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## REDISCOVERY OF THE SYNTYPES OF *CORYDORAS MERIDIONALIS* R. VON IHERING, 1911 (TELEOSTEI, SILURIFORMES, CALLICHTHYIDAE) AND DESIGNATION OF LECTOTYPE

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### ABSTRACT

*Syntypes of Corydoras meridionalis Rodolpho von Ihering, 1911, once regarded as lost, were recently found in the collection of fishes of the Museu de Zoologia da USP. The syntypes had been identified as C. ehrhardti Steindachner, 1910, currently considered a senior synonym of that species. Examination of the rediscovered syntypes corroborates the proposed synonymy. Data on the syntypes are presented and compared with information in the original descriptions of C. ehrhardti and C. meridionalis; a few discrepancies found are discussed. A lectotype is designated for C. meridionalis and a photograph of the specimen is provided.*

KEYWORDS: Taxonomy; Catfish; Neotropical freshwater fish.

### INTRODUCTION

*Corydoras meridionalis* was described by Rodolpho von Ihering (1911) on the basis of an unspecified number of specimens; however it is possible to assume that more than one specimen was examined because it is stated in the original description in two languages: "Compr.: até 60 mm." (Portuguese) and "Korperlänge: bis 60 mm." (German), meaning that the largest specimen examined had 60 mm of length (possibly total length). The syntype series of *C. meridionalis* was deposited at the fish collection of the Museu Paulista, now Museu de Zoologia da Universidade de São Paulo (MZUSP). Britski (1969), in a paper dealing with fish types deposited at that institution, informed that he was unable to find the syntypes of *C. meridionalis*.

Nijssen & Isbrücker (1980) considered *Corydoras meridionalis* a synonym of *C. ehrhardti* Steindachner, an action we presume was largely based on Ihering's description of *C. meridionalis* (whose data mostly agree to those mentioned for *C. ehrhardti*) and also on the closeness of the type localities of both species in the state of Santa Catarina, Brazil: "Colônia Hansa" for *C. meridionalis* and "Flußgebiet des Jaraguá" for *C. ehrhardti*. Colônia Hansa (now Corupá) is located in the Jaraguá river basin, state of Santa Catarina, Brazil (about 26°21'S 48°29'W). Many authors followed Nijssen & Isbrücker (1980) in considering *C. meridionalis* as a junior synonym of *C. ehrhardti*, including recent catalogs and lists by Reis (2003), Ferraris (2007), and Menezes *et al.* (2007).

In an ongoing revision of the *Corydoras* collections at MZUSP we were fortunate to find out a lot

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containing the syntypes of *C. meridionalis*. The lot containing three specimens was identified as *C. ehrhardti* and its label includes the following data: "MZUSP 426 Colonia Hansa, Santa Catarina, det. Miranda-Ribeiro, 1918". In the fish collection catalog book of MZUSP the data pertaining to number 426 indicates the collector as W. Ehrhardt. It is clear then that this lot is the same mentioned by Miranda-Ribeiro (1918), where he listed the fishes from the Museu Paulista, with the following remarks: "*Corydoras ehrhardti* Steind. 4 exemplares. Coll. Hansa, Santa Catharina (n.426 – det. *Cor. meridionalis*)" (p.721). It is also quite evident that Miranda-Ribeiro indicated that the fishes he identified as *C. ehrhardti* were previously identified as *Corydoras meridionalis*.

For some decades after 1914 there was no curator in charge of the fish collection at Museu Paulista. Therefore the museum director at that time sent a large collection of fishes to the Museu Nacional at Rio de Janeiro, where they were examined by Alípio de Miranda-Ribeiro and formed the basis of his 1918 paper listing the fishes that he had identified. Miranda Ribeiro examined the syntypes of *Corydoras meridionalis* and identified them as *C. ehrhardti* but unfortunately did not make any other comment about his decision. However, it is reasonable to assume that Miranda-Ribeiro had already considered *C. meridionalis* as a junior synonym of *C. ehrhardti*, prior to Nijssen & Isbrücker (1980).

A lectotype for *Corydoras meridionalis* is herein elected and designated. Data from the lectotypes and two paralectotypes are compared to data taken

from the original description of the two species, and a photograph of the lectotype is provided. There is no need to provide a full description of these types as the species (*C. ehrhardti*) is well known. Therefore only partial comments are made on the data presented, especially about the discrepancies among them.

## MATERIAL AND METHODS

Measurements and counts herein used follow Reis (1997) except for head length (measured to posterior most portion of operculum) and number of scutes between dorsal and adipose fin, which is the median dorsal zygous scutes that precede the adipose fin. In addition, the pectoral-fin spine length (ossified portion) and the first pelvic-fin ray length (from base to tip) were also measured. Measurements of the syntypes are expressed in mm. Proportional measurements of the syntypes are expressed as fractions of standard length or fractions of head length, following the original descriptions of *Corydoras ehrhardti* and *C. meridionalis*. Measurements and counts were taken on the left side of the specimens whenever possible.

## RESULTS

The largest specimen in the syntype series of *Corydoras meridionalis* (MZUSP 426, 43.6 mm



FIGURE 1: Lateral view of lectotype of *Corydoras meridionalis* (MZUSP 426; 43.6 mm SL).

**TABLE 1:** Biometric data of lectotype (MZUSP 426) and two paralectotypes (MZUSP 101246) of *Corydoras meridionalis*, along with data from the original descriptions of *Corydoras meridionalis* and *Corydoras ehrhardti*.

Character	<i>Corydoras meridionalis</i>			Original description	
	MZUSP 426	MZUSP 104670		<i>Corydoras meridionalis</i>	<i>Corydoras ehrhardti</i>
Counts					
Upper series lateral scutes	23	23	23	23	22-23
Lower series lateral scutes	21	21	21	21	21(20)
Scutes between dorsal/adipose fins	4	4	5	—	4-6
Preadipose azygous scutes	4	4	4	3	2-3(4)
Dorsal-fin rays	I+8	I+7	I+8	I+7	I+8
Pectoral-fin rays	I+8	I+8	I+8	I+7	—
Pelvic-fin rays	i+5	i+5	i+5	7	7
Anal-fin rays	i+6	i+6	i+6	6	7
Measurements					
Standard length (SL)	43.6	29.3	42.8	—	—
Body depth (BD)	14.9	9.6	14.7	—	—
Caudal-peduncle depth (CPD)	5.3	4.3	5.2	—	—
Head length (HL)	12.2	9.2	12.7	—	—
Orbital diameter (OD)	3.6	2.8	3.3	—	—
Snout length (SnL)	6.0	4.3	6.1	—	—
Interorbital width (IW)	5.6	4.1	5.4	—	—
Dorsal-spine length (DSL)	—	6.8	9.3	—	—
Pectoral-spine length (PSL)	11.2	8.2	11.8	—	—
First pelvic-fin ray length (PFL)	—	6.6	6.2	—	—
Predorsal distance (PD)	20.2	4.2	20.4	—	—
Proportions: standard length					
SL/HL	3.57	3.18	3.37	—	3-3.5
SL/BD	2.92	3.05	2.91	3.0	3-3.07
SL/CPD	2.16	2.06	2.10	2.25	—
Proportions: head length					
HL/OD	3.38	3.28	3.84	—	3.5-4.0
HL/IW	2.17	2.24	2.35	—	2.23-2.33
HL/SnL	2.04	2.14	2.08	2.0	2.5
HL/DSL	—	1.35	1.36	1.33	1.27-1.4
HL/PSL	1.09	1.12	1.07	—	1.16
HL/PFL	—	1.40	2.04	—	1.55-1.75
Others proportions					
SnL/OD	1.67	1.53	1.85	2.33	1.5
IW/OD	1.56	1.46	1.64	2.0	1.6-1.7

SL) is designated as lectotype (Fig. 1). The other two syntypes (MZUSP 104670, 42.8 mm and 29.3 mm SL) are thus paralectotypes. Data from these types are presented in Table 1 along with all the counts and proportions given by Steindachner (1910) and Ihering (1911) in the original descriptions of *C. ehrhardti* and *C. meridionalis*, respectively. Analysis and comparisons of these data as well as those taken from other specimens of *C. ehrhardti* from different localities of Southeastern Brazil (Comparative material) corroborate that *C. meridionalis* is a junior synonym of Steindachner's species.

## DISCUSSION

The specimens described by Steindachner (1910) as *Corydoras ehrhardti* were sent to the Vienna Museum by Wilhelm Ehrhardt. Steindachner does not mention this in his article but the name of the species was obviously given in honor to its collector. Besides, Lambourne (1995) reported that W. Ehrhardt collected the types of *C. ehrhardti* in 1909, apparently obtaining these data from people in the Vienna Museum. On the other hand, the catalog book of the MZUSP fish section records that the specimens of *C. meridionalis* sent to the Museu Paulista

by Ehrhardt were collected in 1908. Therefore it is possible that Ehrhardt sent the *Corydoras* specimens first (1908) to the Museu Paulista and subsequently (1909) to the Vienna Museum. Actually not only specimens of *Corydoras* but also a collection of fishes represented by about fourteen species collected in 1908 were sent by Ehrhardt from Colonia Hansa (= Corupá) to the Museu Paulista, according to a survey we have recently accomplished. Ehrhardt was a vigorous collector who also sent zoological material from Santa Catarina state to European museums, especially amphibians and reptiles, in addition to fishes and mammals (Gutsche *et al.*, 2007). The two species of *Corydoras* in question were almost simultaneously published (1910 and 1911), and it is reasonable to suppose that Ihering sent for publication his *C. meridionalis* unaware of the description of *C. ehrhardti* by Steindachner.

Another aspect to be considered relates to the number of specimens in the syntype series. As mentioned, R. v. Ihering did not refer to the number of specimens he examined when describing the new species, but it is reasonable to assume he examined more than one; Miranda-Ribeiro informed that he examined four specimens of *Corydoras ehrhardti* (= syntypes of *C. meridionalis*) but there are only three specimens in the jar we discovered. Such discrepancy can only be explained by the loss of one specimen from the series examined by Miranda-Ribeiro (1918); or from the original syntype series, if we consider that Ihering described the new species on the basis of those four specimens mentioned by Miranda-Ribeiro. In any case, the loss of fish specimens from lots in the Museu Paulista (= MZUSP) was frequent during the period while the institution did not have a fish curator, and several such cases are reported by Britski (1969).

Although Ihering probably examined more than one specimen of *Corydoras meridionalis*, he described the species on the basis of only one individual. This can be inferred by the lack of mention of any variation of descriptive data, as shown in Table 1.

The typical blotches on the body of *Corydoras ehrhardti*, below the dorsal and adipose fins, are very faint on the lectotype (Fig. 1) and paralectotypes of *C. meridionalis*, but are undoubtedly present.

Table 1 shows that the data of the lectotype and paralectotypes of *Corydoras meridionalis* match generally those reported by Steindachner and Ihering, and some minor differences can be attributed to intra-specific variation. The only mismatch of data are the proportions SnL/OD and IW/OD and pectoral- and anal-fin ray counts in Ihering, and the counts of pelvic-fin ray in both Ihering and Steindachner.

The discrepancy of proportions SnL/OD and IW/OD may be attributed to Ihering's different way (or mistake) in measuring orbital diameter. However, additional specimens of *Corydoras ehrhardti* of different sizes and localities (see list of Comparative material) were measured and counted, showing great variation in those proportions (1.61-2.26 and 1.41-2.26, respectively) bringing Ihering's data to ours and Steindachner's.

We attribute Ihering's count I+7 for pectoral-fin rays to the difficulty in observing the last rays of that fin that are very weak and covered by relatively thick skin. Accurate counting of those rays can only be made by removing the skin of the basal portion of the rays. Thus the right count for the pectoral fin should be I+8, a count unfortunately not mentioned by Steindachner. Maybe the same explanation could be used for Ihering's anal-fin ray count (6).

The number of pelvic-fin rays mentioned by both Steindachner and Ihering is 7. We have counted always 6 rays (i+5) not only in the syntype series of *Corydoras meridionalis* but in many other individuals of *C. ehrhardti* (see list of Comparative material). In addition, according to Nijssen (1970), i+6 pelvic-fin rays is very unusual in *Corydoras*. So we cannot explain this discrepancy (Table 1), but we can assert that *C. ehrhardti* commonly has i+5 pelvic-fin rays.

#### Comparative material of *Corydoras ehrhardti* from Brazil

São Paulo: MZUSP 70620 (1), Rio Tejuco, near mouth of Rio Ribeira de Iguape at road to Itapirapuá Paulista; Paraná: MZUSP 41812 (2), Rio Negrinho, drainage of Rio Iguaçú; MZUSP 45673 (1), Rio Guabiroba, drainage of Rio Tibagi, Parque Estadual de Vila Velha, Ponta Grossa; MZUSP 81572 (132), Rio Pitangui, tributary to Rio Tibagi, Santa Rita at road Abapá-Castro (BR-090), Castro; MZUSP 71861 (3), Rio Capivari, Fazenda Capivari, Campina Grande do Sul; MZUSP 79689 (5), Rio Verde, Ponta Grossa; Santa Catarina: MZUSP 41709 (6), creek at road Campo Alegre-São Bento do Sul; MZUSP 41797 (6), Rio Lindo at road Pirabeiraba-Campo Alegre (SC-301), Pirabeiraba; MZUSP 37736 (1), creek tributary to Rio Itapocu, Corupá.

#### RESUMO

*Os sintipos de Corydoras meridionalis* Rodolfo von Ihering, 1911, tidos como desaparecidos da coleção de

peixes do Museu de Zoologia da USP, foram encontrados; os exemplares tinham sido identificados como *C. ehrhardti* Steindachner, 1910, espécie atualmente considerada sinônimo sênior da primeira. O exame desses sintipos permite confirmar a sinonímia proposta. Dados sobre os sintipos são apresentados e comparados com os dados das descrições originais de *C. ehrhardti* e *C. meridionalis*, sendo comentadas as poucas diferenças encontradas entre eles. É designado o lectótipo de *C. meridionalis* e uma fotografia deste é apresentada.

PALAVRAS-CHAVES: Taxonomia; Bagre; Peixe de água doce Neotropical.

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