Nota Científica
(Short Communication)

INTERSPECIFIC AMPLEXI BETWEEN TWO SYMPATRIC SPECIES OF TOADS, *RHINELLA MAJOR* AND *RHINELLA MARINA* (ANURA: BUFONIDAE)

AMPLEXOS INTERESPECÍFICOS ENTRE DOS ESPECIES SIMPÁTRICAS DE SAPOS *RHINELLA MAJOR* Y *RHINELLA MARINA* (ANURA: BUFONIDAE)

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RESUMEN. Los amplexos interespecíficos ocurren entre anfibios del mismo género o familia. Se presentan observaciones de amplexos interespecíficos entre *Rhinella major* y *Rhinella marina* en una poza temporal en Ilha de Santana, Santana, Amapá, Región Norte de Brasil.

Several anuran species that breed in water bodies form mating aggregations after heavy rains (Pombal Jr. & Haddad, 2007). Interspecific amplexi are especially common in anurans in which numerous adults occur at breeding sites for a short period (Rodrigues *et al.*, 2007, Wells, 1977, 2007). In these species, females are important resources for males, since females are available for a short period and males occur at higher density than females, even from the start of the breeding season (Chandler & Zamudio, 2008).

Herein we present records of interspecific amplexi between *Rhinella major* (Müller & Hellmich, 1936) and *Rhinella marina* Linnaeus, 1758. These species have reproduction throughout the year, but with a peak in the wet season. Several males aggregate in temporary ponds for two-three days, where thousands of fertilized eggs are deposited on the water surface in gelatinous strings (Lima *et al.*, 2012).

The records are from the Ilha de Santana, Santana municipality, Amapá state, North Brazil. The area, located in the North of the Amazon River, is characterized by a high diversity of vegetation mosaics, where there are transitional areas between upland forest, flooded forest and savannas (Valente *et al.*, 1998). On June 21th, at

night, around 21:38, in a temporary pond (0.073611°S, 51.176389°W, datum: WGS84), 14 males of *R. major* and two males of *R. marina* were found calling. We observed interspecific amplexi between a male of *R. major* (SVL = 46.5 mm) and a male of *R. marina* (SVL = 78.8 mm) and a male of *R. marina* (SVL = 134.8 mm) and multiple amplexi of two males of *R. major* (SVL = 49.4 mm and 56.9 mm) (Fig. 1). The toads maintained their position for at least an additional 15 minutes. During this entire time *R. marina* did not emit a release call. The males of *R. marina* use specialized signals, such as “release” calls and body vibrations or inflate the body to discourage erroneous amplexi (Izzo *et al.*, 2012).

According to Pombal Jr. & Haddad (2005), males of the genus *Rhinella* are not very selective, moving toward and forming amplexi with anything that moves nearby. In anurans, interspecific amplexi have been recorded, even between families (Green 1985, Mollov *et al.*, 2010, Machado & Bernarde, 2011, Ribeiro *et al.*, 2014, Yadav & Yankanchi, 2014, Kinderman, 2015, Lombardo *et al.*, 2016) and different amphibian orders (Moldowan *et al.*, 2013, Simović, 2014).

Our observations confirm the occurrence of interspecific amplexi between individuals of two common toad species found in sympatry, *R. major* and *R. marina*, and suggest that this behavior is more widespread than previously recognized. Further studies are needed to fully understand the amplexi mechanisms in the amphibians and compare if this behavior is more common in species of *Rhinella* than in other groups.

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Figure 1. Interspecific amplexi: (A) male of *Rhinella major* and a male of *Rhinella marina* attached by axillar amplexus; (B) male of *Rhinella marina* and two males of *Rhinella major*.

LITERATURE CITED

- Chandler, C. H., & Zamudio, K. R. (2008). Reproductive success by large, closely related males facilitated by sperm storage in an aggregate breeding amphibian. *Molecular Ecology*, 17, 1564-1576.
- Green, D. M. (1985). Natural hybrids between the frogs *Rana cascadae* and *Rana pretiosa* (Anura: Ranidae). *Herpetologica*, 41, 262-267.
- Izzo, T. J., Rodrigues, D. J., Menin, M., Lima, A. P., & Magnusson, W. E. (2012). Functional necrophilia: a profitable anuran reproductive strategy? *Journal of Natural History*, 46, 2961-2967.
- Kinderman, C. (2015). *Litoria wilcoxii* (Stony Creek Frog). Interspecific Amplexus. *Herpetological Review*, 46(2), 235.
- Lima, A. P., Magnusson, W. E., Menin, M., Erdtmann, L. K., Rodrigues, D. J., Keller, C., & Hödl, W. (2012). *Guia de sapos da Reserva Adolpho Ducke, Amazônia Central*. Editora INPA, Manaus, 168 pp.
- Lombardo, I., Carreira, S., & Maneyro, R. (2016). *Hypsiboas pulchellus* (Montevideo Treefrog). Multiple Amplexus. *Herpetological Review*, 47 (1), 111.
- Machado, R. A., & Bernarde, P. S. (2011). Multiple and heterospecific amplexi between the toads *Rhaebo guttatus* and *Rhinella marina* (Anura: Bufonidae). *Herpetology Notes*, 4, 167-169.
- Mollov, I. A., Popgeorgiev, G. S., Naumov, B. Y., Tzankov, N. D., & Stoyanov, A. Y. (2010). Cases of abnormal amplexus in anurans (Amphibia: Anura) from Bulgaria and Greece. *Biharean Biologist*, 4, 121-125.
- Pombal Jr., J. P., & Haddad, C. F. B. (2005). Estratégias e modos reprodutivos de anuros (Amphibia) em uma poça permanente na Serra de Paranapiacaba, Sudeste do Brasil. *Papéis Avulsos de Zoologia*, 45, 201-213.
- Pombal Jr., J. P., & Haddad, C. F. B. (2007). Estratégias e modos reprodutivos em anuros, pp. 101-106. In: L. B. Nascimento & M. E. Oliveira (Eds.). *Herpetologia no Brasil II*. Sociedade Brasileira de Herpetologia, Belo Horizonte.
- Ribeiro, S. C., Araújo-Filho, J. A., Almeida, W. O., & Mesquita, D. O. (2014). *Phyllomedusa nordestina* (Leaf Frog) and *Physalaemus cuvieri* (Dwarf Frog). Interspecific Amplexus. *Herpetological Review*, 45 (3), 479.
- Rodrigues, D. J., Uetanabaro, M., & Lopes, F. S. (2007). Breeding biology of *Phyllomedusa azurea* Cope 1862 and *P. sauvagii* Boulenger 1882 (Anura) from the Cerrado, Central Brazil. *Journal of Natural History*, 41, 1841-1851.
- Simović, A., Anderson, N., Anđelković, M., Gvozdenović, S., & Dorđević, S. (2014). Unusual amplexuses between anurans and caudates. *Herpetology Notes*, 7, 25-29.
- Valente, M. A., Oliveira-Júnior, R. C., Rodrigues, T. E., Santos, P. L., Silva, J. M. L., & Cardoso-Júnior, E. Q. (1998). Solos da ilha de Santana, município da Santana, Estado do Amapá. Embrapa CPATU, Belém, 34 pp.
- Wells, K. D. (1977). The social behaviour of anuran amphibians. *Animal Behaviour*, 25, 666-693.
- Wells, K. D. (2007). *The Ecology and Behavior of Amphibians*. University of Chicago Press, Chicago, 1148 pp.
- Yadav, O. V., & Yankanchi, S. R. (2014). *Raorchestes bombayensis* (Bombay Bush Frog) and *Microhyla ornata* (Ornate Narrow Mouthed Frog). Interspecific Amplexus. *Herpetological Review*, 45 (4), 683.

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