NATURAL HISTORY NOTES

CAUDATA — SALAMANDERS

***AMBYSTOMA JEFFERSONIANUM* (Jefferson Salamander). PREDATION.** *Anas platyrhynchos* (Mallard Duck) primarily consumes invertebrates and plant matter, though there are some records of vertebrate consumption (Swanson et al. 1985. J. Wildl. Manage. 49:197–203). *Anas platyrhynchos* have been reported preying on an adult *Ambystoma mavortium* (Western Tiger Salamander) and an adult *Lithobates sylvaticus* (Wood Frog) (Eaton and Eaton 2001. Can. Field-Nat. 115:499–500; Earley et al. 2022. Can. Field-Nat. 136:153–155). One group of *A. platyrhynchos* in Romania was observed hunting, killing, and eating two fledgling passerine birds (Petrovan and Leu 2017. Waterbirds 40:187–190). *Anas platyrhynchos* is often the most common duck species in urban environments and their generalist diet makes them particularly problematic as predators of vulnerable taxa.

On 18 April 2023, two *A. platyrhynchos* were observed consuming ambystomatid salamander eggs from a vernal pool on the University of Toronto-Mississauga (UTM) campus in Mississauga, Ontario, Canada (exact coordinates undisclosed due to endangered species status). This pool is known to contain the federally endangered *Ambystoma jeffersonianum*, *A. laterale-(2) jeffersonianum* (Jefferson-dependent Unisexual Salamanders), and *A. maculatum* (Spotted Salamanders). The eggs being consumed most closely resembled *A. jeffersonianum* or *A. laterale-(2) jeffersonianum* eggs, as they were attached to sticks. After a few days of *A. platyrhynchos* observations on the pond, far fewer salamander eggs remained in the vernal pool. MCS and RLM saw at least one ambystomatid larva in the vernal pool in May 2023, indicating that some individuals survived.

This observation is significant because a pair of *A. platyrhynchos* have been observed on the vernal pool in the spring for at least two consecutive years, meaning they could consume salamander eggs there every spring. This is the only confirmed breeding pool for this population of *A. jeffersonianum*, the first *A. jeffersonianum* discovered in Canada (Weller and Sprules 1976. Can. J. Zool. 54:1270–1276). The UTM population is now very isolated due to urbanization and the adjacent Credit River, meaning it is likely more impacted by predation events. Our observation reveals a novel predator of salamander eggs and suggests that migrating waterfowl could have a negative effect on *A. jeffersonianum* recruitment.

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***AMBYSTOMA OPACUM* (Marbled Salamander). LEUCISM.** Various albinistic phenotypes, including albinism (melanin completely absent from the body and eyes) and leucism (melanin partially absent from the body but retained in eyes), have been observed in seven of the nine caudate families in North America (Harris Jr. 1967. B. Maryland Herpetol. Soc. 3:99–100; Harris Jr. 1968. B. Maryland Herpetol. Soc. 4:57–60; Harris Jr. 1970. B. Maryland Herpetol. Soc. 6:21–27; Palmer and Braswell 1980. Brimleyana 3:49–52; Dyrkacz 1981. SSAR Herpetol. Circ. 11. 31 pp.; Neff et al. 2015. Herpetol. Notes 8:599–601; Means and Aresco 2020. Herpetol. Conserv. Bio. 15:666–674; Rich et al. 2021. Biol. J. Linn. Soc. 132:643–654). Additionally, several species within the family Ambystomatidae have been reported with albinistic phenotypes in both the larval and post-larval stages, represented by numerous specimens (Harris Jr. 1967, 1968, 1970, *op. cit.*; Palmer and Braswell 1980, *op. cit.*; Dyrkacz 1981, *op. cit.*; Mitchell and Church 2002. Herpetol. Rev. 29:229–230; Neff et al. 2015, *op. cit.*; Hartzell 2020, *op. cit.*). There have only been two recorded instances of leucistic *Ambystoma opacum*, and both were found in Virginia (Mitchell and Church 2002, *op. cit.*). Here we report, to the best of our knowledge, the first leucistic *A. opacum* in South Carolina, USA.

On 6 October 2021, a leucistic juvenile (total length ca. 5.0 cm) *A. opacum* was found in Aiken County, South Carolina, photographed (Fig. 1), and released underneath a rotting log on the edge of an ephemeral wetland in a bottomland hardwood forest. This individual had a pale lavender dorsum and a slightly less pale lavender venter. It lacked distinct black and silver pigment across the body that are characteristic of *A. opacum* but had normally colored (black) eyes (Fig. 1A). Hundreds of small white specks littered the dorsum, and the individual had a distinct black line along the dorsal ridge of the tail from tail tip to the first postcranial vertebra (Fig. 1B), similar to what Mitchell and Church (2002, *op. cit.*) observed. Larger regions of yellow flecks irregularly appeared on the dorsum (Fig. 1B). At first glance, this yellow flecking somewhat resembled an *A. maculatum* (Spotted Salamander). However, upon closer examination, the flecking on this individual was small and randomly distributed across the back, while *A. maculatum* typically have larger spots in paired uniform rows (Mitchell and Gibbons 2010. Salamanders of the Southeast. The University of Georgia Press, Athens, Georgia. 324 pp.). Additionally, when comparing the leucistic individual to a normally colored *A. opacum* found under the same log (Fig. 1A), we observed gray stripes across the digits of the feet on both salamanders, confirming the identity as *A. opacum*.

Long-term drift-fence and pitfall-trap studies have been conducted on *A. opacum* at five wetlands on the nearby United States Department of Energy Savannah River Site (SRS), located in Aiken and Barnwell Counties, South Carolina. The SRS wetlands were monitored for 3 to 43 years, with all juvenile and adult *A. opacum* captured, handled, and released. At the five wetlands collectively, summed across years, more than 600,000 juvenile and adult *A. opacum* were captured—none were leucistic. At two wetlands (Ginger's Bay and Rainbow Bay), approximately 1 in 4000 individuals was melanistic (D. Scott, pers. comm.).

PHOTOS BY ALEX KIETZMAN

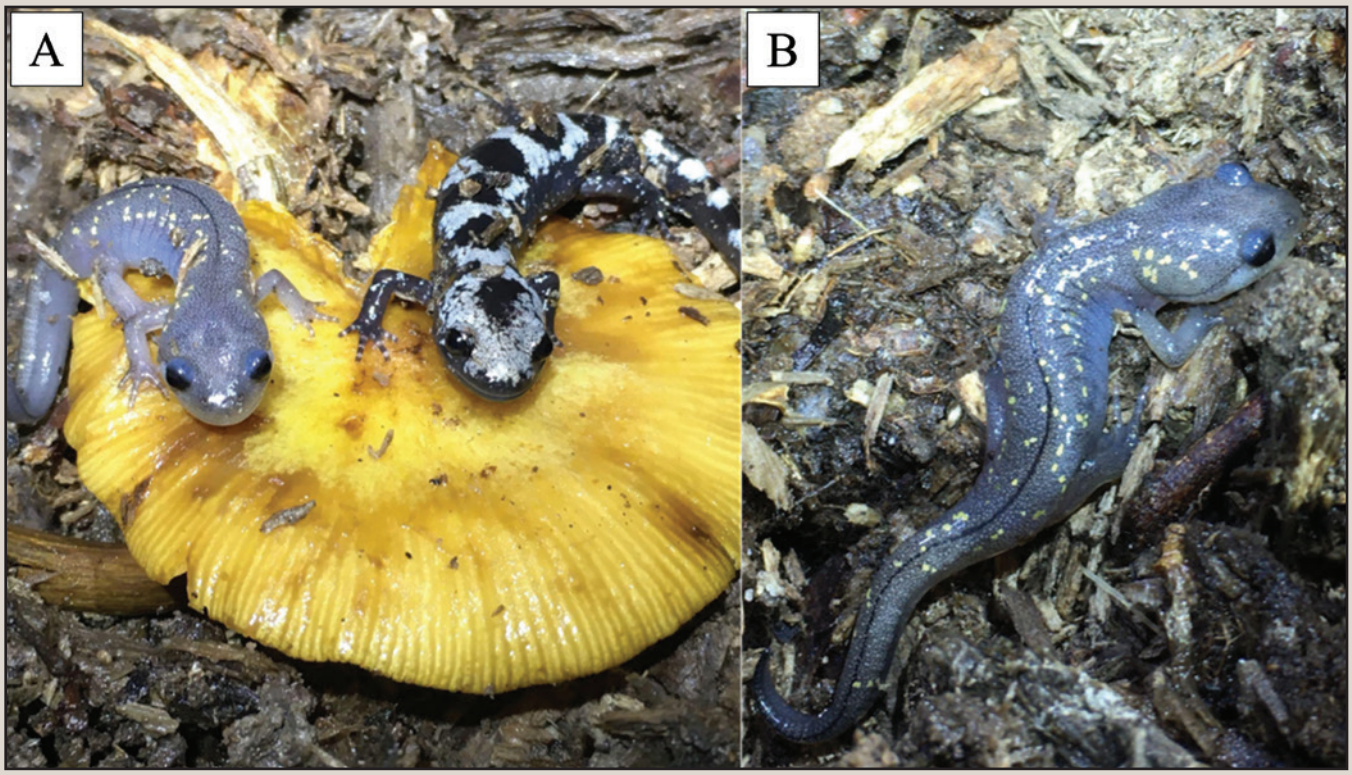

FIG. 1. A) Leucistic (left) and normal (right) *Ambystoma opacum* from South Carolina, USA, found under the same log; B) dorsal view of the leucistic *A. opacum*.

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***ANEIDES VAGRANS* (Wandering Salamander). ARBOREAL HABITAT.** Arboreal habitat use by terrestrial salamanders from the family Plethodontidae is understudied in temperate regions and remains a cryptic element of salamander ecology (McEntire 2016. Copeia 104:124–131). At 1515 h on 15 January 2023, Humboldt County, California, USA (40.8980°N, 124.0370°W; WGS 84; 122 m elev.), we felled a large, structurally complex *Thuja plicata* (Western Redcedar) that was severely damaged in a winter storm. The tree's diameter was 366 cm at breast height and was ca. 28 m tall. Upon further inspection of the tree trunk, we located a small basal hollow at ground level that was 15 cm wide and 61 cm tall. The hollow opened to a rotted-out inner heartwood core of the main trunk that tapered from 36 cm diameter at ground level to 25 cm diameter at 10.5 m above ground. The tree's main trunk was split into three reiterated trunks at 12.2 m above ground that collectively formed the tree's complex crown.

Directly after the tree was felled, we located four *Aneides vagrans* moving on bare ground near the base of the tree's reiterated trunks. Upon further inspection of the main trunk at the base of the reiterated trunks, we found signs of wood rot and open cracks where multiple epiphytic *Vaccinium parvifolium* (Red Huckleberry) were growing on the tree. Crotches at the base of the reiterations also contained mats of moist organic duff. During impact, one of the reiterated trunks broke away from the tree. Here along the main trunk, from 10.5 m to 12.2 m above ground, the heartwood was semi-intact but rotten with a matrix of interstitial cavities. The rotten heartwood was damp, likely due to water seeping in from above at the reiterated trunk bases and organic duff mats. In this newly exposed 1.7 m trunk section, we located three more live *A. vagrans* in moist narrow rot cavities that also contained live Termitoidae (Termite) larvae. None of the seven *A. vagrans* we located appeared injured from the fall. Juvenile and adult age classes were represented with total lengths of individual *A. vagrans* of 67, 68, 104, 105, 112, 113, and 118 mm.

Aneides spp. are known for their tree-climbing abilities (Aretz et al. 2022. J. Zool. 316: 72–79) and arboreal habitat use (McEntire 2016, *op. cit.*). *Aneides vagrans* have been documented living year-round in late seral *Sequoia sempervirens* (Coast Redwood) crowns, the world's tallest tree species, with individual salamander observations occurring up to 93 meters above ground (Spickler et al. 2006. Herp. Con. Bio. 1:16–27). Due to sampling limitations, these researchers mainly found *A. vagrans* in epiphytic fern mats