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Fig. 1. Predation on *Tlalocohyla smithi* by an adult *Leptodactylus melanonotus*, Colima, México.

smithi, in a drying pond about 0.8 km NE of Paticajo, municipality of Minatitlán, Colima, México (19.3061°N, 104.148°W, WGS 84; 483 m elev.). The *L. melanonotus* slowly started ingesting the *T. smithi*, hind legs first, and about 25 minutes later the entire *T. smithi* was ingested. The frogs were not captured, but several photographs were taken during the process and are deposited in the Digital Collection of the University of Texas at Arlington (UTADC 6255, 6656).

To our knowledge, this is the first report of a *Leptodactylus melanonotus* feeding on an adult anuran.

OSCAR ALFREDO AVILA-LÓPEZ (e-mail: oscarslin@gmail.com), **JACOBO REYES-VELASCO** (e-mail: jacobo@crotalus.com), and **ALEXANDER HERMOSILLO-LÓPEZ** (e-mail: alexxhermosillo@gmail.com), Entorno Biotico A.C., Simon Bolivar #160, Colima, Colima, México.

***LITORIA SERRATA* (Green-eyed Treefrog) and *LITORIA INFRAFRENATA* (White-lipped Treefrog). REPRODUCTIVE BEHAVIOR.** *Litoria serrata* and *L. infrafrenata* are tropical, arboreal frog species that inhabit rainforest and adjacent habitats of the Wet Tropics region of northeast Queensland, Australia. *Litoria serrata* is a relatively small species (SVL 37–80 mm) that is closely associated with streams and creeks where it breeds. *Litoria infrafrenata* is a considerably larger species (SVL 65–140 mm) that breeds in permanent or temporary ponds (Hoskin and Hero 2008. Rainforest Frogs of the Wet Tropics North-east Australia. Griffith Univ., Gold Coast, Australia. 96 pp.; Hero and Fickling 1994. A Guide to the Stream-dwelling Frogs of the Wet Tropics Rainforests. Dept. Zoology, James Cook University. Townsville, Qld. 27 pp.) Although examples of interspecific amplexus among frogs are relatively common (Grogan and Grogan 2011. Herpetol. Rev. 42: 89–90; Manzano and Corzas 2011. Herpetol. Rev. 42:84), Streicher et al. (2010. Herpetol. Rev. 41:208) commented on the lack of examples pertaining to tropical hylids. Herein I report one such example of amplexus between *L. serrata* and *L. infrafrenata*, despite differences in size and preferred breeding habitat.

At 1055 h on 11 Oct 1998, I observed a male *L. serrata* in amplexus with a small adult (sex unknown) *L. infrafrenata*. Conditions were overcast (shade temperature 24°C) and there had been rain the previous evening. The pair was encountered sitting stationary on a wet semi-secluded stone within the spray-zone of a small cascade of Polly Creek in the Seymour Range (60 m elev.) near the township of Innisfail (146.02917°E, 17.499444°S). The male *L. serrata* had a firm grasp around the chest of the *L. infrafrenata*. The eyes of the *L. serrata* were partially retracted into their sockets (which is typical for the genus when at rest) while those of the *L. infrafrenata* were not and the transparent eye-coverings were half-open. The pair was observed at close range for a period of ca. 15 min. during which time there was no

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Fig. 1. Male *Litoria serrata* in amplexus with a small adult *Litoria infrafrenata*.

movement and they were flash photographed (Fig. 1). Although the pair was briefly manipulated, they remained in amplexus and both frogs were quite unresponsive. The pair was observed ca. two hours later in the same position. As both species are nocturnal, it seems likely that amplexus was initiated the previous evening when both were presumably active. The timing of this observation coincided with the start of the breeding season of *L. serrata* in the local area.

GRANT STEPHEN TURNER, PO Box 2035, Innisfail, Queensland, Australia 4860; e-mail: g.s.turner@hotmail.com.

***PHYSALAEMUS BILIGONIGERUS*. BURROW USE.** Burrows provide an amenable environment for anurans; they have cooler temperatures and higher moisture as compared to surface conditions (Franz 1986. *In* Jackson and Bryant [eds.], The Gopher Tortoise and its Community. Proceedings of the 5th Annual Meeting of the Gopher Tortoise Council, pp. 16–20. Florida State Museum, Gainesville). Cei (1980. Monitore Zool. Ital. Monogr. 2:74–75) reported that the anurans of the Gran Chaco often seek shelter in burrows of the Vizcacha (*Lagostomus maximus*; Rodentia: Chincillidae) but only listed Oven Frogs (*Leptodactylus bufonius*) and Coralline Frogs (*L. laticeps*) as occupants.

On 9 Feb 2011 at 2100 h, I observed a frog emerging from an entrance of a *L. maximus* burrow in the Isoceño community of Kuaridenda (19.17°S, 62.53°W; WGS 84), Cordillera Province, Department of Santa Cruz, Bolivia. I captured the frog and confirmed it to be a female *Physalaemus biligonigerus*. When the frog was released, it re-entered the burrow, emerging again ca. 10 min. later. The frog was not disturbed when it emerged the second time and proceeded to hop in the direction of a temporary pond that was ca. 30 m away. I also observed multiple *L. bufonius* utilizing these same sets of burrows. This observation confirms an additional anuran species as an occupant of *L. maximus* burrows.

Anurans of the Gran Chaco possess many strategies to limit water loss. Examples include coating their skin with waxy lipids (e.g., *Phyllomedusa sauvagii*; Shoemaker et al. 1972. Science 175:1018–1020) or forming a cocoon for aestivation (*Lepidobatrachus llaenis*; McClanahan et al. 1976. Copeia 1976:179–185). Those anurans, like *P. biligonigerus*, lack extreme physiological adaptations to limit water loss and may utilize these burrows as refuge from the environmental stress of desiccation. A more intensive survey of these burrows may yield a more complete list of anuran burrow occupants.

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CHRISTOPHER M. SCHALK, Department of Wildlife and Fisheries Sciences, Texas A&M University, College Station, Texas 77843-2258, USA; e-mail: cschalk@tamu.edu.

***PHYSALAEMUS BILIGONIGERUS.* PREDATION.** *Physalaemus biligonigerus* is probably a complex of more than one species, and is known from northern and central-western Argentina, adjacent Bolivia, Paraguay, Uruguay, and southern and central Brazil. It is common throughout its range and occurs from sea level to 1400 m elev. It occupies grasslands near temporary and permanent lentic water where it breeds. Males call from the edge or from within the water, and the eggs are deposited in spherical foam nests that float on top of the water. It is able to adapt to anthropogenic disturbance, and is not generally considered threatened. However, the species is threatened in Argentina by the destruction of Chaco habitat for agriculture and wood extraction, and land and water pollution caused by agrochemical runoff. Taxonomic studies are needed to resolve the status of different populations that might represent different species (Kwet et al. 2004. *In* IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4. <www.iucnredlist.org>).

This observation occurred near Fazenda Pinhal (30.2199°S, 50.2814°W), near the town of Palmares do Sul (Rio Grande do Sul, Brazil). This area is adjacent to the town of Pinhal and is coastal plain habitat. The region is largely urbanized and agricultural. During the night of 17 Jan 2010 we witnessed predation of *P. biligonigerus* by a young Wolf Fish, *Hoplias* sp., ca. 10 cm long. The frog was attacked on the bank of a slow moving, artificial stream. The Wolf Fish grabbed the frog by the back, and the frog instantly inflated its body; this caused the Wolf Fish difficulty in swallowing the frog as the inflated body of the frog made it difficult for the Wolf Fish to immerse underwater. However after ca. 10 minutes the Wolf Fish succeeded in swallowing the frog and swam away.

EMILIANO UTERMOHL DE QUEIROZ, Programa de Pós-Graduação em Ecologia, Laboratório de Zoologia, Universidade Regional Integrada do Alto Uruguai e das Missões – URI, Campus de Erechim, Av. Sete de Setembro, 1621, Cx. Postal 743 Cep 99700-000, Erechim, RS, Brazil; e-mail: emilioutermohl@hotmail.com.

***PHYSALAEMUS PUSTULOSUS* (Tungara Frog). DIET.** *Physalaemus pustulosus* occurs in northern South America and throughout much of the lowland tropical forests of Middle America (Ryan 2010. *In* M. Breed and J. Moore [eds.], Encyclopedia of Animal Behavior, pp. 453–461. Academic Press, Oxford). Ryan (1985. The Túngara Frog: A Study in Sexual Selection and Communication. Univ. Chicago Press, Chicago, Illinois. 246 pp.) reported that *P. pustulosus* eats primarily termites, in addition to ants, mites, dipterans, and snails; although no detailed information exists on the food habits of this species. Herein we provide data on the diet of *P. pustulosus* from Reserva Rio Manso (5.666°N, 74.77416°W; ca. 220 m elev.), municipality of Norcasia, departament of Caldas, Colombia.

We examined the diet of *P. pustulosus* by stomach-flushing 78 individuals, sampled by GGD and SEL from 12–20 May 2010, between 1900 and 2200 h, around ponds in pasture lands. We identified each prey item to order or family, and measured the length and width of each item using manual calipers (to nearest 0.1 mm). We estimated prey volume using the formula for a prolate spheroid.

Table 1. Types of prey in the diet of *Physalaemus pustulosus* from Reserva Rio Manso, Norcasia, Caldas, Colombia. Volume in mm^3.

Prey	Number (%)	Volume (%)	Frequency of occurrence
Arachnida			
Acari	102 (9.6)	13.2 (0.52)	15
Insecta			
Coleoptera			
Chrysomelidae	1 (0.1)	0.5 (0.02)	1
Melolonthidae	1 (0.1)	0.3 (0.01)	1
Mycetophagydae	2 (0.2)	7.0 (0.28)	2
Nitidulidae	1 (0.1)	0.1 (0.00)	1
Silvanidae	2 (0.2)	0.9 (0.03)	2
Staphylinidae	5 (0.5)	1.5 (0.06)	5
Trogossitidae	1 (0.1)		1
Diptera			
Chironomidae	1 (0.1)	0.1 (0.00)	1
Drosophilidae	6 (0.6)	6.4 (0.25)	4
Micropezidae	4 (0.4)	2.2 (0.09)	1
Psychodidae	11 (1.0)	2.7 (0.11)	11
Sphaeroceridae	64 (6.0)	3.6 (0.14)	3
Hemiptera			
Cicadellidae	1 (0.1)	0.4 (0.01)	1
Fulgoridae	2 (0.2)	0.4 (0.01)	2
Hymenoptera			
Diapriidae	1 (0.1)	0.1 (0.00)	1
Figitidae	1 (0.1)	0.1 (0.01)	1
Formicidae	199 (18.8)	38.7 (1.54)	34
Isoptera			
Termitidae	630 (59.4)	2432.1 (96.50)	22
Protura			
Dycirtomidae	16 (1.5)	0.6 (0.02)	6
Thysanoptera			
Thripidae	1 (0.1)	0.3 (0.01)	1
Larvae	3 (0.3)	0.7 (0.03)	2
Diplopoda	1 (0.1)	0.1 (0.00)	1
Chilopoda	4 (0.4)	2.9 (0.11)	2
Mollusca	1 (0.1)	5.6 (0.22)	1
TOTAL	1061	2520.3	

Of 78 individuals examined, 46 (58.9%) contained prey. These individuals ranged from 17.9–33.5 mm SVL (mean 26.01 ± 3.2). The diet consisted mainly of arthropods although mollusks were also present (Table 1). Insects (seven orders and 19 families, and larvae) and mites were the most important prey. Termites were dominant in the diet, representing 59.4% of the total number and 96.5% of the volume. Ants were also important, but consumed in less proportion (18.8% and 1.54%, respectively). Other prey groups were not as evident, with values below 9.6% total number and below 0.52% volume).

Duellman (1978. Univ. Kansas Mus. Nat. Hist. Misc. Pub. 65:1–352), Parmelee (1999. Sci. Pap. Nat. Hist. Mus. Univ. Kansas 11:1–59), and Menéndez-Guerrero (2001. Ecología Trófica de la Comunidad de Anuros del Parque Nacional Yasuní en la Amazonía Ecuatoriana. Pont. Univ. Catol. Ecuador. 173 pp.) reported that other *Physalaemus* species, e.g., *P. freibergi* and *P. petersi*, consume a lot of termites, up to 99% both numerically and volumetrically, and very small quantities of other prey such as Coleoptera, Hymenoptera, Dermaptera, Hemiptera, and Arachnida.