

## Predation on the treefrog *Leptopelis brevirostris* (Anura: Arthroleptidae) by a wandering spider (Araneae: Ctenidae) in Cameroon

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**Abstract.** We report on a case of invertebrate predation on a vertebrate in African tropics. A nocturnal ctenid spider was found to have preyed upon a tree frog (*Leptopelis brevirostris*) in southern Cameroon.

**Keywords.** Arachnida; Araneae; Ctenidae; Amphibia; Anura; Arthroleptidae; predation

Anecdotal reports of invertebrates feeding on amphibians have been reviewed by McCormick and

Polis (1982) and, more recently, by Toledo (2005). According to McCormick and Polis (1982) four classes of arthropods are known as predators of vertebrates: insects (e.g. water bugs, Toledo, 2003, trap-jaw ants, Facure and Giaretta, 2009), crustaceans (e.g. crabs, Gutsche and Elepfandt, 2007), chilopods (e.g. centipedes, Carpenter and Gillingham, 1984; Forti et al., 2007) and - the majority of reports - arachnids (e.g. harvestmen, Castanho and da Rocha, 2005; scorpions, Villanuevo-Rivera et al., 2000). Among the

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**Figure 1.** *Leptopelis brevirostris* as the prey of a wandering spider (Ctenidae) in southern Cameroon.

latter, spiders are most frequently reported as preying on anurans. In contrast, associations of anurans with invertebrates potentially dangerous for them have been reported, too; e.g. *Phrynomantis microps* and *Kassina fusca* with ponerine ants (*Megaponera foetens* and *Paltothyreus tarsatus*, Rödel and Braun, 1999), *Chiasmocleis ventrimaculata* with a theraphosid spider (*Xenesthis immanis*, Cocroft & Hambler, 1989; also citing further examples) or *Gastrophryne carolinensis* and *G. olivacea* with tarantulas (*Aphonopelma hentzii*, Dundee, 1999) with no predator-prey interactions. However, *Aphonopelma* would attack and eat the hyliid *Acrid crepitans* (Dundee, 1999). Furthermore Schlüter and Regös (1981) report on *Lithodytes lineatus* as a dweller in nests of leaf cutting ants (*Atta cephalotes*). Nonetheless the impact of predation on amphibian populations remains unknown (Menin *et al.*, 2005).

It is remarkable that there is a large discrepancy in the number of reports on cases of amphibian predation by invertebrates from different biogeographic realms: almost all reports are from the Neotropics. While the number exceeds twenty within the last two years for the Neotropics, only a few instances of invertebrates preying on Afrotropical anurans have been published in the last decade. Gutsche and Elepfandt (2007) reported on river crabs (*Potamonantes*) preying on *Xenopus laevis* in South Africa. Vonesh (2005a) reported on fishing spiders (*Thalassius*) as predators of metamorph and adult *Hyperolius spinigularis* in Tanzania. Finally, Rödel (1996) figured a *Kassina fusca* as prey of a belostomatid bug and *Hyperolius nitidulus* as prey of a pisaurid spider. But earlier life stages are known to be hunted, too. Ephydrid fly larvae (*Typopsilopa*) are known to feed on eggs of *H. spinigularis* and its tadpoles are hunted by dragonfly larvae (*Trapezostigma basilaris*), damselfly larvae (Zygoptera), diving beetles (*Dysticus*) and water scorpions (*Nepa*) (Vonesh, 2000, 2005a, 2005b). McIntyre (1999) mentioned fishing spiders (*Thalassius spinosissimus* or *T. margaritatus*) preying on *Amnirana albolabris* tadpoles in Uganda.

Herein, we report on a further case of predation by an invertebrate on a vertebrate in tropical Africa. A large wandering spider (Ctenidae) had obviously caught a treefrog (*Leptopelis brevirostris*). Both specimens were found at 00:24 h on the 30<sup>th</sup> October 2007 in the primary rainforest of southern Cameroon around Nkoelon (N 02°23.830' E 010°02.709' altitude: app. 100 m). After taking a photograph in-situ the spider escaped, while the frog was collected and deposited in the collection of the Zoologisches Forschungsmuseum Alexander

Koenig, Bonn (ZFMK 87763). As the taxonomy of the Afrotropical representatives of the pantropical family Ctenidae requires a more thorough revision (Steyn *et al.*, 2002, Jocqué *et al.*, 2005), it was impossible to arrive at a more specific determination without the voucher. But knowledge on their ecology is equally scarce: African members of the Ctenidae are large nocturnal hunters that occur in high densities in forests (Jocqué *et al.* 2005). The wandering spider had a total length (stretched legs, see Fig. 1) of approximately 150 mm, while the snout-urostyl length of *L. brevirostris* measures 33.6 mm. We did not observe the act of predation itself. The spider was sitting on a leaf at about 1 m height above the forest ground, its prey lying behind, “fixed” with a few silk strands. While most dorsal parts of the frog still showed the natural green coloration, the dorsum shimmered in grey and pale blue, probably as a result of histolysis. The legs of *L. brevirostris* were tied close to the body and seemed to be “glued” to it, the forelegs being unnaturally distorted (Fig. 1).

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## References

- Carpenter, C.C., Gillingham, J.C. (1984): Giant centipede (*Scolopendra alternans*) attacks marine toad (*Bufo marinus*). *Caribb. J. Sci.* **20**: 71-72.
- Cocroft, R.B., Hambler, K. (1989): Observations of a commensal relationship of the microhylid frog *Chiasmocleis ventrimaculata* and the burrowing theraphosid spider *Xenesthis immanis* in southeastern Peru. – *Biotropica* **21**: 2-8.
- Dundee, H.A. (1999): *Gastrophryne olivacea* (Great Plains Narrowsmouth Toad). Aggregation with tarantula. *Herpetol. Rev.* **30**: 91-92.
- Facure, K.G., Giaretta, A.A. (2009): Semi-terrestrial tadpoles as a vertebrate prey of trap-jaw ants (*Odontomachus*, Formicidae). *Herpetology Notes*. **2**: 63-66.
- Forti, L.R., Fischer, H.Z., Encarnaçao, L.C. (2007): Treefrog *Dendropsophus elegans* (Wied-Neuwied, 1824) (Anura: Hyliidae) as a meal to *Otostigmus tibialis* Brölemann, 1902 (Chilopoda: Scolopendridae) in the tropical rainforest in southeastern Brazil. *Braz. J. Biol.* **67**: 583-584.

- Gutsche, A., Elepfandt, A. (2007): *Xenopus laevis* (African clawed frog). Predation. *Herpetol. Rev.* **38**: 198-199.
- Jocqué, R., Samu, F., Bird, T. (2005): Density of spiders (Araneae: Ctenidae) in Ivory Coast rainforests. *J. Zool.* **266**: 105-110.
- McCormick, S., Polis, G.A. (1982): Arthropods that prey on vertebrates. *Biol. Rev.* **57**: 29-58.
- McIntyre, P. (1999): *Hylarana albolabris* (NCN). Predation. *Herpetol. Rev.* **30**: 223.
- Rödel, M.-O. (1996): Amphibien der Westafrikanischen Savanne, Frankfurt, Chimaira.
- Rödel, M.-O., Braun, U. (1999): Associations between anurans and ants in a west African savanna (Anura : Microhylidae, Hyperoliidae, and Hymenoptera : Formicidae). *Biotropica.* **31**: 178-183.
- Schlüter, A., Regös, J. (1981): *Lithodytes lineatus* (Schneider, 1799) (Amphibia: Leptodactylidae) as a dweller in nests of the leaf cutting ant *Atta cephalotes* (Linnaeus, 1758) (Hymenoptera: Attini). *Amphibia-Reptilia.* **2**: 117-121.
- Toledo, L.F. (2005): Predation of juvenile and adult anurans by invertebrates: current knowledge and perspectives. *Herpetol. Rev.* **36**: 395-400.
- Villanueva-Rivera, L.J., Joglar, R.L., Li-Objio, F.C. (2000): *Eleutherodactylus coqui* (Coqui). Predation. *Herpetol. Rev.* **31**: 100.
- Vonesh, J.R. (2000): Dipteran predation on the arboreal eggs of four *Hyperolius* frog species in western Uganda. *Copeia.* **2**: 560-566.
- Vonesh, J.R. (2005a): Sequential predator effects across three life stages of the African tree frog, *Hyperolius spinigularis*. *Oecologia.* **143**: 280-290.
- Vonesh, J.R. (2005b): Egg predation and predator-induced hatching plasticity in the African reed frog, *Hyperolius spinigularis*. *Oikos.* **110**: 241-252.

