FIG. 1. *Aneides ferreus* inside a cavity 75 m above ground in the top of an old-growth Douglas-fir (*Pseudotsuga menziesii*), Coquille River, Oregon, USA.

fir forests than is generally known and also support the hypothesis that nests of arboreal rodents may be important microhabitats for *A. ferreus* (Spickler et al. 2006, *op. cit.*; Forsman and Swingle 2007, *op. cit.*). It remains unknown if use of the forest canopy by *A. ferreus* is restricted to foraging and shelter, or includes occasional breeding as well.

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CRYPTOBRANCHUS ALLEGANIENSIS ALLEGANIENSIS (Eastern Hellbender). **SECRETION PRODUCTION.** Of the potential antipredator mechanisms exhibited by amphibians, noxious skin secretions are considered the most effective against potential predators (Brodie et al. 1979. Copeia 1979:270-274). Many species produce toxic and irritating skin secretions as adults, but the larvae of many salamanders are palatable to various predators because toxic and distasteful secretions generally do not develop until after metamorphosis (Formanowicz and Brodie 1982. Copeia 1982:91–97).

FIG. 1. Larval Eastern Hellbenders (*Cryptobranchus alleganiensis alleganiensis*) immediately after producing a white secretion composed of sticky and foamy components.

Adult *Cryptobranchus alleganiensis* are large amphibians (60+ cm) and probably have few predators. When stressed or being captured, adult hellbenders often produce a milky secretion that is bitter and distasteful when applied to the tongue (Brodie 1971. Herpetol. Rev. 3:8), and the secretion may be unpalatable to predators. Larval hellbenders hatch between 23 and 30 mm total length and metamorphose 1.5–2 yrs after hatching, and are probably highly vulnerable to predation due to their small size and slow developmental rate (Nickerson and Mays 1973. The Hellbenders. Milwaukee Public Museum. Wisconsin. 106 pp.). It is unknown when the ability to produce secretion develops in hellbenders. In Oct–Nov 2007 several Eastern Hellbender egg clutches were collected in Missouri for captive rearing. On 29 April 2008 at 0900 h, 12 larval hellbenders (25 weeks post hatching, mean TL ± SE = 91.75 ± 1.8 mm) were collected in a small net for transport to a separate container for behavioral observations. The larvae immediately produced copious amounts of a secretion that appears to have two components. The first component was water-soluble and had a "foamy soap" appearance (Fig. 1). The second component was very sticky and was not soluble in water (Fig. 1); it remained adhered to the individual hellbenders for up to 48 h. Both components are similar in appearance to those produced by adult hellbenders (Nickerson and Mays 1973, *op. cit.*).

Immediately after secretion production, BGG put a small amount of the foamy secretion on his tongue and experienced a strong bitter sensation lasting for ca. 5 sec. The sensation was not accompanied with burning or numbness. The larval secretion tasted very similar to that produced by adult hellbenders.

Our observations suggest that, unlike most salamanders with aquatic larvae, larval hellbenders are capable of producing noxious skin secretions that might function to deter potential predators.

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