

TARICHA TOROSA (California Newt). MORTALITY. *Taricha torosa* is endemic to California—its range stretching along coastal mountain ranges from Mendocino County to San Diego County, near the Mexican border (Stebbins 2003. A Field Guide to Western Reptiles and Amphibians. Third edition. Houghton-Mifflin Company, Boston, Massachusetts. 560 pp.). In the southern portion of its range (from south of the Salinas River in Monterey County, to San Diego County), *T. torosa* is considered a Species of Special Concern by the California Department of Fish and Wildlife due to the degradation of stream habitats, predation on eggs and larvae by introduced predators such as crayfish and mosquitofish (Gamradt and Kats 1996. *Conserv. Biol.* 10:1155–1162), road-kills during breeding migrations (Stebbins 2003, *op. cit.*), and UV-B radiation effects on hatching success (Anzalone et al. 1998. *Conserv. Biol.* 12:646–653; Blaustein et al. 1998. *Am. Zool.* 38:799–812). Each breeding season, each female produces 3–6 walnut-sized egg masses, each containing from 7–47 eggs (Brame 1968. *J. Herpetol.* 2:169–170). *Taricha torosa* eggs contain tetrodotoxins (as do adult *Taricha*) in varying quantities (Stokes et al. 2015. *Northwest Nat.* 96:13–21).

On the afternoon of 9 February 2017, at a pond within Galbreath Wildlands Preserve, Mendocino County, California, USA (38.85156°N, 123.26635°W; WGS 84), we found the pond basin nearly dry, with water pooled in various low places. *Taricha torosa* females had oviposited earlier in the winter but February had no measurable precipitation in 2017 so water levels dropped drastically over a period of weeks, stranding some egg masses. Low water levels and a muddy basin attracted *Sus scrofa* (wild pigs) to the site. Their rooting and wallowing pushed the remaining egg masses completely out of the water, where they were certain to be stranded even when rains resumed and refilled the basin.

Sus scrofa are hybrids between feral domestic pigs and European wild boars. They were purposely introduced in California for hunting and were eventually adopted as a game animal (Waithman et al. 1999. *J. Wild. Manag.* 63:298–308). Wild pigs are omnivores and forage for and consume a wide variety of vertebrate prey, though in California amphibians have not occurred frequently in diet studies (Loggins et al. 2002. *Calif. Fish Game* 88:28–34; Wilcox and Van Vuren 2009. *J. Mammal.* 90:114–118). However, in the eastern United States (Jolley et al. 2010. *J. Mammal.* 91:519–524.) and in other areas of the world, amphibians appear often in pig diets through direct predation (Ballari and Barrios-Garcia 2013. *Mammal Rev.* 43:1–11). Some inherent behavioral traits of pigs may also result in indirect predation of certain amphibian life stages. Wilcox et al. (2008. *Herpetol. Rev.* 39:74) reported pigs wallowing in a shallow pond destroyed the developing eggs of an endemic salamander. A sounder of pigs can create significant landscape damage in a short period of time, particularly through their inherent soil-disrupting foraging behaviors of rooting and grubbing. The spread of wild pigs throughout California could exacerbate the effects of drought and other abnormal precipitation patterns and on native, pond-breeding amphibians.

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ANURA — FROGS

AFRIXALUS FORNASINI (Fornasin's Spiny Reed Frog). HETERO-SPECIFIC AMPLEXUS. Many anurans exhibit explosive-breeding



FIG. 1. Heterospecific amplexus between *Afrixalus fornasini* and *Chiromantis xerampelina* in Dar es Salaam, Tanzania.

patterns characterized by high degree of male-male competition (Vitt and Caldwell 2009. *Herpetology: An Introductory Biology of Amphibians and Reptiles.* Academic Press, London, United Kingdom. 713 pp.). This leads to errors in forming mating pairs (Haddad et al. 1990. *Rev. Bras. Biol.* 50:739–744), mostly due to incorrect mate discrimination (Marco and Lizana 2002. *Ethol. Ecol. Evol.* 14:1–8). Despite heterospecific amplexus being known in numerous species, reports involving *Afrixalus fornasini* and *Chiromantis xerampelina* are unknown.

At 1730 h on 28 May 2019, we observed a male *A. fornasini* in axillary amplexus with *C. xerampelina* (Fig. 1), behind the Kihansi Spray Toad captive breeding facility, University of Dar es Salaam, Dar es Salaam, Tanzania (6.78123°S, 39.20594°E; WGS 84). The area had four small rectangular artificial ponds. The pair was on the edge of one of the plastic containers. The two species have been observed to breed at the same site for several years (JVL pers. obs.). During the observation, five other species (*Afrixalus delicatus*, *Hyperolius pusilus*, *Hyperolius tuberilinguis*, *Ptychadena achietae*, and *Phrynomantis maculata*) were also observed in the same area, with *H. pusilus* and *A. delicatus* dominating, while the rest were almost equally abundant. The pair was still in amplexus when we left the area after 6 min of observation.

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ANAXYRUS AMERICANUS (American Toad). ADULT BASKING. In anurans, basking behavior is utilized as a means of heat gain for thermoregulation (Brattstrom 1963. *Ecology* 44:238–255); however, it is commonly observed only in some anuran species (Brattstrom 1979. *Am. Zool.* 19:345–346; Stebbins and Cohen 1997. *A Natural History of Amphibians.* Princeton University Press, Princeton, New Jersey. 316 pp.). Although basking behavior is common in juvenile *Anaxyrus americanus* and thought to be employed as a mechanism for raising metabolic activity to expedite growth, adult *A. americanus* are typically nocturnal (Taigen and Pough 1981. *J. Comp. Physiol.* 144:247–252; Stebbins and Cohan 1997, *op. cit.*; Dodd 2013. *Frogs of the United States and Canada.* Johns Hopkins University Press, Baltimore,