

**Predation on the Scorpion *Centruroides hentzi* (Banks)
(Scorpiones: Buthidae) by the Assassin Bug *Microtomus purcis*
(Drury) (Insecta: Hemiptera: Reduviidae)**

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Abstract - The diverse assemblage of invertebrates associated with *Pinus* (pine) snags in Florida and the Coastal Plain of Georgia include the large, widely distributed assassin bug, *Microtomus purcis*, and the scorpion *Centruroides hentzi* which is restricted to this region. We describe two instances of predation by *M. purcis* on *C. hentzi* in Georgia. These represent the first documented observations of predation on a scorpion species by an assassin bug.

Documented invertebrate predators of scorpions include other arachnids (spiders, solifugids), and other scorpions, centipedes, and some insects, including ants (McCormick and Polis 1990). Although a diverse assemblage of invertebrates including cockroaches, jumping



Figure 1. The assassin bug, *Microtomus purcis*, preying on the scorpion, *Centruroides hentzi* (Cumberland Island, Camden County, GA).

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spiders, beetles, centipedes, a scorpion, and hemipterans are common on *Pinus* (pine) snags in Coastal Plain habitats of the southeastern US, little has been published regarding their predator–prey interactions (Folkerts et al. 1993, Hwang and Weirauch 2012). Herein, we detail two instances of predation by the bark-dwelling assassin bug *Microtomus purcis* (Drury) (Hemiptera: Reduviidae) on the scorpion *Centruroides hentzi* (Banks) (Scorpiones: Buthidae), representing the first reported instances of predation on scorpions by an assassin bug.

On 27 October 2012 at 1330 hours, we observed an adult *M. purcis* (~25.0 mm in length) preying on a subadult (~30 mm in total length) *C. hentzi* under the exfoliating bark of a large pine snag in open pine-flatwoods habitat on Cumberland Island, Camden County, GA (Fig. 1). The assassin bug was oriented vertically on the bole of the snag, 1.5 m above the ground, with its head and body facing downward; the rostrum of the assassin bug was inserted into the posterior portion of the mesosoma of the limp and presumably dead scorpion. On 2 April 2014 at 0935 hours, we observed an adult *M. purcis* (27.0 mm in length) preying on an adult male *C. hentzi* (46.4 mm in total length) beneath the bark of a *Pinus palustris* Miller (Longleaf Pine) snag. The assassin bug was 1.5 m above the ground, oriented vertically, and was holding the mouthparts of the limp and presumably dead *C. hentzi*. When disturbed by our presence, the assassin bug released the scorpion and both animals fell to the ground. An obvious injury to the tibia of the left pedipalp of the scorpion was evident when they were photographed 5 minutes later (Fig. 2). This observation occurred in fire-managed, mesic Longleaf Pine–*Aristida stricta* Michaux (Wiregrass) flatwoods habitat on Fort Stewart in Liberty County, GA.



Figure 2. An adult assassin bug (*Microtomus purcis*) photographed next to the adult male scorpion (*Centruroides hentzi*) it had just killed and was consuming when discovered by the authors (Fort Stewart, Liberty County, GA).

Centruroides hentzi occurs throughout much of the lower and middle Coastal Plain of Georgia and throughout most of Florida (Shelley and Sissom 1994, Stevenson et al. 2012) and is closely associated with pine bark; scorpions of all life stages are often abundant under the exfoliating bark of pine snags (Stevenson et al. 2012). Other documented predators of *C. hentzi* include the introduced *Osteopilus septentrionalis* Duméril & Bibron (Cuban Treefrog) and *Leuconotopicus borealis* del Hoyo and Collar (Red-cockaded Woodpecker) (Granatosky et al. 2011, Hanula and Engstrom 2000).

Assassin bugs (Hemiptera: Reduviidae) are the largest clade of predatory non-holometabolous insects (~6800 described species), and one of the largest clades of predatory animals (Hwang and Weirauch 2012). Some species possess salivary venoms which aid in prey capture and digestion (Sahayaraj and Muthukumar 2011). Like many other assassin bug species, the rostrum of *M. purcis* may deliver a painful bite to humans (D.J. Stevenson and K.M. Stohlgren, pers. observ.). Additionally, disturbed specimens of *M. purcis* typically release a strong and pungent secretion.

M. purcis is wide-ranging, occurring throughout much of the southeastern US from Florida to Maryland and West Virginia, and as far west as Missouri and Texas (Swanson 2011). Throughout its range, *M. purcis* is a bark-dwelling species associated with coarse woody debris such as snags and logs. It is a generalist predator of small invertebrates, including roaches (Horn and Hanula 2002). Field observations in southern Georgia indicate that adults and early instars are commonly found beneath the bark of pine snags (D.J. Stevenson and K.M. Stohlgren, unpubl. data). Considering that both *M. purcis* and *C. hentzi* are characteristically associated with pine snags in Coastal Plain habitats in Georgia and Florida, we suspect that predator–prey interactions between these species are frequent. It is certainly possible that early instars of *M. purcis* are preyed upon by larger specimens of *C. hentzi*.

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