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a protected nest at Winous Point Marsh, Ottawa County, Ohio, USA. The hatchlings were outfitted with 0.5 g radio transmitters and released at the nest site the following day. On 11 September we tracked one of these hatchlings to an agricultural ditch ca. 440 m W of the nest. Over several minutes we followed this individual's signal as it evaded our capture by rapidly moving back and forth across the flooded ditch. The submerged animal then emerged onto land revealing itself as an adult *L. catesbeianus*. We proceeded to track the frog over land, by sight and telemetry, through thick multi-flora roses until it disappeared into a large animal burrow. We tracked the radio signal back to the frog the next day, but our attempts to capture the animal proved unsuccessful. We were unable to pick up the radio signal the following day due to presumed exhaustion of the transmitter's battery. The radio transmitter included a thin vinyl coated antenna measuring ca. 9 cm long. The antenna was not observed protruding from the mouth of the frog and it is uncertain what effect it may have ultimately had on the predator. Although *L. catesbeianus* is known to consume nearly any animal it can fit into its mouth, this is believed to be the first report of *E. blandingii* having been consumed by this voracious and often abundant species.

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EMYDOIDEA BLANDINGII (Blanding's Turtle). **HATCHLING DIET.** The behavior of hatchling *Emydoidea blandingii* in the wild is poorly understood. Previous studies have focused on the movements and habitat use of hatchlings after nest emergence (Butler and Graham 1995. *Chelon. Conserv. Biol.* 1:187–196; McNeil et al. 2000. *Chelon. Conserv. Biol.* 3:661–664). Herein, we report an observation of feeding behavior by a hatchling *E. blandingii* during its first weeks post emergence from the nest.

On 18 September 2007, six hatchling *E. blandingii* emerged from a protected nest at Winous Point Marsh, Ottawa Co., Ohio, USA. We attached radio transmitters to the hatchlings and released them at the nest site the same day. We tracked the hatchlings daily and GPS points were taken at each location. One hatchling tracked over the course of 29 days moved an average of 20 m/day. During this time it spent three days in a shallow, muddy agricultural ditch. The animal then exited this ditch and moved a short distance to a small vernal pool where it spent another three days along the shallow margins. The ditch and vernal pool were both located along a narrow strip of shrubby, wooded land between two agricultural fields.

On 15 October we tracked this individual to the top of a dike adjacent to the vernal pool. The animal appeared lethargic and did not move again. We found it dead and intact in the same location two days later. No obvious indication of the cause of death was observed, but a tear in the skin was noted anterior to the left front leg where fly eggs had recently been deposited. Dissection of the digestive tract of this animal revealed the chitinous remains of a small adult dytiscid beetle located within the colon along with some other unidentified material. The remains of the beetle measured ca. 5 mm long when articulated. The stomach contained an unidentified pink gelatinous material. Small perforations were observed

in the wall of the stomach which were not believed to be due to researcher handling. The cause of these perforations and whether they resulted in the death of this animal could not be determined with certainty. However, it seems possible that they were associated with the death of this animal and may have occurred during consumption of the observed food item. Two additional hatchlings salvaged after predation and partial consumption (in 2006 and 2007) were also dissected and material was observed within the colon of each individual. The stomach was missing from both individuals and was presumably removed when the head of each had been consumed during predation. The colonic material included small bits of vegetation, grains of sand, and some unidentifiable material. Specimens will be deposited at The Cleveland Museum of Natural History.

Observations of narrow growth annuli on juvenile *E. blandingii* have previously hinted at hatchling feeding activity (Pappas et al. 2000. *Chelon. Conserv. Biol.* 3:557–568), but this is believed to be the first confirmation of post-emergence feeding activity by hatchling *E. blandingii* prior to their first winter dormancy.

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GLYPTEMYS INSCULPTA (Wood Turtle). **ECTOPARASITES.** Although freshwater turtles are known to be parasitized with leeches of the genus *Placobdella* (e.g., Watermolen 1996. *J. Fresh. Ecol.* 11:211–217), several families of biting flies (Diptera) are ectoparasites of turtles as well. For example, biting midges in the genus *Culicoides* (Diptera: Ceratopogonidae) are well-known pests of vertebrates, including humans. Females of most *Culicoides* species require blood meals in order to produce one or more clutches of eggs [Blanton and Wirth 1979. *Sand Flies (Culicoides) of Florida* (Diptera: Ceratopogonidae), (in) *Arthropods of Florida & Neighboring Land Areas*. 10. 204 pp]. Currently, there are some 1300 known species of *Culicoides* [Borkent and Wirth 1997. *World Species of Biting Midges* (Diptera: Ceratopogonidae). *Bull. Amer. Mus. Nat. Hist.* 233:1–237.]. However, only one of the 152 Nearctic species (*Culicoides testudinalis*) is known to obtain blood meals from turtles. Herein, we report eight instances of *C. testudinalis* parasitizing the semi-aquatic turtle, *Glyptemys insculpta* in June of 2003 and 2004.

On 5 June 2003 at 0835, one of us (JM) observed two adult male *G. insculpta* (# 138 and # 1009) feeding on an unidentified species of slug, within 4 m of each other, at an undisclosed study site in Nova Scotia, Canada. Both of these turtles were noted to have many midges on their carapaces. Later, at 1110, an adult female *G. insculpta* (# 1011) that was covered with hundreds of small midges on its carapace, head, and limbs was observed and photographed (Figs. 1–2). At 1151, another adult female (# 1012) was found to be parasitized as well. On 17 June 2003 at 1230, an adult female (# 1113) was noted to have 13 midges; all but three were swollen with blood meals. On 19 June 2003 at 1125, another adult female (# NT39) was reported to be parasitized by midges, but no additional details were recorded.

Two additional observations were made in 2004. On 16 June 2004 at 0905, an adult female (#1194) was noted to have hundreds

of midges, many of which were on the carapace engorged with blood. Several midges were feeding upon the tissues surrounding the eyes as well. A final adult female (# 1177) was observed to be parasitized on 17 June 2004 at 0945. Although approximately 10 midges were associated with this *G. insculpta*, only one was engorged with blood. The mean carapace length (range) of the aforementioned eight *G. insculpta* was 195 mm (183–213 mm). The estimated minimum age of these turtles, based on carapacial growth annuli, ranged from 20–26 years.

Several dozen of the midges from one *G. insculpta* (# 1011) were collected and subsequently sent to WLG for identification. Nine unengorged midges were cleared in phenol-alcohol and mounted on microscope slides in phenol-Canada balsam by the methods of Wirth and Marston (1968. *Ann. Entomol. Soc. Amer.* 61: 783–784). Voucher specimens of slide-mounted *C. testudinalis* will be deposited in the Canadian National Collection of Insects (Ottawa, Ontario) and Florida State Collection of Insects (Gainesville, Florida). All slide-mounted midges are identical to three other females that were collected, mounted, and identified as *C. testudinalis* by Wirth; a paratype from Falls Church, Fairfax Co., VA, and two others from Prince Georges and Montgomery counties, Maryland in the synoptic collection of ceratopogonids maintained by WLG. The female holotype of *C. testudinalis* was collected on 6 June 1953 by Neill Richmond while it fed upon a Wood Turtle (*G. insculpta*) in Coburn, Centre County, Pennsylvania (Wirth and Hubert. 1962. *Ann. Entomol. Soc. Amer.* 55:182–195). Of the 78 female paratypes of this ectoparasitic midge, two were found biting *Terrapene carolina* at Patuxent Wildlife Refuge, Prince Georges County, Maryland by John Scanlon on 12 July 1958; whereas, three others were found “feeding on turtle” by R.C. Shannon on 23 May 1939 at Dead Run, Fairfax County, Virginia.

Notably, of the several hundred *C. testudinalis* observed on the turtles, most individuals appeared to have pierced the sulci between carapacial scutes or the margins of growth annuli with their fine-toothed mandibles in order to reach capillaries with their tubular mouthparts. This is consistent with observations of the biting midge *Leptoconops bezzii* feeding on the sulci between the scutes of



FIG. 2. Adult Wood Turtle (*Glyptemys insculpta*) from Fig. 1 infested with hundreds of adult female biting midges (*Culicoides testudinalis*) on its carapace, head, neck, and front leg. The swollen, reddish abdomens of some midges are engorged with blood from the turtle.

Testudo graeca in western Syria and Lebanon (Široký et al. 2007. *Parasitol. Res.* 101:485–489). Moreover, the leech, *Placobdella ornata*, is also known to obtain blood from the sulci between the scutes that overly the carapace bones (Siddall and Gaffney 2004. *J. Parasitol.* 90:1186–1188). Approximately 100 midges on one *G. insculpta* (# 1011) appeared to be fully engorged with blood, and a few that had completed feeding were resting on vegetation (Fig. 1). The highest densities of midges occurred between marginal and costal scute interfaces (Fig. 1); however, a much greater proportion of the midges on the anterior portion of the carapace were engorged (Fig. 2). Midges might initially be attracted to the head of a turtle, the source of exhaled CO₂. It is unknown if turtles suffer significant ill effects from the bites of *Culicoides*, but the *G. insculpta* in question were not observed attempting to dislodge any midges with forelimbs or engaged in any other erratic movements.



FIG. 1. Posterior portion of adult Wood Turtle (*Glyptemys insculpta*) infested with female biting midges (*Culicoides testudinalis*). Note that most of the midges are feeding in the sulci of successive scute layers and several engorged midges are resting on vegetation.

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GLYPTEMYS MUHLENBERGII (Bog Turtle). **LONGEVITY.** Between May 1969 and June 1982, William Kimmich conducted mark recapture surveys of Bog and Spotted Turtles (*Clemmys guttata*) at several sites in southeastern Pennsylvania to gain information about population dynamics of these turtles. (The northern populations of the Bog Turtle were listed as a Threatened species by the U.S. Fish and Wildlife Service in November 1997.) During