



FIG. 1. Photos of the putative hybrid treefrog (*Hyla chrysoscelis* × *H. cinerea*) captured in the Atchafalaya Basin.

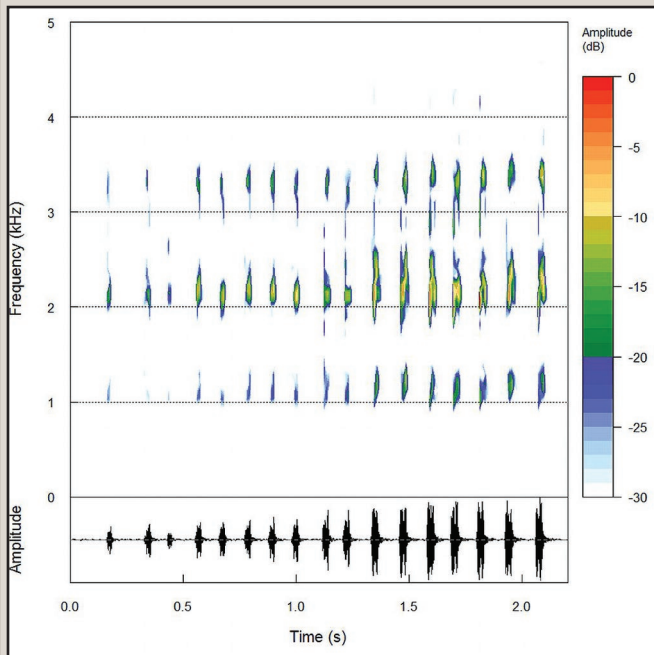


FIG. 2. Spectrogram of a call from the putative hybrid treefrog (*Hyla chrysoscelis* × *H. cinerea*) recorded at a distance of ca. 0.5 m from the calling frog at 24.6°C air temperature.

morphologically normal spermatozoa from the putative hybrid could be found by light microscopy, as cells appeared round and not like the cylindrical cells observed from the normal male *H. chrysoscelis*. Of the six adults Meacham (1965, *op. cit.*) sacrificed, all had either very small, rudimentary testes or lacked oviducts, and no sperm could be located in suspension. Meacham (1965, *op. cit.*) also stated that none of his grossly normal hybrids from female *H. cinerea* and male *H. chrysoscelis* that matured to adult size ever developed male throat pigment or definite vocal sacs, whereas this putative hybrid displayed both throat pigment and a vocal sac.

Flow cytometry was also used for high resolution nuclear DNA analysis to estimate the total genome size from nuclei of whole blood cells of the putative hybrid and the putative parental species, as species delineation can be discovered through the genetic complement. According to laboratory-generated genome

size data from *H. chrysoscelis* and *H. cinerea* collected in the same area (J. Jenkins, unpubl. data), and data from the Animal Genome Size database ([www.genomesize.com](http://www.genomesize.com)), the hybrid's diploid genomic complement was 9.8 pg, which was intermediate between the putative parental species.

Based on the phenotype, unusual call, small testes, lack of viable sperm, and intermediate genome size of this frog, we conclude that this treefrog is a hybrid of *H. chrysoscelis* and *H. cinerea*. Because the treefrog's characteristics are largely consistent with those described from laboratory crosses of male *H. chrysoscelis* and female *H. cinerea* (Meacham 1965, *op. cit.*), and because the reciprocal crosses typically resulted in high rates of abnormal early embryonic cleavage, very few tadpoles, and only one short-lived transformed individual (Pyburn and Kennedy 1960, *op. cit.*; Littlejohn 1961, *op. cit.*), we conclude that this individual is likely the result of a mating event between a male *H. chrysoscelis* and female *H. cinerea*. To our knowledge, natural hybrids between *H. chrysoscelis* and *H. cinerea* have not been previously reported (Dodd 2013. *Frogs of the United States and Canada*. Johns Hopkins University Press, Baltimore, Maryland. 982 pp.).

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***HYPISIBOAS PULCHELLUS* (Montevideo Tree Frog, Ranita de Zarzal). PREDATION.** Predation is one of the main causes of mortality in natural amphibian populations and may occur in any stage of the life cycle (Zug et al. 2001. *Herpetology. An Introductory Biology of Amphibians and Reptiles*. 2<sup>nd</sup> ed. Academic Press, San Diego. 630 pp.). Many authors have pointed out that arachnids (mainly Araneae) are one of the most important predators of tadpoles in the Neotropics. Most of these records belong to Pisauridae, Ctenidae, Lycosidae, Sparassidae, and Theraphosidae families (Menin et al. 2005. *Phyllomedusa* 4:39–47). However, predation on adult and juvenile amphibians has been poorly documented, mainly due to the difficulty of obtaining direct records in the field (Pombal 2007. *Rev. Bras. Zool.* 24:841–843).

At 2125 h on 9 November 2013, we recorded two predation events of *Hypsiboas pulchellus* juveniles by wolf spiders (Lycosidae). Both observations were made in flooded grasslands of Punta Lara Nature Reserve (34.8043°S, 58.0319°W; WGS84), Buenos Aires, Argentina. In the first case, the predator was an adult male *Lycosa erythrognatha*. It was collected and deposited in the collection of Invertebrate Zoology, La Plata Museum (MLP-Ar 19385). The second predator corresponded to a species belonging to an undescribed genus of the Lycosidae (Fig. 1). This specimen was not collected. During the period we observed both predation events the larval cycle of *H. pulchellus* was concluding (having started in spring) and we noted high densities of juveniles.



FIG. 1. Undescribed spider of the family Lycosidae (wolf spider) preying on a juvenile *Hypsiboas pulchellus* from Punta Lara Nature Reserve, Argentina.

Spiders are potential predators of both juvenile and adult anurans. Significant linear correlations between the body lengths of prey and predator have been demonstrated, with the size of the spider being similar or slightly smaller than the anuran prey (Menin et al. 2005. *Phyllomedusa* 4:39–47). The body lengths of *H. pulchellus* span 1.95–5 cm (Maneyro and Carreira 2012. *Guía de Anfibios del Uruguay*. Ediciones de la Fuga, Montevideo, Uruguay. 207 pp.), whereas the largest wolf spiders can reach more than 30 mm body length (Jocqué and Dippenaar-Schoeman 2015. *Spider Families of the World*. Royal Museum for Central Africa, Tervuren, Belgium. 336 pp.); therefore, we can infer that these spiders can prey on both juvenile and adult stages of *H. pulchellus*.

Here we present the first records of two species of lycosid spiders preying on *H. pulchellus*. Given that spiders of the Lycosidae are abundant in the Argentine Pampas grasslands (Platnick 2014. [www.wsc.nmbc.ch](http://www.wsc.nmbc.ch); 15 Jun 2015), they could have an important role in regulating *H. pulchellus* populations.

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**ISCHNOCNEMA GUENTHERI (Steindachner's Robber Frog). PREDATION.** *Ischnocnema guentheri* is a litter frog of medium size with crepuscular/nocturnal activity and occasional diurnal activity (Pombal 1997. *Rev. Brasil. Biol.* 57:583–594; Dixo and Verdade 2006. *Biota Neotrop.* 6:1–20), especially in rain showers (Giaretta and Facure 2008. *Contemp. Herpetol.* 3:1–4). It is widespread in the Atlantic forest from southern Brazil to northeastern Argentina (Van Sluys et al. 2010. [www.iucnredlist.org](http://www.iucnredlist.org); 17 Mar 2015). We report predation upon *I. guentheri* by *Baryphthengus ruficapillus* (Rufous-capped Motmot). Our observation occurred during regular mist-netting (permits: CEMAVE/ICMBio no. 1237, INEA no. 051/2011, SISBIO 14210-7) at Parque Estadual da Ilha Grande (23.1638°S, 44.1888°W, WGS84; 690 m elev.), an oceanic

island at Angra dos Reis municipality, Rio de Janeiro State, Brazil. At 0820 h on 16 December 2014 we captured an adult *B. ruficapillus* with a *I. guentheri* (SVL = 31.5 mm; 2.4 g) in its bill. We deposited the frog in Museu Nacional do Rio de Janeiro, Amphibians Collection (MNRJ 88864). During focal observations in October and November 1997 of an active nest of *B. ruficapillus* in the same study area, frogs (unidentified) and reptiles, along with fruits, arthropods, and mollusks, were noted as part of the diet delivered to nestlings (Alves et al. 1999. *Ararajuba* 7:31–34). Prior published records of predation on frogs by *B. ruficapillus* (Alves et al. 1999, *op. cit.*) and *B. martii* (Rufous Motmot; Master 1999. *Wilson Bull.* 111:439–440; Alvarado et al. 2013. *Herpetol. Rev.* 44:298) were all observed during the breeding period. Motmots may prey on frogs over the whole year; however, these events may be easier to detect during the bird's breeding period as adults can be observed carrying prey items to be delivered to the chicks. As *I. guentheri* follows a cryptic strategy (Gomiero et al. 2006. *Biota Neotrop.* 6:1–5) and is present at low density at Ilha Grande (Rocha et al. 2001. *Austral Ecol.* 26:14–21) it is possible that *B. ruficapillus* is able to detect this frog moving in the litter during the day. Before our unique predation record of *I. guentheri* by a bird this frog was recorded as an unusual prey of the fish *Brycon opalinus* (Pirapitinga-dosul), a characid species that regularly consumes fruits and insects (Gomiero et al. 2006, *op. cit.*).

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**KALOULA PULCHRA (Banded Bullfrog). DEFENSIVE BEHAVIOR.** At ~1100 h on 12 August 2014 I observed a novel defensive behavior of *Kaloula pulchra* in Bawngkawn, Aizwal, Mizoram, India (23.7554°N, 92.7287°E, WGS84; 1022 m elev.). While I was holding each of the frogs (1 female and 3 males), they puffed up their bodies and released sticky secretions, which are among the recorded defensive behaviors of this species (Sazima 1974. *J. Herpetol.* 8:376–377). As I continued holding each frog I felt a tingling sensation in my palm and noticed the fourth and largest toe was vibrated by the frog in a very similar way a mouth organ player vibrates his playing hand. This vibration of the toe was followed by a forward body jerk. This continued for as long as I held the frog. Different defensive strategies are used in different phases of predation, and I assume that holding the frog tightly in my hand simulated ingestion. The behavior exhibited by *K. pulchra* is most similar to the “phalanx aggression” reported by Toledo et al. (2011. *Ethol. Ecol. Evol.* 23:1–25), which is exhibited by some frogs during ingestion. However, as defined by Toledo et al. (2011, *op. cit.*), this behavior includes morphological specializations in which the distal phalanges pierce the skin and abrade