

glutinosus) are known to exhibit this behavior (Highton and Savage 1961. Copeia 1961:95–98; Petranka 1998, *op cit.*).

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ANURA — FROGS

AGALYCHNIS CALLIDRYAS (Red-eyed Tree Frog). **VERTEBRATE DISPERSAL.** Effective dispersal via hitchhiking on vertebrates has been described for a number of plant and animal species. For example, some seeds have modified structures to grab onto fur, feathers, or socks of passing vertebrates (Sorensen 1986. Ann. Rev. Ecol. Syst. 17:443–463). Some species of flower mites (family Ascidae) are known to hitch rides between flowers in the nostril of hummingbirds (Colwell 1973. Am. Nat. 107:737–760). Despite the fact that vertebrate dispersal of organisms is common in nature, we were surprised to observe *Agalychnis callidryas* riding on the backs of Collared Peccaries (*Pecari tajacu*, Tayassuidae) at the Organization for Tropical Biology's La Selva Biological Station in Heredia Province, Costa Rica. On three independent occasions in different years researchers have observed *A. callidryas* riding on the backs of peccaries. Additionally, on one other occasion *A. callidryas* jumped onto the boot of a passing researcher and was carried for > 300 m, and could not be dislodged even by vigorous shaking of the leg. Because *A. callidryas* tadpoles must have access to standing water in ponds or swamps (Warkentin 2002. Physiol. Biochem. Zool. 75:155–164), and because peccaries often use low-lying swampy areas for mud bathing, contact between *A. callidryas* and peccaries could be relatively common.

The first observation of *A. callidryas* riding on a peccary was thought to be a fluke incident, and was fuel for much dinner discussion. After the three subsequent observations of *A. callidryas* riding on mammals, however, it appears frogs might use vertebrates as agents of dispersal more often than was previously appreciated. Interestingly, ours is not the first account of a frog riding on the back of a mammal. In 2007, Harry Greene provided an account of a *Leptodactylus chaquensis* riding on the back of a Capybara (*Hydrochoerus hydrochaeris*, Caviidae) in Brazil at the American Society of Ichthyologists and Herpetologists meeting (Donnelly 2008. Copeia 2008[1]:248–255).

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ANAXYRUS PUNCTATUS (Red-spotted Toad). **PREDATION.** On 18 May 2012 at 2155 h an adult male *Anaxyrus punctatus* was found being subdued by a Giant Water Bug (*Lethocerus uhleri*) at a permanent spring in the northern Chihuahuan Desert. The site is characterized by Chihuahuan Desert scrub and is located in the western versant of the Indio Mountains Research Station (IMRS; 30.797215°N, 105.011220°W, WGS84; 1269 m elev.) in Hudspeth Co., Texas, USA. At the time of the observation, the water bug was immobilizing the prey by grasping it securely on either side of the body with its first pair of legs and injecting powerful enzymes into the lateral portion (Fig. 1). Although the toad made spasmotic movements for a few seconds to attempt to rid itself of the predator and come to the surface for air, it did not



FIG. 1. An adult male Red-spotted Toad, *Anaxyrus punctatus*, being preyed upon by a Giant Water Bug, *Lethocerus uhleri* at Indio Mountains Research Station, Hudspeth County, Texas, USA.

succeed and remained stationary during most of the time we observed it. When we returned to the spring ca. 25 minutes later, we found the toad already dead and the belostomatid still feeding on it. Rainstorms that had previously occurred in the area likely stimulated the gathering of adult male *A. anaxyrus* to call and mate at the spring, consequently allowing them to be susceptible to adult belostomatids (N = 8) present in the water. Giant Water Bugs grasp their prey and inject toxic saliva and eventually suck all the liquid contents from their prey (Schuh and Slater 1995. True Bugs of the World [Hemiptera: Heteroptera]: Classification and Natural History. Cornell Univ. Press, Ithaca, New York. 416 pp.). Observations of predation by Giant Water Bugs have been reported for several species of amphibians (Toledo 2005. Herpetol. Rev. 36:395–400, and citations therein). In addition to the observation reported herein, adult *A. punctatus* had been previously reported to be prey of the belostomatid *L. angustipes* in Baja California Sur, Mexico (Luja et al. 2008. Herpetol. Rev. 39:75–76). To the best of our knowledge, the observation reported herein represents the first record of predation of *A. punctatus* by *L. uhleri*.

We thank J. Alva, G. Wiseman, C. Anderson, K. Anderson, and the Maymester 2012 field biology class for their company in the field.

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AUBRIA SUBSIGILLATA (Brown Ball Frog). **PARENTAL CARE.** *Aubria subsigillata* is a large frog that lives and breeds in still-water pools and swamps adjacent to streams and rivers in forested West and Central Africa (Rodel et al. 2005. Salamandra 41:107–127). Schiøtz (1963. The Amphibians of Nigeria. Vidensk. Medd. Fra Dansk naturh. Foren 125:1–92) reported schooling behavior for *A. subsigillata* larvae similar to *Aubria*'s sister taxon, *Pyxicephalus*. Based on this schooling behavior, Ohler and Kaziadi (1990. Alytes 8:25–40) hypothesized that parental care exists