



FIG. 1. *Procamburus clarkii* with *Eurycea naufragia* in chelipeds and mouth at Swinbank Springs, Georgetown, Texas, USA.

we note that tissue degradation on the salamander is not noticeable in any of the photos, which would help confirm the animal was dead before capture. *Procamburus clarkii* predation on *E. sosorum* has been documented (Owen et al. 2016. Herpetol. Rev. 47:275), but to our knowledge, this report documents the first observation of *P. clarkii* consuming *E. naufragia* (Pierce and Gonzalez 2019. J. Herptol. 53:81–86; Pierce et al. 2010, *op. cit.*). Pierce et al. (2010, *op. cit.*) found high probability of co-occurrence of *E. naufragia* and *P. clarkii* under the same cover object. This high probability of co-occurrence and sharing microhabitat likely leads to increased frequencies of interactions between *E. naufragia* and *P. clarkii*.

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**RYAN JONES** (e-mail: rjones@cambrianenvironmental.com), **ZACHARY C. ADCOCK**, and **KEMBLE WHITE**, Cambrian Environmental, 4422 Pack Saddle Pass, Suite 204, Austin, Texas 78745, USA.

**NOTOPHTHALMUS VIRIDESCENS VIRIDESCENS (Red-spotted Newt). HABITAT.** Saline habitats are considered hazardous environments for amphibians because of their permeable and hypoosmotic skin. However, recent research suggests that several amphibians, especially salamanders, are more tolerant to saline environments than currently recognized (Hopkins and Brodie 2015. Herpetol. Monogr. 29:1–27). *Notophthalmus viridescens viridescens* is a semi-aquatic salamander associated with lentic freshwater habitats including ephemeral wetlands, ponds, and oxbow lakes (Petranka 1998. Salamanders of the United States and Canada. Smithsonian Institution Press, Washington, D.C. 587 pp). While this species has been reported in brackish water in east-central Pennsylvania (Pawling 1939. Herpetologica



FIG. 1. *Notophthalmus viridescens viridescens* photographed swimming in the Chesapeake Bay at Brownies Beach, Calvert County, Maryland, USA.

PHOTO BY BRETTON W. KENT

1:165–169), no records of *N. viridescens viridescens* using saline habitats are known from estuarine or coastal regions.

On 12 March 2019, one adult *N. v. viridescens* was observed swimming in the surf zone of the Chesapeake Bay along Brownies Beach, Bayfront Park, Calvert County, Maryland, USA (38.67753°N, 76.53215°W; WGS 84). The salamander did not show signs of lethargy when discovered and was photographed quickly and released on forested land well beyond the backshore of the beach. *Notophthalmus v. viridescens* is a locally abundant salamander in Calvert County, Maryland and several individuals have been recorded near the vicinity of Brownies Beach (Cunningham and Nazdrowicz 2018. The Maryland Amphibian and Reptile Atlas. Johns Hopkins University Press. Baltimore, Maryland. 312 pp). The surrounding habitat west of the beach consists of mesic temperate deciduous forests and shallow ephemeral wetlands typical of the Atlantic Coastal Plain ecoregion. The shores are abutted in several areas by steep eroding cliffs containing Miocene fossil deposits from the Calvert Formation (Godfrey 2018. Smithsonian. Contrib. Paleobiol. 100:1–274). These cliffs are steep and unstable with large vertical drop-offs that can cause terrestrial animals near the cliff to fall down to the beach from the forest above. Early spring is considered peak activity season for amphibians in the Mid-Atlantic Coastal Plain and *N. viridescens* are known to move long distances during the breeding season (Roe and Grayson 2008. J. Herpetol. 42:22–30). Because of this, we hypothesize that the salamander fell down from the cliffs to the Chesapeake Bay during a breeding-based dispersal event which may have been facilitated by heavy rains the previous night. It is also possible the salamander was swept down from the floodwaters of nearby Brownies Creek, which feeds into Brownies Beach ca. 250 m north of our observation. However, given that this creek largely contains lotic wetland habitats, we believe this scenario is more improbable than the former.

This record represents the first live observation of a salamander from the genus *Notophthalmus* in an estuarine environment and the first observation of any salamander species in Chesapeake Bay. Our findings support a laboratory study that noted high sodium tolerance in individual *N. viridescens* (Wittig and Brown 1977. Comp. Biochem. Physiol. 58:49–52), which implies that *N. viridescens*, like some other salamanders, may be able to tolerate exposure to saltwater habitats longer than previously anticipated.

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**JUSTIN L. LEE** (e-mail: justinlee@verizon.net) and **BRETTON W. KENT**, College of Computer, Mathematical and Natural Sciences, University of Maryland, College Park, Maryland 20740, USA (e-mail: bkent@umd.edu).

**OEDIPINA TOMASI (El Cusuco Worm Salamander). PREDATION.** *Oedipina tomasi* (Plethodontidae), is an enigmatic, critically endangered worm salamander endemic to the protected cloud forest of Cusuco National Park (CNP), located in the departments of Cortes and Santa Barbara in northwest Honduras. *Oedipina tomasi* is a species of conservation concern due to the presence of *Batrachochytrium dendrobatidis* (chytrid fungus) in the type locality (Kolby et al. 2010. Dis. Aquat. Org. 92:245–251) and encroaching deforestation (R. Barker and H. Hoskins, pers. comm.). Due to its fossorial tendencies, *O. tomasi* has proved difficult to study and as such, little is known about its natural history and ecology, including predators. Here we report a novel predation event on an adult *O. tomasi* by *Rhadinella montecristi* (Monte Cristi Graceful Brown Snake; Dipsadidae).

This observation was made at 1145 h on 17 June 2018 close to Cantiles Camp in CNP (15.51052°N, 088.23748°W; WGS 84; 1935 m elev.). On initial observation the individual *O. tomasi* was found, still alive, grasped by the back of the head by an adult *R. montecristi*. After approximately one minute of writhing, the salamander became unresponsive and limp. Approximately three and a half minutes after the initial encounter, the snake took the salamander out of view. A video recording documents this encounter and can be found at <https://www.youtube.com/watch?v=S3faj3pS5j0>.

To the best of our knowledge, this is the first documented species interaction involving either *R. montecristi* or *O. tomasi*. Over 14 years of annual herpetological surveying completed by Operation Wallacea in CNP, we have obtained five confirmed records of *R. montecristi*, and 24 of *O. tomasi*. As the behavior and natural history for both species remains poorly known, we believe this observation provides valuable information on both the diet of *R. montecristi* and the predators of *O. tomasi* in CNP.

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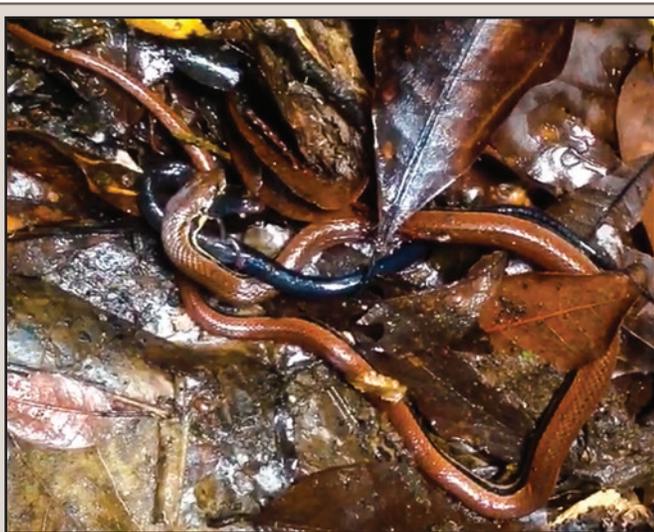


FIG. 1. Still image extracted from a video of the predation event: *Rhadinella montecristi* grasping *Oedipina tomasi* behind the head as it becomes limp and unresponsive, from Cusuco National Park, Honduras.

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**GEORGE LONSDALE**, Cusuco Forest Ecology Research Network, Cusuco National Park, Honduras (e-mail: georgelonsdale1@gmail.com); **JOHN-DAVID CURLIS**, Department of Ecology and Evolutionary Biology, University of Michigan, Ann Arbor, Michigan 48109, USA; **CHRISTOPHER PHIPPS**, Department of Human and Life Sciences, Canterbury Christ Church University, Canterbury, UK; **TOM BROWN**, Kanahau Utila Research and Conservation Facility, Island of Utila, Honduras; **THOMAS MARTIN**, Operation Wallacea, Wallace House, Old Bolingbroke, UK.

**PLETHODON LARSELLI (Larch Mountain Salamander). HABITAT USE.** *Plethodon larselli* is endemic to Oregon and Washington, USA, and is associated with sloped talus fields. This species is protected in Washington where it is a Sensitive Species. A primary threat to the species is the ongoing human-caused loss or degradation of the limited extent of talus slope habitat available within its range (Herrington and Larsen 1985. Biol. Conserv. 34:169–179). Here we report on a population of *P. larselli* that occupies a human-created talus slope and demonstrates an initial response to quickly reoccupy habitat following disturbance. Observations reported here indicate a broader tolerance of the species for disturbed and artificially created habitat than previously reported in the literature and suggest that artificial talus slope creation could provide a valid habitat restoration opportunity for this species.

The Yale Dam is an earthen-type hydroelectric dam that was constructed in 1953 on the Lewis River in Washington (45.96430°N, 122.33471°W; WGS 84; 128 m elev.). Basalt rock ranging in size from large boulders to sand comprises the dam face, creating habitat similar to nearby naturally occurring talus slopes in composition and structure. *Plethodon larselli* were detected on the dam face as early as 2008 (Crisafulli et al. 2008. Conservation Assessment for the Larch Mountain Salamander [*Plethodon larselli*]. Version 1.0. October 28, 2008. USDA Forest Service Region 6 and USDI Bureau of Land Management Interagency Special Status and Sensitive Species Program). During the winter of 2015 to 2016, the dam operator completed a project that disturbed areas of the talus on the dam face. The operator installed an access path and equipment pads on the dam face that were constructed by cutting and filling the new surfaces with basalt rocks from the dam face. Prior to construction, *P. larselli* were relocated from the area of disturbance to another location on the dam face. Following construction, disturbed sites were re-surveyed to detect re-occupation of the site by *P. larselli*. Surveys were completed only when environmental conditions were conducive to *P. larselli* activity following the environmental conditions prescribed in the species' survey protocol (Crisafulli 1999. In Olson [ed.], Survey Protocols for Amphibians under the Survey & Manage Provision of the Northwest Forest Plan, pp. 253–310. Interagency Publ. of the REO, Portland, Oregon, BLM Publ. BLM/OR/WA/PT-00/033+1792, U.S. GPO: 2000-589-124/04022 Region No. 10). We detected *P. larselli* within the disturbed areas within three months of the project's completion (3 and 5 individuals observed during two post-construction surveys). This observation demonstrates that the species can rapidly recolonize disturbed talus and suggests that created talus slope habitat proximal to occupied habitat could offer a habitat restoration opportunity for the species. Further research is needed to determine the extent and long-term success of this apparent rapid reoccupation by *P. larselli*.

**WENDY H. WENTE**, Mason, Bruce & Girard, Inc., 707 SW Washington St. Suite 1300, Portland, Oregon 97205, USA (e-mail: wwente@masonbruce).