a water bug nymph was observed preying upon an adult *L. macrosternum*. When observed the water bug was grasping the dead frog on its ventral region. When disturbed by our presence the water bug left the prey and dove into the water.

We suggest that such predator/prey interactions could be common when these species are found at the same environment, such as streams and permanent, semi-permanent, or temporary ponds.

**Luana Nazareno Pereira**, Pós-graduação em Ciências e Monitório Ambiental, Instituto de Ensino Superior do Sul do Maranhão - IESMA, Unidade de Ensino Superior do Sul do Maranhão - UNISULMA, Rua 580 Pedro S/N, Jardim Cristo Rei CEP 65907-070, Imperatriz, MA, Brazil (e-mail: bioluana@hotmail.com); **Priscilla G. Gamble** and **Fábricio Hiroiuki Oda**, Programa de Pós-Graduação em Ecologia de Ambientes Aquáticos Continentais, Universidade Estadual de Maringá, Núcleo de Pesquisas em Limnologia, Ictiologia e Aquicultura, Bloco G-90, Av. Colombo, 5790, CEP 87020-900, Maringá, PR, Brazil.

**Leptodactylus TrogloDytes** (Caçôtes). Larval Cannibalism. Bragg (1964, Herpetologica 20:17–24) reported that cannibalism occurs in the larvae of some frogs; Heyer (1975, Biota Biodivers. 2(2):100–111) described cannibalism in *Leptodactylus* larvae. During the night of 17 April 2009 in a permanent pond (ca. 30 × 18 m) in an urban area of the municipality of Natal (55.88888, 35.2050000) state of Rio Grande do Norte, Brazil, we observed the first record of cannibalism in tadpoles of *Leptodactylus trogloDytes*. Tadpoles (ca. 12 mm SL, Gosner Stage 25; Gosner 1980 Herpetologica 16:183–190) being consumed by larger congeners (20 mm SL, Gosner Stage 30) were near the vegetation on the edge of the pond when first observed. They were caught by the larger tadpoles and taken to the bottom of the pond, where parts of the head and abdomen were eaten. Identification of tadpoles was verified by M.N.C. Kokubum.

**Jaqueitio S. Jorge** (e-mail: queitio@yahoo.com.br) and **Eliza M. X. Freire** (e-mail: aliziajujuju@ufrn.br), Laboratório de Herpetologia, Departamento de Botânica, Ecologia e Zooloµgia, Centro de Biociências, Universidade Federal do Rio Grande do Norte, Campus Universitário, Laço2 Nova, CEP 59072-970, Natal, Rio Grande do Norte, Brazil.

**LithobatesJohni** (Moore’s Frog). Habitat and Micro-habitat Use. Very little is known about the life history of *Lithobates johni* (Blair 1947, Amer. Mus. Nat. Hist. 139:1–18; Ramirez-Bautista et al. 2010, Lista Anotada de los Anfibios y Reptiles del Estado de Hidalgo, México, Universidad Autonómica del Estado de Hidalgo, CONABIO. 104 pp.). Herein we report habitat and microhabitat use by *L. johni* from the tropical rain forest of Río Blanco (20.24646°N, 98.05434°W; WGS 84; elev. 601 m), Municipality of Huetulco, Hidalgo, México. *Lithobates johni* are thought to be fully aquatic, however no studies have reported the habitat and microhabitat use of this species. On 15 March 2011, during 2000–2300 h, we found seven (CIB 4114–4120) *L. johni* in tropical rain forest (Fig. 1). These individuals were perched in a cave under a waterfall. Environmental and microhabitat temperatures were 18°C and 16°C. It appears the species prefers non-polluted waters as we did not find individuals in places where the river is polluted.

This study was supported by the projects CONACYT-S 52552-Q and FOMIX-HGO-2008-85628 “Diversidad Biológica del Estado de Hidalgo”.

**Christian Berriosabal Islas** (e-mail: bitroisabal@hotmail.com), **Aurelio Ramírez-Bautista** (e-mail: aurelios@uach.mx), **Adrian Leyte-Manrique** (e-mail: aleyteman@gmail.com), **Luís Badía**

![Image](image-url)

**Fig. 1.** A) Female *Lithobates johni* (photo by L.V. Saldaña); B) habitat of *L. johni*; C) habitat and microhabitat inhabited by *L. johni*, and D) microhabitat of *L. johni*, arrows indicate the microhabitats used by frogs.

**Lo Saldaña** (e-mail: luismbadiallosal@hotmail.com), **Uriel Hernández-Salinas** (e-mail: uhernandez23@gmail.com), and **Raciel Cruz-Elizalde** (e-mail: cruzelizalde@gmail.com), Centro de Investigaciones Biológicas (CIB), Universidad Autónoma del Estado de Hidalgo, A.P. 1-69 Plaza Juárez, C.P. 42001, Pachuca, Hidalgo, México.

**Litoria cooldolensis** (Cooloola Sedge Frog). AMPLExUS. In many anurans, males vocalize to attract females but may grasp any female that comes within reach and retain their hold unless displaced by a rival male (Bruning et al. 2010, Biol. Lett. 6:322–324). The male’s clasping response may, at times, not discriminate between species, and at the height of breeding, sometimes involves inanimate objects (Brown 1977, J. Herpetol.; Storm 1980, Herpetologica 16:251–258), non reproductive and reproductive females (Marco and Lizana 2002. Ecol. Evol. 14:1–8; Cheong et al. 2008. Anim. Cells Syst. 12:93–96), and even dead frogs (Marco and Lizana 2002. op. cit.).

In the Australian subtropical frog *Litoria cooldolensis*, breeding occurs in coastal wetlands in spring, summer, and autumn, where males call from reeds and emergent vegetation or over near water (Meyer et al. 2006. National Recovery Plan for the wallum sedge frog and other wallum-dependent frog species. Queensland Parks and Wildlife Service, Brisbane, report to Department of the Environment and Water Resources, Canberra; pers. obs.). Amplexus is axillary and eggs are laid in clumps in the water amidst vegetation (Meyer et al. 2006. op. cit.).

On 3 October 2010 at ca. 1915 h KL observed a male *L. cooldolensis* amplexing a *L. olinguburensis* (presumably female) in Great Sandy National Park (Cooloola section), Queensland (Fig. 1). The *L. olinguburensis* made no attempt to go to the water to commence egg deposition, nor did it attempt to dislodge or escape from the male. Both species were heard vocalizing during the survey, along with *L. fallax* and *Crinia lionula*. Environmental and air temperatures were 19.3°C and 20.1°C. Cloud cover was ca. 50% with no moon, thus a low level of illumination. Humidity was 91.9%, barometric pressure was 1014.6 hPa. The average pH of the wetland was 3.65 and salinity was 32.76 ppm. 

*Herpetological Review* 42(4), 2011
Queensland. In this instance, the *L. rubella* was climbing higher up the vegetation and appeared to be attempting to dislodge the unwanted male. Again, both species were heard vocalizing during the survey, along with *L. nasuta, L. tyleri*, *C. tinnuma, Uperoleia fuscus, Limnodynastes peronii*, and *Limnodynastes tenuireginae*. Environmental air and water temperatures were 23.1°C and 25°C. Cloud cover was 100%, thus a low level of illumination, with some rain that evening. Humidity was 92.8%, barometric pressure was 1001 hPa. The average pH of the wetland was 3.86 and salinity was 21.97 ppm. No release vocalizations were heard from either of the interactions. In both observations the amplexed frog was larger than the male, most significantly in *L. rubella*, where the male had to modify its amplexus technique—from axillary to inguinal. Both of these observations were made at the beginning of breeding season in two different wetlands.

In any sexually reproducing species, determining which individual to combine gametes with is a critical determinant of individual fitness and likely to be under strong selection pressure (Andersson 1994, Sexual Selection. Princeton Univ. Press, Princeton, New Jersey). Mate choice is important for successful reproduction and females have been shown to discriminate between species, most commonly on the basis of difference in male vocalizations (Blair 1964, Q Rev. Biol. 39:334–344). As is apparent from an examination of Figures 1 and 2, the morphological differences between the species are quite clear. Also, the calls of all three species can be readily distinguished, thus female selection is unlikely to have been the cause of these mismatches. Instead, the pairings are likely to have arisen from a male *L. cooloolensis* displaying indiscriminate amplexus, jumping on any frog nearby.

Amplexus confers substantial costs to the amplexing (McLister 2008. Can J Zool. 81:398–394) and amplexed anuran (Brock et al. 2008. Anim. Behav. 75:1571–1579). Thus, it would be beneficial for females (and other males) to immediately terminate ‘unwanted’ amplexus (Brock et al. 2008, op. cit.; McLister 2003, op. cit.). Furthermore, selection should act on males to terminate inappropriate amplexus by rapidly discriminating the sex and reproductive condition of the animal that they have seized (Brock et al. 2008, op. cit.).

The females may not have been receiving the correct chemical cues to proceed with breeding as neither was observed to commence with egg deposition. However, some mechanisms for repelling unwanted suitors have been observed in other species. These include release vocalizations (Leary 2001. Anim. Behav. 61:431–438), inflating the body (Bruning et al. 2010, op. cit.), and laying fewer eggs when paired with heterospecific males (Hettway 2009. Anim. Behav. 78:1365–1372).

KL has been surveying 16 Wallum Frog breeding sites over two years (approx. 500 survey hours) and has never observed a pair of *L. cooloolensis* or *L. olongburensis* in amplexus. This suggests that observations of such behavior might be rare, and might be quickly followed by egg deposition. The two observations discussed here lead to questions of hybridization between *L. cooloolensis* and *L. olongburensis*, as they share similar morphology, breeding habitat, breeding seasons, and calling perch sites. Further studies examining the viability of hybrid offspring and identifying the cause of matings between different species in hybrid populations would add to our understanding of hybridization and mate recognition in amphibians.

KATRIN LOWE (e-mail: k.low@griffith.edu.au) and JEAN MARC HERO (e-mail: m.hero@griffith.edu.au) and JEAN MARC HERO (e-mail: m.hero@griffith.edu.au), Environmental Futures Centre, School of Environment, Griffith Uni., Parklands Drive, Gold Coast Campus, Queensland 4222, Australia.