

# NATURAL HISTORY NOTES

## CAUDATA — SALAMANDERS

**AMBYSTOMA CALIFORNIENSE (California Tiger Salamander).** **PREDATION.** There appears to be a scarcity of published information of predation on *Ambystoma californiense* (Petranka 1998. Salamanders of the United States and Canada, Smithsonian Institution Press, Washington, D.C. 587 pp.). Baldwin and Stanford (1987. Herpetol. Rev. 18:33) reported that a *Rana draytonii* (California Red-legged Frog) fed upon *A. californiense* larvae. More recently, Allaback et al. (2005. Herpetol. Rev. 36:50) noted an *A. californiense* larva consumed from a stock pond by *Sterna forsteri* (Forster's Tern). Allaback et al. (2005, *op. cit.*) also observed *A. californiense* consumed from a shallow seasonal pool by *Recuvirostra americana* (American Avocet). Although this salamander species is undoubtedly preyed upon by other species of wildlife, the bulk of our understanding of such is based on speculation. We report here a new avian species preying upon *A. californiense* larvae.

While conducting dip-netting surveys as part of general amphibian surveys at the Carnegie State Vehicular Recreation Area, west of Tracy, California, USA, we commonly encountered *A. californiense* in silt-detention basins and cattle stock ponds. We surveyed Tyson Pond (37.63381°N, 121.55669°W; WGS 84), which is a constructed silt-detention basin upstream from Corral Hollow Creek. The pond's primary function is to catch sediment created by off-highway vehicle use before the silt can reach the creek. The pond is generally very to completely turbid, often exceeding 2000 NTU (Nephelometric Turbidity Units). At the time of our visit, silt loads were at least 1.5 m deep, leaving approximately 1 m of water in the basin. The pond was surrounded by *Artemisia californica* (California Sagebrush), *Lepidium latifolium* (Perennial Pepperweed), and a single mature *Populus fremontii* (Fremont Cottonwood). It featured a standpipe that can protrude 15–120 cm above the water line, depending on the season. On 4 May 2015, while approaching Tyson's Pond in a vehicle, we observed a *Ceryle alcyon* (Belted Kingfisher) alight on the standpipe, which at that time offered a perch ca. 1 m above the water surface. After perching in that position for about 5 sec, the bird flew swiftly (in less than 0.5 sec) down to the pond surface and seized a larval *A. californiense* that had surfaced to breathe. The kingfisher immediately returned to the standpipe, where it briefly adjusted its grasp on the salamander, then flew away from the pond with the prey item.

Our observation, although a single event, suggests that an additional avian predator, *C. alcyon*, will consume *A. californiense*, even within very turbid pools. We contend that the placement of standpipes, and other potential perches, in ponds that are known to have special-status amphibians should include some form of avian deterrent (Dura-Spike®, Bird-Flite®, or other metal-wire spike device) to discourage birds from alighting. This measure would reduce the effectiveness of the kingfisher's (or other perching predatory bird's) predation on surfacing larvae by increasing the distance from which it could attack.

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**DESMONATHUS MONTICOLA (Seal Salamander).** **DIET.** On 9 June 2020 I encountered an adult *Desmognathus monticola* actively feeding on a living periodical cicada (*Magicicada* sp.) at 2358 h. This salamander was found on open rock next to Pipestem Creek in Summers County, West Virginia, USA (37.54788°N, 80.95960°W; WGS 84). I observed the salamander bite and shake the injured cicada before I disturbed the salamander, and it released the cicada. The documentation of periodical cicadas as a food source for many vertebrates is well known (Reid and Nichols 1970. Bull. Maryland Herpetol. Soc. 6:57) but not well documented in salamanders. The diet of *D. monticola* is known to include insects in the order Hemiptera, which includes cicadas, but it does not constitute a large percentage (Felix and Pauley 2006. Northeast Nat. 13:469–476). This observation has implications on the direct effect periodical cicada emergences have on salamander populations.

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## ANURA — FROGS

**BOANA PUNCTATA (Polka-Dot Treefrog).** **ANOPHTHALMIA.** Vision is important for anurans in detecting their environment, locating breeding sites, identifying mates and detecting prey (Duellman and Trueb 1994. Biology of Amphibians. John Hopkins University Press, Baltimore, Maryland. 670 pp.). Among the ocular anomalies that affect anurans, anophthalmia is characterized by the absence of one or both eyes (Henle et al. 2017. Mertensiella 25:9–48). This anomaly can impair reproductive activity, visual communication, foraging strategy, and consequently affect body condition (Tolledo and Toledo 2015. J. Zool. 296:167–176). In anurans, behavioral responses to predators are specializations of the left eye/right hemisphere system and the absence of part of this system can contribute to the inefficiency of these interactions (e.g., escape behavior; Robins 2006. In Malashichev and Deckel [eds.], Behavioral and Morphological Asymmetries in Vertebrates, pp. 86–106. Landes Bioscience, Georgetown, Texas).

On 16 October 2018 during an active search, a post-metamorphic juvenile *Boana punctata* (17 mm SVL) with anophthalmia in the left eye was found on a farm in the Municipality of Palotina, Paraná, southern Brazil (24.34778°S, 53.74694°W; WGS 84; 318 m elev.), where agricultural, livestock and aquacultural activities occur. The specimen was collected (ICMBio License no. 48465-3) and deposited in the herpetological collection of the Museum of Natural History of Capão da Imbuia (MHNCI-11018) (Fig. 1). This is the first report of an anomaly in