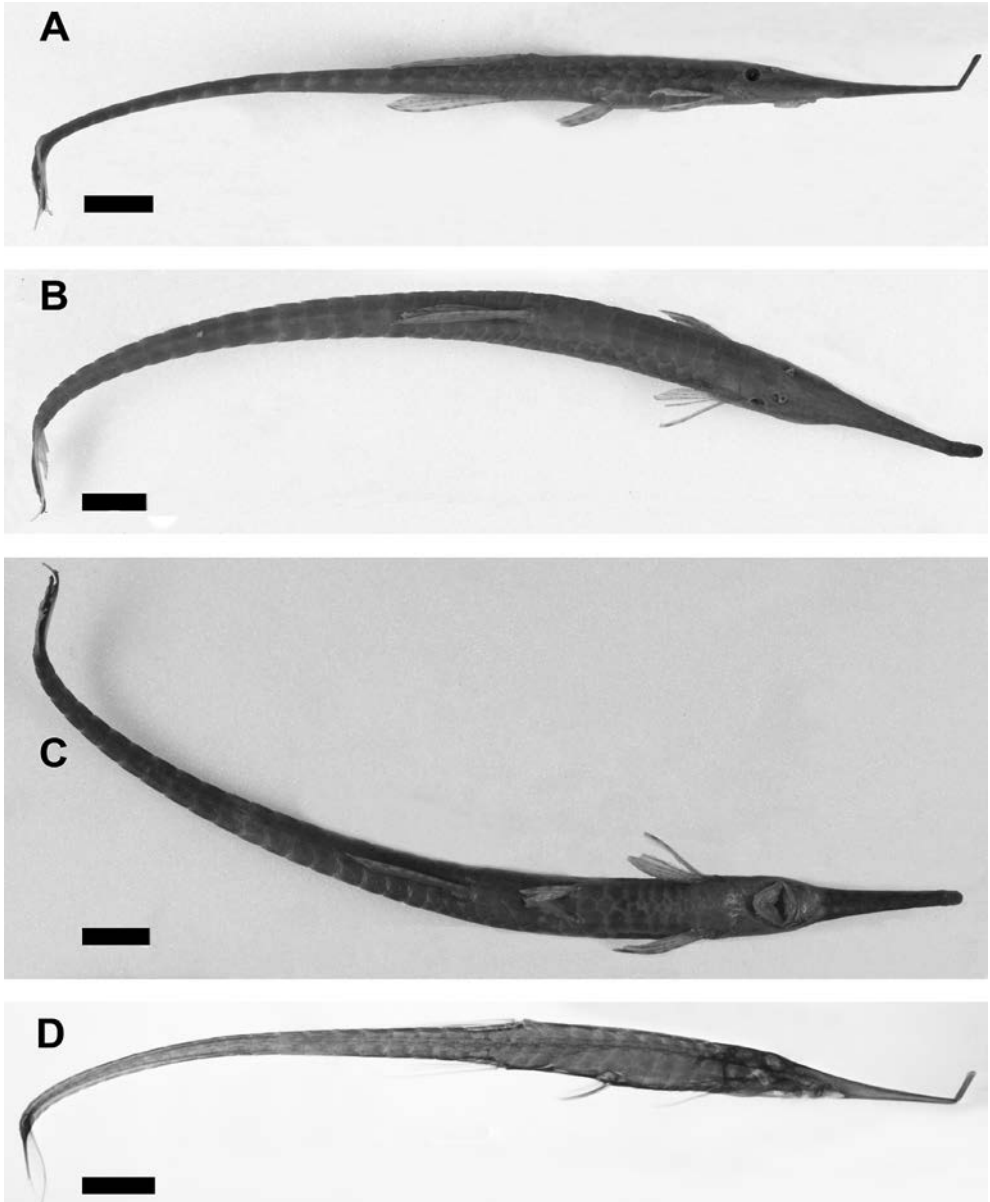


Fig. 1: Larger syntype of *Farlowella habni* Meinken, 1937, 162 mm SL. **A** Lateral view. **B** Dorsal view. **C** Ventral view. **D** Radiograph of the specimen. Scale bar= 1 cm.

Abb. 1: Der größere Syntypus von *Farlowella habni* Meinken, 1937, 162 mm SL. **A** Seitenansicht; **B** Rückenansicht; **C** Bauchansicht. **D** Röntgenaufnahme des Exemplars. Maßstab = 1 cm.

addition of new information, and considerations about the type locality.

In the River Paraguay and River Paraná basins there are five species belonging to the siluriform genus *Farlowella*: *F. jauruensis* Eigenmann & Vance, 1917, *F. bahni* Meinken, 1937, *F. isbruckeri* Retzer & Page, 1997, *F. paraguayensis* Retzer & Page, 1997 and *F. azpelicuetae* Terán, Ballen, Alonso, Aguilera & Mirande, 2019. The latter and *F. bahni* are present in Argentinian waters (TERÁN et al. 2019; MIRANDE & KOERBER 2020).

2. Methods

The measurements and counts follow RETZER & PAGE (1997) and BALLEEN et al. (2016). Vertebral count includes the PU1+U1 counted as one element excluding the Weberian apparatus. The radiographs and photographs were made at ZMB. Abbreviations for collections are: UMMZ for University of Michigan Museum of Zoology, Ann Arbor, Michigan, U.S.A., and ZMB for Museum für

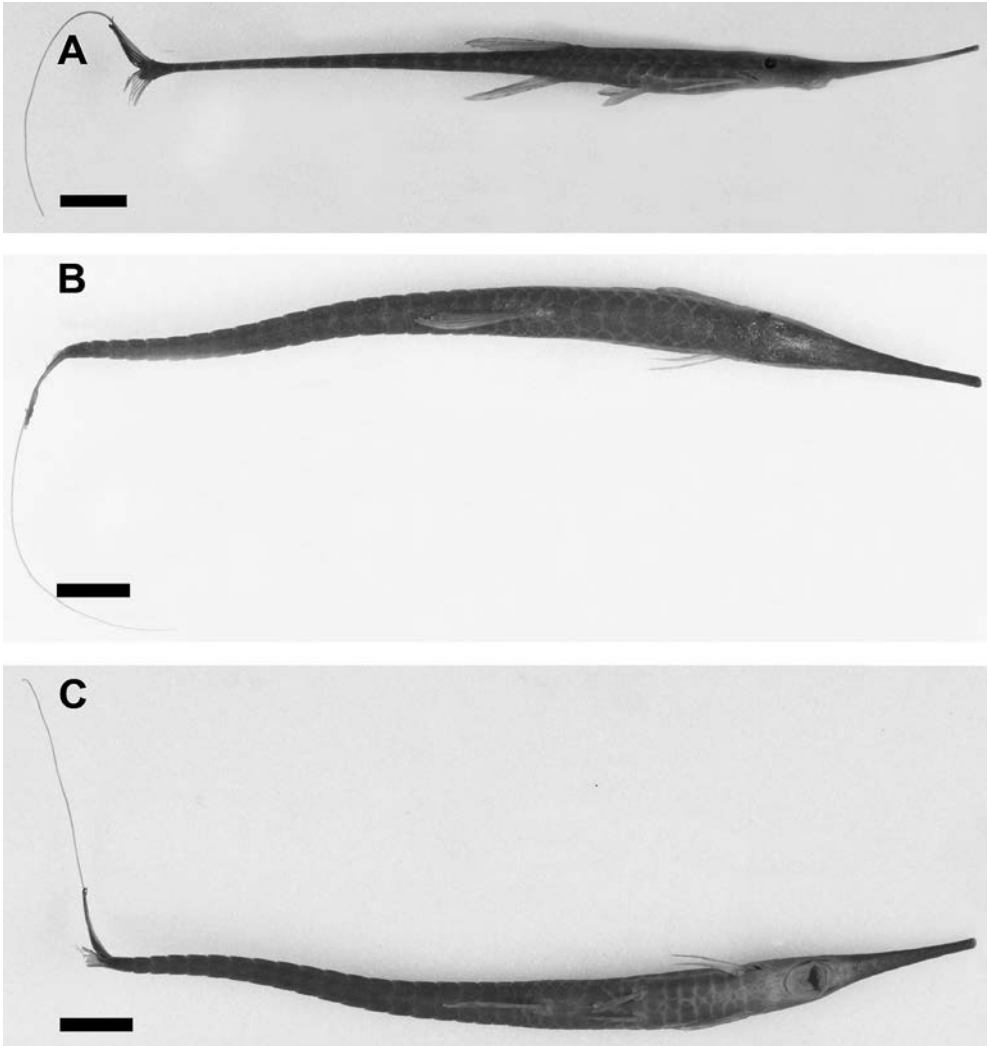


Fig. 2: Smaller syntype of *Farlowella bahni* Meinken, 1937, 126.5 mm SL. **A** Lateral view; **B** Dorsal view; **C** ventral view. Scale bar = 1 cm.

Abb. 2: Der kleinere Syntypus von *Farlowella bahni* Meinken, 1937, 126,5 mm SL. **A** Seitenansicht; **B** Rückenansicht; **C** Bauchansicht. Maßstab = 1 cm.

Naturkunde (Zoologisches Museum Berlin),
Berlin, Germany.

3. Examination of specimens

Registration in Zoobank: pub:E41D6501-
E2AD-47A4-BD84-FF101A59BD11.

ZMB 35296, 2 ex., SL 162.0 mm and 126.5 mm
(figs 1, 2, 3).



Fig. 3: Detail of pigmentation in caudal fin. **A** 126.5 mm SL; **B** 162.0 mm SL. Scale bar= 1 cm. **C** Label found with syntypes of *Farlowella habni* Meinken, 1937.

Abb. 3: Details der Schwanzflossenpigmentierung. **A** 126,5 mm SL; **B** 162,0 mm SL. Maßstab = 1 cm. **C** Das mit den Syntypen von *Farlowella habni* Meinken, 1937 aufgefundene Etikett.

The syntypes found at ZMB at present have the following measurements. In SL: head 3.2-3.6; posterior margin of head to dorsal-fin origin 5.2-5.5; snout 6.3-6.5. In HL: orbit 16-17; interorbital distance 6.3-6.5; head width 4.2-4.5; body depth 6.5; length of first dorsal fin ray 2.0; length of first anal fin ray 2.5. Ratio pectoral fin length/dorsal fin length 1.3. Dorsal fin scarcely longer than anal fin, 1.1-1.2. These measurements agree with those indicated by MEINKEN (1937) in the original description. Also, in the syntypes of *F. habni* we counted four series of lateral plates on body and 10-12 abdominal plates in median line, although the line is irregular. The specimens have 33-34 lateral plates, 7 plates between posterior border of head and dorsal fin origin and 14 lateral plates between head and posterior dorsal fin ray. The number of vertebrae is 33-34. The counts of fin rays are as follows: dorsal fin i,6; anal fin i,5; pectoral fin i,6; anal fin i,5. The largest specimen has the tip of the snout bent (Fig. 1). The smaller specimen has a very long filament in the upper caudal lobe although the tip is broken (Fig. 2); it seems to be a male because of the shape of the urogenital papilla which has a tubular structure as other males of siluriforms.

Comparisons of the pigmentation pattern with those given by MEINKEN (1937) and RETZER & PAGE (1997) are difficult. But it is still partially visible, that the specimens are brown with lighter ventral area, the snout is darker than the remaining body; all fins—excluded caudal fin—are translucent with pigmented small bands in spines and rays and the upper caudal lobe is darker whereas the upper portion of the lower lobe is translucent (Fig. 3 A, B). In the phylogenetic study of the genus *Farlowella*, RETZER & PAGE (1997) used the pigmentation pattern of the caudal fin as a character with four states, giving the state 2 for specimens of *F. habni*; this is the pigmentation of the caudal fin preserved in the shorter syntype. The dark dorsolateral stripe on head sides and part of body extends from snout to the level of dorsal fin origin; it is faint but present in both specimens.

Other measurements obtained in the examination of the syntypes are ratio snout to mouth length to dorsal fin length 1.2-1.3; ratio snout to mouth length to anal fin length 1.4; ratio of

pectoral fin length to distance pectoral origin to pelvic origin 0.7-0.8; snout to mouth length to pectoral fin length 1.7-1.8, and the distance snout to mouth length longer than fins. The plates of the caudal peduncle are wider than long. Also, other counts in the syntypes are 22 postdorsal plates; 14 anterior lateral plates; 19 posterior lateral plates, 21-22 postanal plates and 23-25 abdominal plates.

The comparison between the values presented in the original description and those obtained in the examination of rediscovered specimens indicate that both, measurements and counts, match with those given by MEINKEN (1937). Thus, it confirms that the two rediscovered specimens represent the original syntypes of *F. habni* Meinken, 1937.

4. Comments

4.1. The status of the rediscovered syntypes

ISBRÜCKER (1979) commented that the original type material of *F. habni* was lost in World War II. Subsequently, RETZER & PAGE (1997), based on the statement of ISBRÜCKER, considered that the situation of the syntypes was the same and decided to designate a neotype, UMMZ 228132. That action made in the context of their revision of the genus *Farlowella* has been accepted by subsequent authors (FERRARIS 2003, LÓPEZ et al. 2003, FERRARIS 2007). According to the herein presented rediscovery of the original syntypes and following article 75.8 of the currently valid version of the Code (ICZN 1999), which indicates “the rediscovered material again becomes the name-bearing type and the neotype is set aside”, the specimen UMMZ 228132 cannot be further considered neotype.

4.2. The type locality of *Farlowella habni*

The type specimens now rediscovered at ZMB appeared with an old label mentioning ‘Corrientes’ and ‘Paraguay’ (Fig. 3C). The information available indicates that HAHN never sent specimens collected somewhere far from the city of Corrientes. In personal letters, HAHN informed MEINKEN that the mouth of the River Paraguay is only 5 km upstream the River Paraná from the

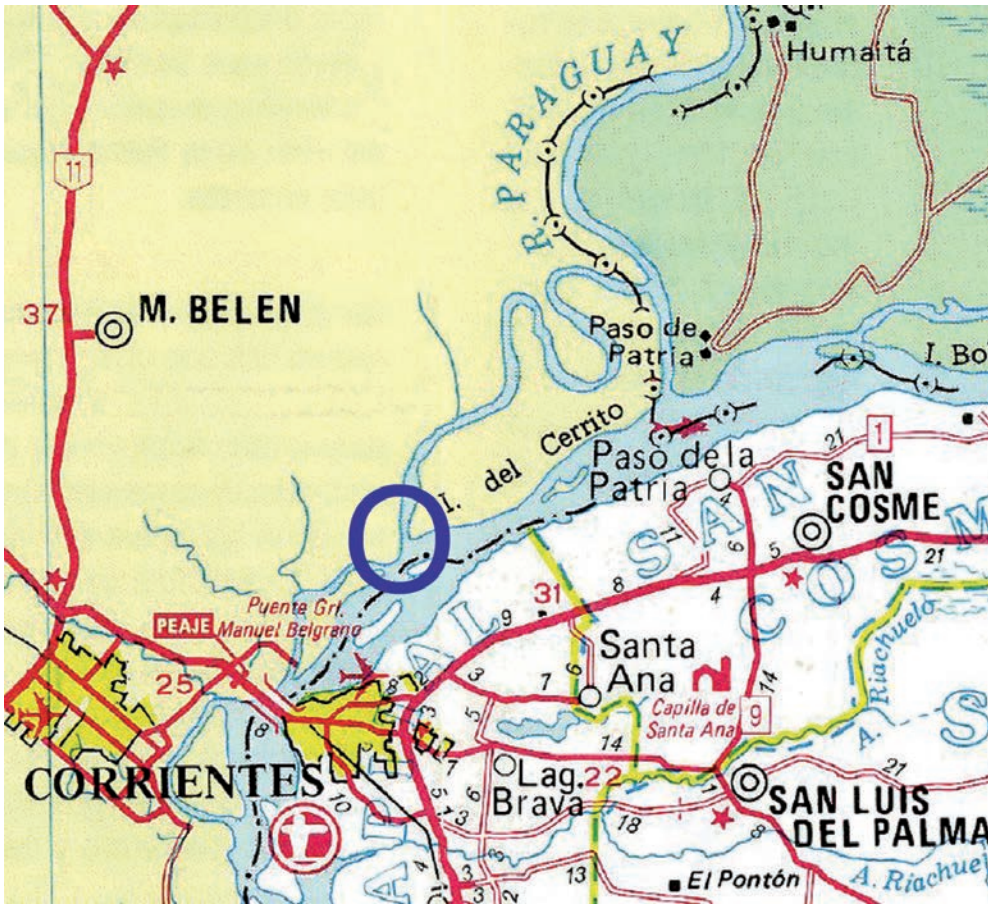


Fig. 4: Map of the northwest of Corrientes province and its homonymous capital Corrientes City (ACA 1999), showing the two arms of the mouth of Paraguay river into the Paraná river. The mouth of the western arm is located just north of the City of Corrientes (marked by blue circle) and was reachable for HAHN by boat. Province of Corrientes with white, province of Chaco with pale yellow, and country of Paraguay with green background.

Abb. 4: Die Karte der nordwestlichen Provinz Corrientes mit der gleichnamigen Hauptstadt Corrientes (ACA 1999) zeigt die beiden Mündungsarme des Paraguay in den Paraná. Die Mündung des westlichen Mündungsarms liegt genau nördlich der Stadt Corrientes (markiert durch einen blauen Kreis) und war für HAHN in einem Boot erreichbar. Provinz Corrientes mit einem weißen, Provinz Chaco mit einem gelblichen und das Land Paraguay mit einem grünen Hintergrund dargestellt.

City of Corrientes, that he used to go fishing in a rowing boat and that he had collected fishes in the River Paraguay (MEINKEN 1936a, b), e.g. *Prionobrama filigera*.

Thus, we here consider that the word ‘Paraguay’ on the original label refers to the Western one of the two arms that form the mouth of the Paraguay River into the Paraná River (Fig. 4), but not to the country of Paraguay.

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