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NEW DISTRIBUTION RECORD FOR *ELATOPHILUS INIMICUS* (HEMIPTERA: ANTHOCORIDAE)

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Of the 18 Holarctic species in the genus *Elatophilus*, only 8 species are reported from North America (Lattin & Stanton 1993). The anthocorid *Elatophilus inimicus* was originally described by Drake and Harris (1926), from a single specimen collected in New York who placed the species in the genus *Xenotracheliella*. The species was subsequently transferred to the genus *Elatophilus* by Kelton and Anderson (1962), and was later documented to feed on species of scale insects in the genus *Matsucoccus* that inhabit only species of pine (Doane 1965, Lattin & Stanton 1992, Lussier 1965, and Mendel et al. 1991). This predator has been recorded previously only from Canada, and a few northeastern, midwestern, and coastal states (CO, MI, NC, and NY) feeding on *M. resinosae* Bean and Godwin. Recorded plant hosts for the prey of this predator include red pine (*Pinus resinosa* Ait.), pitch pine (*P. rigida* Mill.), and Scots pine (*P. sylvestris* L.), while additional prey suggested include mites, adelgids, and aphids (Lussier 1965). The only other species described from the eastern U.S. is *E. pinophilus* Blatchley described from pine in Florida (Blatchley 1928).

A study was initiated in May 1999 to identify the potential native predators attracted to the sex pheromones of the scale insects *M. feytaudi* Ducasse, *M. josephi* Bodenheimer and Harpaz, and *M. matsumurae* Kuwana in eastern Tennessee. Delta style sticky traps (n = 60) baited with sex pheromones were placed in five pine sites established along an elevational gradient in the Great Smoky Mountains National Park in Sevier Co, TN. Pine site 1 (39° 57715N, 28° 1620E; ca. 300 m) was a stand of Virginia pine (*P. virginiana* Mill.) within mixed hardwoods, pine site 2 (39°50572N, 17° 263520E; ca. 600m) also was composed of a stand of Virginia pine within mixed hardwoods, pine site 3 (39°53'15"4N, 17°26'35"20E; ca. 900m) was dominated by table mountain pine (*P. pungens* Lamb.) and xeric oak (*Quercus* sp.), pine site 4 (39°65'35"0N, 29°69'00"E; ca. 1,200m) was a mixed stand of table mountain pine and oak-hickory (*Quercus* sp., *Carya* sp.), pine site 5 (39°47887N, 17°275595E; ca. 1,500 m) was dominated by *Abies* spp., the University of Tennessee (U.T.) Arboretum site (39°88'12"9N, 16°75'05"36E; ca. 300m) was a stand of loblolly pine (*P. taeda* Mill.), and the Foothills Parkway site (39°65'35"0N, 29°69'00"E; ca. 600m) was dominated by pitch pine. The University of Tennessee Arboretum (Anderson Co., TN) site was abandoned in 2000 due to the destruction of test trees by a heavy infestation of southern pine beetles (*Dendroctonus frontalis* Zimmermann). A replacement site was established on the Foothills Parkway (Sevier Co., TN) in the spring of 2000.

Twelve traps, consisting of three traps (10 cm × 10 cm × 17.5 cm) each with pheromones for *M. feytaudi*, *M. josephi*, *M. matumurae* and three controls without pheromones, were placed in each of the pine sites from May to October 1999 and May to July 2000. Traps were suspended by wire hooks individually on tree limbs, 3 to 6m above the ground, and ca. 30 to 50m apart in a random fashion. The white, plastic traps were equipped with a rubber septa saturated with the sex pheromones. The *Matsucoccus* pheromones investigated in this study have different molecular weights, resulting in different release rates. Release rates of the three pheromones from the rubber septa were equalized by loading septa with adjusted amounts of pheromone and active compound. Pheromone septa and sticky inserts were removed and replaced every three weeks. Sticky inserts with trapped insects were taken to the laboratory where specimens were dislodged using Histoclear® and placed in glass vials containing 70% ethyl alcohol. Specimens were then sorted and identified to family and species. Collection data were recorded (trap location, site, date, pheromone type), and entered into Microsoft Excel® and Biota® databases for analysis.

Sticky collection inserts (n = 468) were returned to the laboratory, and 7,972 insect specimens representing 12 orders, 83 families, and 112 species were identified. From these, 25 adult anthocorids (*E. inimicus*) were captured from pine site 3, pine site 4, U.T. Arboretum site, and the Foothills Parkway site. Of these, 20 specimens were captured from pine site 3 and five from the other three sites. No specimens were captured in pine sites 1, 2, or 5. The number of specimens collected in pheromone-baited traps consisted of 17 from *M. matsumurae*, 5 from *M. feytaudi*, 2 from *M. josephi*, and 1 from the control traps. The sex ratio of the trapped individuals was male-biased, with males making up 75% of the collected specimens.

Because of their lack of flight capability, no immatures of *E. inimicus* were captured in the traps. The low number of captured adults may be a result of the sparse distribution and low population numbers of the preferred margarodid prey (Watson et al. 1994) or the lack of alternate prey.

The low number of captured *E. inimicus* did not allow for the determination of population trends or seasonal history of this predator.

Summary

A margarodid predator, *E. inimicus,* was most commonly collected in stands of *Pinus pungens* on dry, rocky ridges between 914m and 1392m. These collection data represent new state (Tennessee) and county (Blount, Knox, and Sevier) records, and the southernmost distribution recorded for this species, besides suggesting a relationship with habitats dominated by *P. pungens*. Although the geographical range of prey and this predator is unresolved, its documentation on scale insects and adelgids may encourage further evaluation of this species as a biological control agent against these soft-bodied pests of pines.

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