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## APPENDIX I

### Specimens Examined

- Riama achlyens*: KU 133516–17, 167559, 182750, MCZ 53128, 66920, 100430, 109010, MHNLS 1278, 3075, 4924–25, 16170.
- Riama inanis*: MCNG 825–828 (type series).
- Riama luctuosa*: MCZ 100410, TCWC 59857.
- Riama shrevei*: MCZ 34273, 38659, 62506–07, 100466–71, 160065–67.
- Riama rhodogaster*: UTACV 52895–96 (paratypes), MHNLS 15730–31 (paratypes), MHNLS 16645 (holotype).

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## A NEW SPECIES OF *HYDROPS* (SERPENTES: COLUBRIDAE: HYDROPSINI) FROM ARGENTINA, BRAZIL AND PARAGUAY

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**ABSTRACT:** A new species of *Hydrops* is described. The new species has a disjunct distribution with regard to other species in the genus, occupying subtropical to temperate areas of Paraná and Plata River basins (between 19° and 28° 30' S), from Pantanal in Mato Grosso do Sul, Brazil, through Paraguay and Paraná Rivers, with records in the Esteros de Iberá, Argentina. It differs from all congeners in the number of total ventral scales (ventrals plus subcaudals), number of dorsal scales and color pattern. Based on our data and those of previous authors, we present the variation in lepidosis and measurements, description of the hemipenes, and known distribution for the new species. Furthermore, a key for the identification of all taxa of the genus is presented.

**Key words:** Argentina; Brazil; *Hydrops*; New species; Paraguay

*HYDROPS* is a South American xenodontine genus closely related to *Helicops* and *Pseudoeuryx*, theoretically comprising a monophyletic group (see discussion in Vidal et al., 2002; Zaher, 1999). Seven taxa are currently recog-

nized: *Hydrops martii* (Wagler, 1824) and *Hydrops triangularis* (Wagler, 1824), with the latter including six subspecies. According to Albuquerque (2000), the *Hydrops triangularis* subspecies must be revised to insure their real status. These taxa are distributed in tropical areas, mainly in the Amazon Basin. *Hydrops*

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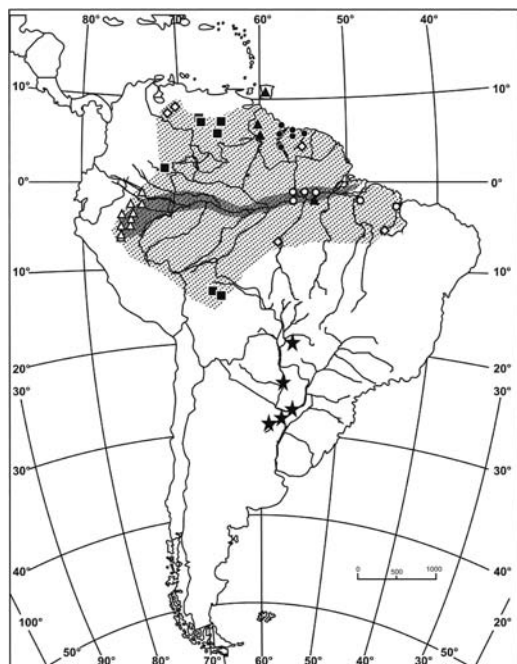


FIG. 1.—Geographic distribution of the genus *Hydrops*. The area of *Hydrops triangularis* (dots) and *H. martii* (vertical lines) was designed using the extreme records from Roze (1957b), Zaher and Caramaschi (1996), Yuki (1997), Rivas Fuenmayor and Fuentes (2000), Markezich (2001), Albuquerque (2001) and Guimarães et al. (2002). Precise localities are marked: stars, *Hydrops caesurus*; white triangles, *H. t. bassleri*; white squares, *H. t. bolivianus*; black circles, *H. t. fasciatus*; black triangles, *H. t. neglectus*; white circles, *H. t. triangularis*; black squares, *H. t. venezuelensis*; and white rhombus, *Hydrops triangularis* without subspecific assignment in the literature.

*martii* is restricted to the Amazonas River, where it is sympatric with *H. triangularis*. *Hydrops triangularis* ranges from 14° S, in rivers of the Bolivian Amazonas basin, up to 9° N in Venezuela, where the subspecies *H. t. venezuelensis* and *H. t. neglectus* reach the Orinoco River basin and even Trinidad and Tobago Islands (Fig. 4, in Roze, 1957b; Albuquerque, 2001; Markezich, 2001; Rivas Fuenmayor and Fuentes, 2000; Yuki, 1997; Zaher and Caramaschi, 1996). Roze (1957a) revised the genus, and described *Hydrops triangularis bassleri*, *H. t. bolivianus*, *H. t. neglectus* and *H. t. venezuelensis*; all species of the genus have no loreal; semi-divided nasal; only one rhombic or triangular prefrontal (character shared with *Helicops* and *Pseudoeryx*); small eyes with rounded pupils; narrow ventrals with rounded sides, and anal plate and subcaudals divided.

*Hydrops* differs from *Helicops* and *Pseudoeryx* in its smooth dorsal scales (keeled in *Helicops*) and in its maxillary diastema and color pattern with transverse bands (no diastema and longitudinal lines or dots in *Pseudoeryx*).

Williams and Couturier (1984) mentioned the genus for the first time from Argentina as *Hydrops triangularis bolivianus* Roze, 1957, although they concluded that the specimen did not completely match with any taxa previously described. Nevertheless the name was further used by other authors (Ceí, 1993; Williams and Francini, 1991; Williams and Scrocchi, 1994). Álvarez and Aguirre (1995) mentioned a new specimen they considered belong to the same taxon examined by Williams and Couturier (1984). The authors adopted a conservative position and named it as *Hydrops triangularis*. Buongermini and Waller (1998) recorded the same taxon from the Paraguay River. Finally, Giraudo (2002) stated that there were no diagnostic characters to consider the Argentinian and Paraguayan specimens as *Hydrops triangularis bolivianus*.

We examined specimens of this taxon from several Argentinian collections, from the Museo de Historia Natural del Paraguay, and from the Universidade Federal de Mato Grosso do Sul, Campus de Corumbá, Brazil. Due to the lack of phylogenetic analysis for *Hydrops*, based on the morphological differences and disjunct distribution shown by the studied population (Fig. 1), we herein describe a new member of the genus.

#### MATERIALS AND METHODS

Snout-vent length (SVL) and tail length were measured with a meter stick to the nearest 1 mm. Other measurements were made with a dial caliper to the nearest 0.1 mm. A subcaudal incision was used to determine sex. To identify sexual dimorphism, we performed a parametric univariate statistical test (Student's *t*). The univariate normality assumptions of numerical characters were previously verified using a Shapiro-Wilks test, while homogeneity of variance was verified with the *F* test. We present a single value when counts from opposite sides of the same specimen were identical; a slash was used when opposite sides had different counts. The method of Dowling (1951) was used to count

ventral scales, and terminology for hemipenes follows Dowling and Savage (1960), Myers and Campbell (1981) and Zaher (1999).

Number of teeth was recorded from eight paratypes, and hemipenial features were examined "in situ", from semi-everted organs or from totally or semi-everted organs using the method of Pesantes and Abe (1994).

Except as noted, institutional abbreviations are those suggested by Leviton et al. (1985). The museum acronyms are: AMNH: American Museum of Natural History, New York, USA. CEUCH: Coleção Zoológica de Referência, Seção de Herpetologia, Universidade Federal do Mato Grosso do Sul, Campus de Corumbá, Corumbá, Mato Grosso do Sul, Brazil. MLP: Museo de Ciencias Naturales de La Plata, La Plata, Buenos Aires, Argentina. MNHNP: Museo Nacional de Historia Natural del Paraguay, Asunción, Paraguay. UFMT: Universidade Federal de Mato Grosso, Mato Grosso, Brazil. UNNEC: Colección Herpetológica de la Facultad de Ciencias Exactas y Naturales y Agrimensura, Universidad Nacional del Nordeste, Corrientes, Argentina. UMNZ: Museum of Zoology, University of Michigan, Ann Arbor, USA.

#### SPECIES DESCRIPTION

##### *Hydrops caesurus* sp. nov.

##### *Cresonymy*

*Hydrops triangularis bolivianus*, Williams and Couturier, 1984 (not Roze, 1957).

*Hydrops triangularis bolivianus*, Williams and Francini, 1991 (not Roze, 1957).

*Hydrops triangularis bolivianus*, Cei, 1993 (not Roze, 1957).

*Hydrops triangularis bolivianus*, Williams and Scrocchi, 1994 (not Roze, 1957).

*Hydrops triangularis*, Álvarez and Aguirre, 1995 (not Wagler, 1824).

*Hydrops triangularis*, Aquino, Scott and Motte, 1996 (not Wagler, 1824).

*Hydrops triangularis*, Buongermini and Waller, 1998 (not Wagler, 1824).

*Hydrops triangularis*, Giraud, 2002 (not Wagler, 1824).

*Hydrops triangularis*, Álvarez et al., 2002 (not Wagler, 1824).

*Hydrops triangularis*, Álvarez et al., 2003a (not Wagler, 1824).

*Hydrops triangularis*, Álvarez et al., 2003b (not Wagler, 1824).

*Holotype*.—MNHNP 06698; (Collector number: MCZ Field Series Z-11689). An adult female from Departamento Itapúa; Isla Paloma, Canal de los Jesuitas, Paraguay. Collected by Consultora FORAGRO on 4 August 1994.

*Paratypes*.—CEUCH 027 (August 1997, skull); CEUCH 043 (October 1997, skull); CEUCH 077 (July 1998, skull and hemipenes): Ladário, Mato Grosso do Sul, Brazil. CEUCH 208 and CEUCH 279 (1 April 1999, skull); CEUCH 453 (3 August 1999); CEUCH 454–455 (skull)—456 (skull and hemipenes) and CEUCH 699 (2 August 1999): lagoa Negra, Ladário (18° 58' 15" S, 57° 33' 45" W), Mato Grosso do Sul, Brazil. MNHNP 4951: Departamento Itapúa; Complejo Isla Yacyreta, Paraguay. 3 August 1994. Consultora FORAGRO. 9 June 1994. Rescate de Fauna. MNHNP 04963: Departamento Itapúa; Complejo Isla Yacyreta, Paraguay. 3 August 1994. Consultora FORAGRO. MNHNP 06697: Departamento Itapúa; Isla Yacyreta and surroundings, Paraguay. 8 June 1994. Consultora FORAGRO. MNHNP 06700: Departamento Itapúa; Isla Yacyreta Isla Paloma, Canal de los Jesuitas, Complejo Isla Yacyreta, Paraguay. 9 June 1994. Consultora FORAGRO. MNHNP 06462: Departamento Pte. Hayes, Paraguay River; 14 km S from Puerto Rosario (24° 32' 22" S, 57° 10' 15" W). E. Buongermini, R. Palacios, T. Waller and P. Micucci (skull and hemipenes). MNHNP 06699: Departamento Itapúa; Complejo Isla Yacyreta, Paraguay. MNHNP 09148: Departamento Itapúa; Complejo Isla Yacyreta, Paraguay. 9 June 1994. Rescate de Fauna ("in situ" hemipenis). MNHNP 09149: Departamento Itapúa; Isla Yacyreta, Paraguay. MNHNP 09151: Departamento Itapúa; Isla Yacyreta, Paraguay. MNHNP 09267: Paraguay. with no other specifications. MLP-JW 150: Bella Vista, Corrientes, Argentina. C. Baez. 4 May 1963. UNNEC 6725: Isla Yacyretá, Paraguay. 20 September 1994. L. Gniegting; mentioned by Álvarez and Aguirre (1995) as UNNEC 00409 (page 109) and UNNEC 00490 (page 111). UNNEC 7198–7589–93 (6 neonates): Puerto Carambola. Departamento San Miguel, Corrientes, Argentina. 12 December 1996. R. Aguirre and E. Schaefer.

*Diagnosis*.—Distinguished from all congeners by the presence of two longitudinal dorsal rows of transverse spots. The belly has trans-

verse black bands that extends up to the back, intercalating between the dorsal spots; all other taxa in the genus have transverse bands in the dorsum. Some specimens of *Hydrops triangularis fasciatus* have bands that do not reach the vertebral line, but this species has no dorsal spots. All specimens we examined have a cream spot in the sixth supralabial scale that can reach part of adjacent scales. *Hydrops caesurus* has the lowest total number of ventral counts (ventrals plus subcaudals) in the genus: 184–213 instead of 209–258 in other species. It differs from *Hydrops martii* (Wagler, 1830) in having 15 rows of dorsal scales instead of 17.

*Description of holotype.*—(Fig. 2a,b,c). Female; robust body, tail short (86 mm, 15.09% of SVL); total length 656 mm; SVL 570 mm; head length 22.8 mm (from snout tip to the mandible-quadrado joint).

Head depressed and a slightly distinct from the neck. Small eyes with round pupils; eye diameter 50% of the eye–nostril distance. Rostral scarcely visible dorsally, length of visible area less than 10% of frontal–rostral distance; prefrontals are twice as broad as the suture between them; one internasal slightly twice broader than long; nasals irregular twice broader than long; left nasal semidivided and the right divided; frontal pentagonal, length more than 60% of its width; one narrow supraocular, approximately twice longer than broad, wider behind the eye; parietals large maximum width slightly more than 50% of their; preocular small and subtriangular; two postoculars subequals; supralabials 8/8, only the fourth enters the orbit; first to fourth supralabials subequals approximately twice higher than broad; fifth supralabial slightly shorter than first to fourth; sixth and seventh are largest and the eighth is shorter than seventh. One plus one plus two temporals, the anterior is subrectangular and its length is two times its width; the posterior is irregular and its size is similar to the anterior; infralabials 8/9, first to fourth contact the first pair of chinshields; two pairs of chinshields, first 25% shorter than the second; four gulars separate the chinshields from two preventrals and 152 ventrals; anal plate divided; 33 divided subcaudals; terminal scale pointed; dorsal scales smooth in 15–15–15 rows, without reduction.

*Coloration in preservative.*—Dorsum dark brown, with black dorsal spots. Head dorsally

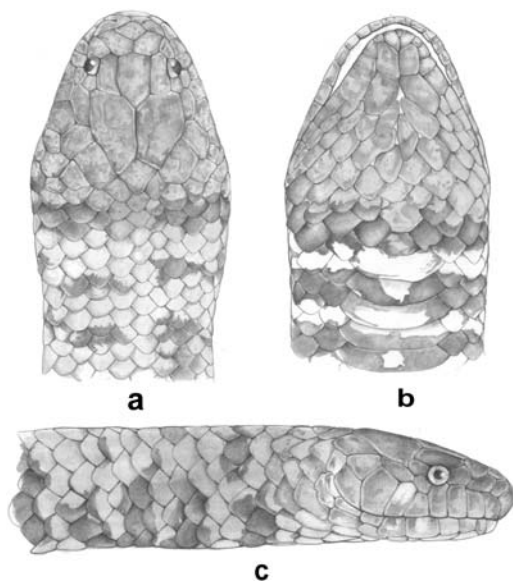


FIG. 2.—*Hydrops caesurus* Holotype (MNHN 06698). a: dorsal view of the head. b: ventral. c: lateral. Scale = 1 mm.

brown slightly darker than the rest of the dorsum; there is an inconspicuous black band at the end of the parietals and temporals. On the right side of the head, there is a light cream spot that covers almost all of the sixth supralabial, the inferior angle of the inferior postocular, the posterosuperior angle of the fifth supralabial and the posteroinferior angle of the seventh supralabial. On the left side of the head, the spot covers almost exclusively the superior half of the sixth supralabial; other supralabials have cream spots of different sizes. Ventral surface of the head with large cream spots, although the central area has a dark brownish color. First to seventh infralabials of both sides have a cream central area. Dorsally, posterior to the parietal band, there is a black ring one and a half to two scales width that is interrupted at the vertebral line. Behind the black ring, there are two series of black dorsal spots along the dorsum, 57 on the left side and 56 on the right side; they are approximately one scale width and extend from fourth to seventh rows. The dorsal spots continue on the tail, but they become irregular and smaller. Belly very dark and a pattern of black bands that continue as laterodorsal spots of the body can be noted. Bands are more conspicuous in the anterior and posterior

portions of the body, where 12 and 7 bands, can be counted, respectively. The edges of the black bands extend to the dorsum as laterodorsal spots intercalated between the dorsal spots. There are 57 laterodorsal spots on the left and 56 on the right side of the body, subtriangular and approximately one scale width at the fourth dorsal row and two to two and a half in the first dorsal row. They also occur on the tail, where the spots are smaller.

*Coloration in life.*—A photo of a single specimen from Serra do Amolar, Corumbá, Mato Grosso do Sul, shows a pattern very similar to the preserved specimens.

*Variation.*—The scale characters and coloration pattern of all the studied specimens are in Table 1. All the specimens have anal divided, eight supralabials with the fourth entering the eye, one preocular, two postoculars, and 1+1+2 temporals (except MNHP 9267: 1+1+2/1+1+3).

The general color pattern of the paratypes is very similar to that of the holotype. The most remarkable variations are in the spots of the head, which have pale areas (probably light brown in life) that are not present in the holotype. These pale areas are very noticeable in the juveniles (Fig. 3a,b) that have the snout with a cream white band that occupies most of the first and second supralabials, nasals, anterior edge of prefrontals and anterior half of internasal. Behind the black band that covers the posterior edge of the parietals, there is a white band approximately 2 scales width, followed by a black band of the same width. The black band on the posterior edge of the parietals (divided in some exemplars) and the adjacent white band are always present with variable conspicuousness.

Ventral area of the head shows different proportions of light areas. The light and dark bands of the belly can be clearly observed in some specimens, particularly in the juveniles where the right and left halves do not correspond.

13+2 teeth (with diastema) in the maxilla (Table 2), two specimens have 12+2 and 14+2 in the right maxilla. Eight palatine teeth and frequently 17 to 19 in the pterygoid (three specimens have 20 or 21), the left pterygoid can be different from the right. 16 to 18 dentary teeth (one specimen has 15).

*Hemipenes.*—in situ, the hemipenis extends to the eighth subcaudal. Organ slightly bilobed and semicapitate (Fig. 4). Sulcus spermaticus centrolateral branches diverging at mid-length, between the bottom of hemipenial body and the point of bifurcation of the lobes, assuming a laterodistal position at the tip of the lobes. Peduncle naked and the basal area of hemipenial body with small spines. Both sides of the hemipenial body show scattered spines. Asulcate side with longitudinal folds. Laterally spines are larger than on the body. Proximal portion of the lobes with spinules and some unornamented calyces. The capitulate area of the asulcate side has naked folds.

The description of the hemipenes of *Hydrops caesurus* agrees with Roze (1957a), Zaher (1999) and Albuquerque (2002): unornamented calyces, semicapitate, and folds on the distal area of the hemipenial body.

*Sexual dimorphism.*—As Table 1 shows, a clear differentiation exists in the relationship between the snout-vent length and tail length. As in many other snakes, the males have a longer tail than the females: somewhat more than 24 to 34% in males ( $n = 14$ ;  $\bar{x} = 26.87$ ;  $SD = 3.15$ ) and from almost 14 to somewhat more than 20,5% in females ( $n = 10$ ;  $\bar{x} = 17.44$ ;  $SD = 2.10$ ). The subcaudal number is higher in males (51 to 62;  $n = 14$ ;  $\bar{x} = 56.7$ ;  $SD = 3.85$ ), without overlapping with the values of females (33 to 49;  $n = 10$ ;  $\bar{x} = 42.9$ ;  $SD = 5.4$ ). The ventrals showed significant statistical differences (test  $t = 3.26$ ,  $gl = 27$ ,  $P < 0.01$ ) with higher averages in the females (145–157,  $n = 13$ ;  $\bar{x} = 152$ ;  $SD = 3.3$ ) than the males (143–153,  $n = 16$ ;  $\bar{x} = 148.3$ ;  $SD = 2.70$ ).

*Distribution, habitat and natural history.*—*Hydrops caesurus* has a disjunct distribution with regard to the other species of the genus, occupying subtropical to temperate areas of the Paraná and Plata River basins (between 19° and 28° 30' S), from Pantanal in Mato Grosso do Sul, Brazil, through Paraguay and Paraná Rivers, with records in the Esteros de Iberá, old palaeocauce of the Paraná River in Argentina (Fig. 1).

*Hydrops caesurus* is mainly aquatic, as are all the other species of the genus, being frequently found in the floating vegetation of *Eichhornia crassipes* and *E. azurea* (Pontederiaceae) in the region of Corumbá and Ladário (Mato Grosso do Sul, Brazil). Within its



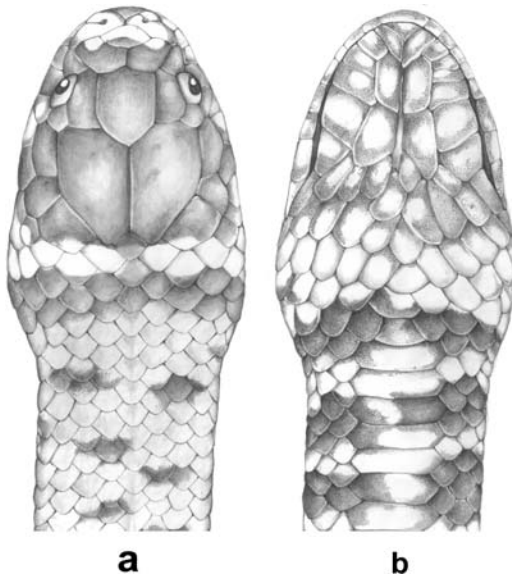


FIG. 3.—*Hydrops caesurus* Juvenile paratype (MNHNP 4951). a: dorsal view of the head and anterior portion of the body. b: ventral. Scale = 1 mm.

distribution, there is a wide availability of permanent, semipermanent and temporary aquatic habitats. The axis Pantanal – Paraguay River – Paraná River, constitutes one of the largest wetlands in South America, a very extensive and complex flooding plain with a variety of aquatic habitats: from lotics (rivers and streams of different intensities) to diverse lentic habitats formed by tidelands, lagoons, and hydromorphic savannas, all connected by periodical floods.

Some of the characteristic habitats of *H. caesurus* sp. nov. are similar through the whole region, including lentic habitats with little depth and an abundance of marshy macrophyts in the periphery (“pajonales” of *Panicum*

TABLE 2.—*Hydrops caesurus* dentition. Mx Maxilla, Pl palatine, Pt pterygoid, De dentary. A slash (“/”) is used to report right and left sides when they differ.

Museum number	Mx	Pl	Pt	De
CEUCH 027	15	8	18	17
CEUCH 043	15	8	18	16/17
CEUCH 077	15	8	17	15/17
CEUCH 208	15	8	21/20	16/17
CEUCH 279	15	8	20/18	18
CEUCH 455	15	_/8	19	
CEUCH 456	16/15	8	19	16
MNHNP 6462	14/15	8	20	

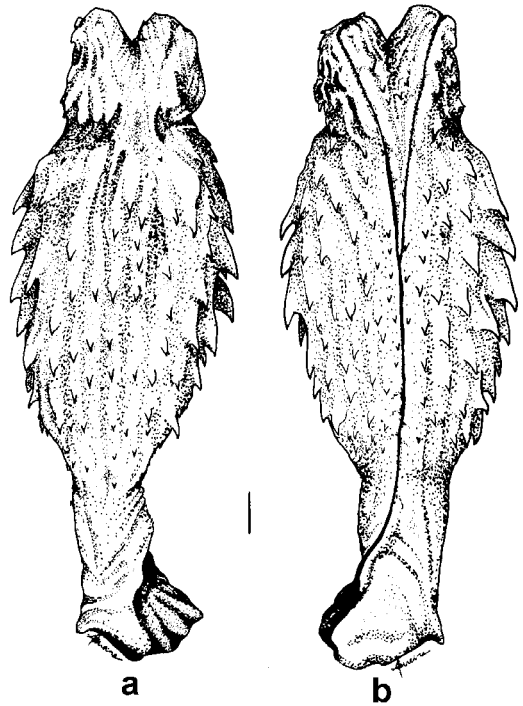


FIG. 4.—Asulcated and sulcated surfaces of the hemipenis of *Hydrops caesurus*. Paratype CEUCH 077. Scale = 1 mm.

spp., “juncales” of *Schoenoplectus californicus*, “totorales” of *Typha* spp., “pirizales” of *Cyperus giganteus*, “huajozales” of *Thalia* spp., and “carrizales” of *Panicum elephantipes* and *Polygonum* spp). Toward the center, in deeper sectors, there are floating communities of “camalotales” (*Eichhornia* spp., *Pontederia rotundifolia*, *Pistia stratiotes*) and submerged communities composed of *Ceratophyllum*, *Myriophyllum* and *Cabomba*, and others occur in the deepest areas. Another habitat in the Basin is the aquatic-marsh savannas with “palmars”, dense palm populations of *Copernicia* sp. with a herbaceous stratum, which is periodically flooded and acquires different characteristics depending of the quantity of water. More details on the geomorphologic, edaphic, climatic, and phytogeographic features of the region can be found in Merelles et al. (1992), Carnevali (1994), Adámoli and Pott (1999), and Neiff (2001).

*Hydrops caesurus* is an oviparous species. Six of the studied specimens (UNNEC 7198–7589–93) hatched in captivity from nine

elliptic eggs with coriaceous shell, collected on the banks of Carambolas stream, Corrientes, Argentina, in December 1999 (Alvarez et al., 2003 *a,b*). The measurements of 8 eggs (6 of them were measured after hatching) varied between 23.5 and 27 mm length ( $\bar{x}$  = 25.125, SD  $\pm$  1.382) and between 16 to 19 mm width ( $\bar{x}$  = 18, SD  $\pm$  1.035). Six males from Mato Grosso do Sul were studied, three of which (CEUCH 27, 400 SVL; CEUCH 77, 530 SVL, and CEUCH 455, ? SVL) showed the deferent duct rounded, indicating the passage of sperm. The smallest mature male (CEUCH 27) was 400 mm in SVL. The other males (CEUCH 453, 454 and 456) were immature (with translucent ducts) and measured between 319 and 353 mm SVL. Although it is frequently considered that the *Hydropsini* (Albuquerque, 2002; Zaher, 1999) are viviparous, Cunha and Nascimento (1981) registered viviparity and oviparity in different species of *Helicops* and mentioned the two reproductive modes in one specimen of *Pseudoeryx plicatilis mimeticus*. Rossman (1974) documented egg-laying in *Helicops angulatus*, and later (Rossman, 1984) documented live birth in the same species. We have no information of other reproductive data for the genus *Hydrops*.

The diet habits of *Hydrops caesurus* sp. nov. are unknown.

*Etymology*.—The specific epithet *caesurus* derives from the Latin *caesura*, meaning cut, pause. *Hydrops caesurus* is the only species in the genus that has no bands on the dorsum and the spots on it seem like an interrupted band.

*Remarks*.—The only subspecies previously described that has no entire bands on the dorsum is *Hydrops triangularis fasciatus* (see Roze, 1957a: Fig. 13b). Nevertheless, the bands on the back are an extension of those on the belly, whereas in *Hydrops caesurus* the ventral bands extend only up to the first dorsal rows, among which there are two series of dorsal spots.

Some of our results are in odds with those found by Roze (1957a). According to this, author the subspecies of *Hydrops triangularis* have 17 dorsal rows behind the head. However, in general, if a distance similar to the length of the head is considered, several specimens show 15 rows.

In the key showed by Roze (1957a), *Hydrops triangularis bassleri*, *H. triangularis bolivianus*

and *H. t. triangularis* have 51 subcaudals or less, when in fact they have 51 subcaudals or more. This problem was corrected by Peters and Orejas Miranda (1970). Considering these smaller corrections and including the new species described herein, a key for the species of the genus is presented:

KEY TO *HYDROPS* SPECIES AND SUBSPECIES  
(based on Albuquerque, 2000; Peters  
and Orejas Miranda, 1970; Roze,  
1957a, and this paper)

- 1a.  
Dorsal scale rows at midbody 17 ..... *Hydrops martii*  
1b.  
Dorsal scale rows at midbody 15 ..... 2  
2a.  
Dorsal pattern of two longitudinal series of 53 to 62 dorsal spots that do not reach the vertebral line and two laterodorsal series of spots intercalated between the dorsal, that are an extension of the ventral bands. Total ventrals 184 to 206 in females and 194 to 213 in males ..... *Hydrops caesurus* sp. nov.  
2b.  
Dorsal pattern of 38 to 76 transverse bands on the dorsum. When the bands do not reach the vertebral line, they are an extension of the ventral bands and there are not two series of dorsal spots intercalated between them. 209 to 235 total ventrals ..... 3  
3a.  
Dorsal black bands narrow at the vertebral line or not reaching it ..... *Hydrops triangularis fasciatus*  
3b.  
Dorsal black bands laterally narrow, always complete, and broader in the vertebral line ..... 4  
4a.  
Posterior edge of dorsal black bands with irregular black projections; 69 subcaudals .....  
..... *Hydrops triangularis venezuelensis*  
4b.  
Posterior edge of dorsal black bands without irregular black projections. Fewer than 69 subcaudals 5  
5a.  
47 to 51 subcaudals; black bands of similar width and with irregular edges .....  
..... *Hydrops triangularis neglectus*  
5b.  
More than 51 subcaudals ..... 6  
6a.  
162 to 191 ventrals (169 to 191 in females) .....  
..... *Hydrops triangularis bassleri*  
6b.  
Ventrals 164 or fewer (fewer than 163 in females) ..... 7  
7a.  
Dorsal black bands narrow (one scale long) in the fourth dorsal scale row .....  
..... *Hydrops triangularis bolivianus*  
7b.  
Dorsal black bands of similar length (one and a half to two scales long) .....  
..... *Hydrops triangularis triangularis*



## RESUMEN

Se describe una especie nueva del género *Hydrops*. La nueva especie tiene la distribución más meridional del género (entre los 19° y 28° 30' de latitud sur) es disyunta con las otras especies y ocupa áreas subtropicales a templadas de la cuenca del río Paraná o del Plata, desde el Pantanal de Mato Grosso del Sul (Brasil) a través de los ríos Paraguay y Paraná, con registros en los esteros del Iberá, Argentina. Se diferencia de todas las otras especies del género por el número de escamas ventrales totales (suma de ventrales y subcaudales), por el número de hileras de escamas dorsales y por su coloración. Se presenta la variación de los caracteres, descripción de los hemipenes, distribución conocida y una clave para la identificación de todas las especies del género, basada en nuestros datos y autores anteriores.

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## APPENDIX I

### Specimens Examined

*Hydrops martii callostictus* (now *Hydrops martii* according to Albuquerque, 2000): AMNH R-54650. Perú. (Loreto): Río Itaya, Iquitos. Harvey Bassler. AMNH R-55494. Perú: (Loreto): Monte Carmelo, Requena (Uresti). Harvey Bassler.

*Hydrops martii martii* (now *Hydrops martii* according to Albuquerque, 2000): AMNH R-36161. Brasil: Manaus.

*Hydrops triangularis bassleri*: AMNH R-52354. Perú. (Loreto): Iquitos. Harvey Bassler. Paratype. AMNH R-52712. Perú. (Loreto): Iquitos. Harvey Bassler. Paratype.

*Hydrops triangularis bolivianus*: AMNH R-22449. Bolivia: Lago Rogoagua. N. E. Pearson. Paratype. UMNZ 56896. Bolivia: Puerto Sucre, Río Mamoré.

*Hydrops triangularis fasciatus*: AMNH R-14141. Guyana: (Mazaruni – Potaro): Kartabo 6° 21' N, 58° 41' W. May 1919. Tropical Research Expedition. AMNH R-18162. Guyana: Maripa, Essequibo R. W. Beebe.

*Hydrops triangularis neglectus*: AMNH R-25035. Guyana. H. R. Lang, W. J. La Varre. Paratype. AMNH R-25056. Guyana. Kamakusa. H. R. Lang, W. J. La Varre. Paratype.

*Hydrops caesurus*: CEUCH 3061. Brazil. Miranda (20° 14' S, 56° 22' W), Mato Grosso do Sul. Valdenir Correa. UFMT-R 1188, 1189 and 1192. Brazil. Fazenda Acurizal (17° 49' 51" S, 57° 33' 06" W), Serra do Amolar, Corumbá, Mato Grosso do Sul.