

LITHOBATES SYLVATICUS (Wood Frog). EGG PREDATION. Wood Frogs are abundant amphibians throughout much of northern and northeastern North America, and their eggs are known to be consumed by larval caddisflies (Rowe et al. 1994. *J. Herpetol.* 28:357–364), *Notophtalmus v. viridescens* (Eastern Red-Spotted Newts; Pitt et al. 2011. *Herpetol. Rev.* 42:263), larval ambystomatid salamanders (Redmer and Trauth 2005. *In* Lannoo et al. [eds.], *Amphibian Declines: The Conservation Status of United States Species*, pp. 590–593. Univ. California Press, Berkeley), and leeches (Cory and Manion 1953. *Copeia* 1953:66). To the best of my knowledge, larval fishflies (Megaloptera: Corydalidae: Chaulioidinae) have not been documented as predators of the eggs of *L. sylvaticus* or any other amphibian. Fishflies produce large (up to 65 mm), predatory, aquatic larvae which (along with the larvae of some related megalopterans) are commonly called “hellgrammites” (Flint et al. 2008. *In* Merritt et al. [eds.], *An Introduction to the Aquatic Insects of North America*, pp. 425–426. Kendall/Hunt Publishing, Dubuque, Iowa).

I collected nine *L. sylvaticus* egg masses from a semi-permanent forest pond in Pennsylvania State Game Lands 176, Centre Co., Pennsylvania, USA (40.765°N, 78.016°W; datum WGS84) in April 2013 for use in a laboratory experiment. Upon return to the laboratory, I noticed that two egg masses had individual fishfly larva (*Chauliodes pectinicornis*) embedded within them. They could only be removed by separating the egg masses by hand. Each larval fishfly was transferred to a small plastic container. Because of how deeply embedded the fishflies were, I suspected they may have been feeding on the eggs. The smaller fishfly (approx. 20 mm) was therefore provided with three *L. sylvaticus* eggs and the larger fishfly (approx. 50 mm) was given nine eggs to test whether they would eat the eggs. After a week, the smaller fishfly was found dead and had not eaten any eggs. However, the larger fishfly had consumed the embryos of seven eggs, leaving the egg jelly relatively intact. I have previously observed *Chauliodes* sp. larvae in at least three other permanent or semi-permanent breeding ponds of *L. sylvaticus*. This is consistent with the long development time of these insect larvae, and many of those I observed were large enough that they had most likely overwintered in the ponds. Together, these observations suggest that fishfly larvae may be important egg predators for *L. sylvaticus* (and potentially other amphibians) in intermediate- to long-hydroperiod ponds.

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BRADLEY E. CARLSON, Biology Department and IGDP in Ecology, The Pennsylvania State University, University Park, Pennsylvania 16802, USA; e-mail: bec169@psu.edu.

LITHOBATES WARSZEWITSCHII (Warszewisch's Frog). REPRODUCTIVE BEHAVIOR. There are numerous reports of interspecific amplexus in anurans from many localities (Medina 2013. *Herpetol. Rev.* 41:123; Pearl et al. 2005. *Am. Midl. Nat.* 154:126–134; Ritchie et al. 2008. *Herpetol. Rev.* 39:80). *Smilisca phaeota* and *Lithobates warszewitschii* are common tropical frogs that can be found sympatrically from Honduras to Panama in lowland and premontane wet and moist forest. Here we report the first observation of amplexus between a native hylid and a native ranid in Panama and the first instance of this behavior between these species. At 2003 h on 20 Jan 2011, a male *L. warszewitschii* was observed in amplexus with an adult *S. phaeota* of undetermined sex in the roadside ditches at Río Luis, in the buffer zone of the Santa Fe National Park, Panama (8.68117°N, 81.217796°W;

datum WGS84). Weather conditions were clear without rain and it had been two days since the last rain. The frogs were photographed and observed for six minutes. Two hours later, we returned to the same place and they remained in amplexus.

ÁNGEL SOSA BARTUANO, Sociedad Mastozoológica de Panamá, Apartado 0835-00680, Panamá, Republic de Panamá (e-mail: asosa2983@gmail.com); **JOELBIN DE LA CRUZ** (e-mail: joelbin-18@hotmail.com), and **LEESTHER VÁSQUEZ**, Escuela de Biología, Centro Regional Universitario de Veraguas, Universidad de Panamá, Panamá, Republic de Panamá; Herbios group Panamá (e-mail: lestervb28@hotmail.com).

PHYLLOMEDUSA NORDESTINA (Leaf Frog) and PHYSALAE-MUS CUVIERI (Dwarf Frog). INTERSPECIFIC AMPLEXUS. Interspecific amplexus occurs between amphibians overlapping spatially and temporally (Hobel 2005. *Herpetol. Rev.* 36:55–56; Hobel 2005. *Herpetol. Rev.* 36:439–440; Waterstrat et al. 2008. *Herpetol. Rev.* 39:458), and usually occurs between individuals of the same genus or family (Streicher et al. 2010. *Herpetol. Rev.* 41:208). On 12 March 2012 at 2000 h, on the banks of an artificial lake in Floresta Nacional do Araripe (Flona-Araripe), Barbalha Municipality, northeastern Brazil (7.36543°S, 39.44061°W; 912 m elev.), we observed interspecific amplexus between two individuals from different families when a female *Phyllomedusa nordestina* (Hylidae) was amplexed by a male *Physalaemus cuvieri* (Leiuperidae) (Fig. 1). Both individuals were trapped inside a tank ca. 1 × 3 m with an artificial depth of about 2.5 m. The tank had a water depth of 40 cm; the specimens were on a fallen log, outside of the water. Streicher et al. (2010, *op. cit.*) reported interspecific amplexus between the hylids *Smilisca baudinii* and *Pachymedusa dacnicolor* and members of this family are known to hybridize (Lamb et al. 1990. *J. Evol. Biol.* 3:295–309).

This study presents the first report of amplexus between the families Hylidae and Leiuperidae. A likely factor may have been stress due to competition for space associated with the reproductive activity of both species in the area. We thank CNPq who provided the scholarship for S. Ribeiro. The study was authorized by IBAMA permit number 29838-2. Field assistance was provided by O. Filho, G. Sousa, and A. Teixeira.

SAMUEL CARDOZO RIBEIRO, Programa de pós-graduação em Ciências Biológicas (Zoologia), Departamento de Sistemática e Ecologia-DSE,



FIG. 1. Interspecific amplexus between *Physalaemus cuvieri* (male) and *Phyllomedusa nordestina* (female) from Floresta Nacional do Araripe, northeastern, Brazil.

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Centro de Ciências Exatas e da Natureza-CCEN, Universidade Federal da Paraíba-UFPB, Cidade Universitária, Campus I, CEP 58059-900, João Pessoa, PB, Brazil (e-mail: ribeiroherpeto@gmail.com); **JOÃO ANTONIO DE ARAÚJO-FILHO** and **WALTÉCIO DE OLIVEIRA ALMEIDA**, Departamento de Química Biológica, Centro de Ciências Biológicas e da Saúde – CCBS, Universidade Regional do Cariri – URCA, Campus do Pimenta, CEP 63105-100, Crato, Ceará, Brazil; **DANIEL DE OLIVEIRA MESQUITA**, Departamento de Sistemática e Ecologia-DSE, Centro de Ciências Exatas e da Natureza-CCEN, Universidade Federal da Paraíba-UFPB, Cidade Universitária, Campus I, CEP 58059-900, João Pessoa, PB, Brazil.

PSEUDACRIS ILLINOENSIS (Illinois Chorus Frog). PREDATION. *Pseudacris illinoensis* is a fossorial anuran of conservation concern throughout its restricted geographic range. Predators of adults are unknown; confirmed predators of tadpoles include fishes and aquatic insects (Shepard et al. 2005. *In* Lannoo [ed.], *Amphibian Declines: The Conservation of United States Species*, pp. 484–485. University of California Press, Berkeley). Here, I report snake predation of a *P. illinoensis* tadpole. At 1130 h on 30 April 2013 (sunny, 23°C), I hand-captured a *Nerodia erythrogaster flavigaster* (SVL = 47 cm; total length = 66 cm) in a stagnant, shallow (< 25 cm deep), 1-m wide drainage ditch excavated in a cropfield in Alexander Co., Illinois, USA (precise location withheld). Upon handling, the snake regurgitated a *P. illinoensis* tadpole (total length = 4.1 cm). The tadpole was still alive, indicating recent consumption by the snake. I released the snake and tadpole into the ditch.

JOHN G. PALIS, Palis Environmental Consulting, P.O. Box 387, Jonesboro, Illinois 62952, USA; e-mail: jpalis@yahoo.com.

RHACOPHORUS RUFIPES (Red-legged Tree Frog). MAXIMUM ELEVATION. *Rhacophorus rufipes* is a small anuran (to SVL = 5.0 cm) endemic to the island of Borneo (Inger and Stuebing 2005. *A Field Guide to the Frogs of Borneo*. Natural History Publications, Kota Kinabalu. 201 pp.). The species dwells in primary forests in lowlands and hilly terrain (elev. up to 250 m), and congregate in low vegetation 1–3 m above the ground to breed (Inger 2005. *The Systematics and Zoogeography of the Amphibia of Borneo*. Natural History Publications, Kota Kinabalu. 402 pp.). Herein we report a new elevational limit for *R. rufipes*.

Between 1900–2200 h On 29 September 2008, a juvenile *R. rufipes* (SVL = 1.7 cm; mass = 0.5 g) was sampled via opportunistic examination at Sungai Lidan, Bundu Tuhan, Ranau District, West Coast Division, Sabah, Bornean Malaysia (5.9778°N, 116.5298°E, datum WGS84; elev. 1076 m). Air temperature was 18.4°C, and relative humidity was 80.6%. Sungai Lidan is a rocky-bottomed stream with clear and moderately flowing water. The river banks support much vegetation such as rattan, bamboo and wild ginger (Kueh et al. 2011. *Herpetol. Rev.* 42:91), and thus, provide preferred breeding habitats for *R. rufipes*. The finding represents an extension of elevational limit for *R. rufipes* to the submontane zone. The specimen (HEP00658) was deposited in BORNEENSIS, the Bornean reference collection of the Institute for Tropical Biology and Conservation, Universiti Malaysia Sabah.

Elevational limit change in anurans could be attributed to climate change that enhances both the surrounding abiotic and biotic constraints mainly caused by increasing air temperature, and decreasing precipitation and moisture, and drives anurans uphill (Colwell et al. 2008. *Science* 322:258–261; Hargreaves et al. 2014. *Am. Nat.* 183:157–173). Uphill distribution of anurans narrows their geographical range, and subsequently, pushes anurans towards extinction (Toranza and Maneyro 2013.

Phyllomedusa 12:97–106). Further studies on the natural history of anurans, in particular their elevational limit, geographical range, and autecology, becomes necessary for effective conservation endeavors.

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KUEH BOON-HEE (e-mail: kbhkelvin@hotmail.com), **ELANGKUMARAN S/O SAGTIA SIWAN** (e-mail: esivan@wwf.org.my), **NORASMIL ISMAIL** (e-mail: norasmilismail@yahoo.com.my), **JUELBER ALBERT** (e-mail: juelberalbert@gmail.com), **CINDY LAU EN SHING** (e-mail: cindyenxi@hotmail.com), **VYNER BAYANG ANAK NGINDANG** (e-mail: peace87fe@yahoo.com), and **JOSEPH KOH SOON PENG**, Institute for Tropical Biology and Conservation, Universiti Malaysia Sabah, Jalan UMS, 88400 Kota Kinabalu, Sabah, Malaysia (e-mail: soonpeng@yahoo.com).

RHINOPHRYNUS DORSALIS (Mexican Burrowing Toad). PREDATION. *Rhinophrynus dorsalis* ranges from southern Texas, USA and Michoacán, México, south along coastal areas to northeastern Honduras on Caribbean slope, and to Costa Rica in the Pacific slope (Savage 2002. *The Amphibians and Reptiles of Costa Rica: A Herpetofauna between Two Continents, between Two Seas*. University of Chicago Press, Chicago, Illinois. 934 pp.). In Costa Rica it is found exclusively in the northwest of the country (Savage 2002, *op. cit.*). At approximately 1750 h on 24 May 2013, at Santa Rosa National Park, Guanacaste Province, Costa Rica (10.83333°N, 85.61667°W; datum WGS84), near a flooded zone of the camping area, we observed a *Pulsatrix perspicillata* (Spectacled Owl) through 10x binoculars perched on a horizontal branch about 5 m high, with a *R. dorsalis* pressed down firmly under its left talon (Fig. 1). The toad was motionless, with its body inflated; from our point of view we were unable to see if it was injured, but the yellow spots on the back and very short limbs leave no doubt about species identification. The bird stayed around 15 min in this position, with its eyes almost closed in the first moments, making slow and gentle sideways movements with its head. Then the owl flew toward a nearby tall

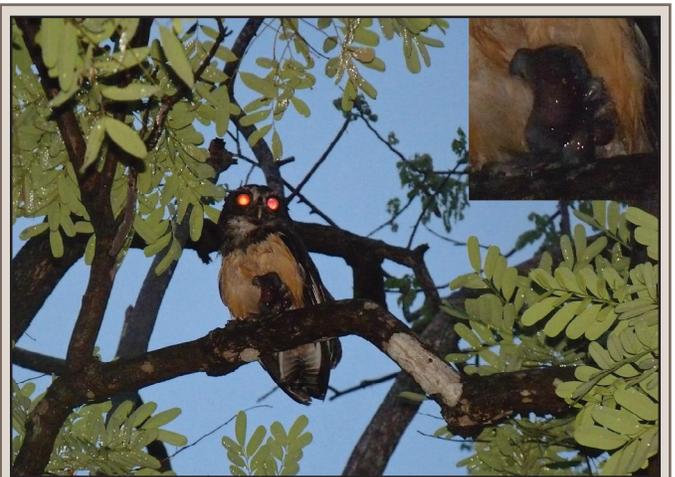


FIG. 1. Predation of *Rhinophrynus dorsalis* (Mexican Burrowing Frog) by *Pulsatrix perspicillata* (Spectacled Owl) in Santa Rosa National Park, Guanacaste, Costa Rica.