

N O T E

New Host Records for *Perilampus hyalinus* (Hymenoptera: Perilampidae) and *Phasmophaga antennalis* (Diptera: Tachinidae)¹

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On September 1998, several adults of *Anisomorpha ferruginea* (Beauvois) (Phasmida: Pseudophamatidae) were collected from Bankhead National Forest, Lawrence Co., AL. This forest is classified as a Southeastern Mixed Forest Province ecoregion (Bailey, 1995, USDA For. Ser. Misc. Pub. 1391: 108 pp.). Local elevation is 150-300 m.

The phasmids were found during daylight hours, resting in the bark crevices of loblolly pine trees, *Pinus taeda* L. The sites were 20 to 25-year-old loblolly pine plantations that had low recruitment of Virginia pine, *Pinus virginiana* Mill. Basal area of the pine overstory averaged 10 square meters, with co-dominant hardwood component averaging 2.3 square meters basal area. The overstory hardwood component consisted of tulip poplar, *Liriodendron tulipifera* L., northern red oak, *Quercus rubra* L., black oak, *Q. velutina* Lam., and red maple, *Acer rubrum* L. Understory plants included sapling overstory trees, and white oak, *Quercus alba* L., southern red oak, *Q. falcata* Michx., chestnut oak, *Q. prinus* L., post oak, *Q. stellata* Wangenh., mockernut hickory, *Carya tomentosa* Nutt., pignut hickory, *C. glabra* Mill., sassafras, *Sassafras albidum* Nutt., fraser magnolia, *Magnolia fraseri* Walt., blackgum, *Nyssa sylvatica* Marsh., sweetgum, *Liquidambar styraciflua* L., dogwood, *Cornus florida* L., black cherry, *Prunus serotina* Ehrh., eastern hophornbeam, *Ostrya virginiana* Mill., muscadine, *Vitis* spp., greenbriar, *Smilax* spp., blueberry, *Vaccinium* spp., and hydrangea, *Hydrangea arborescens* L.

The phasmids were transported to an insect rearing room at the University of Georgia, Athens. All the female phasmids appeared to harbor tachinid parasites (indicated by a black scar on their abdomens) and were housed in separate cages for observation. On 3 September, a larva of *Phasmophaga antennalis* Townsend (Diptera: Tachinidae) was found on the bottom of a cage and transferred to sealed plastic

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vial partially filled with moist vermiculite. It pupated without burying itself. On 8 September, the formerly parasitized phasmid died. It had oviposited 12 eggs while in captivity. On 12 September, the *P. antennalis* pupa, and several others collected from the other parasitized phasmids, were put into cold storage at 4.5°C until 1 June. They were then placed into a desk drawer at 21°C. On 12 June, an adult male of *Perilampus hyalinus* Say (Hymenoptera: Perilampidae) was discovered in the vial and had parasitized the tachinid. It apparently chewed its way out of the pupa of *P. antennalis* after eclosion. Several days later, a second adult male *P. hyalinus* emerged from another *P. antennalis* pupa. Both pupae were killed by the hyperparasites.

Descriptions and dichotomous keys from Smulyan (1936, Proc. U.S. Nat. Mus. 83 (2990): 369-412) and Darling (1997, *In* Annotated Keys to the Genera of Nearctic Chalcidoidea (Hymenoptera). NRC Research Press, Ottawa, Ontario, Canada. 794 pp.) were used to identify *P. hyalinus*. Descriptions and dichotomous keys from Greene (1922, Proc. U.S. Nat. Mus. 60 (10): 1-39) and Blatchley (1920, The Orthoptera of northeastern America, with especial reference to the faunas of Indiana and Florida. Nat. Pub. Co. Indianapolis 784 pp.) were used to identify the *P. antennalis* pupae and *A. ferruginea* adults, respectively. Voucher specimens were deposited in the University of Georgia Natural History Museum Collection of Arthropods, Athens, GA.

The tachinid, *P. antennalis*, appears to specialize on Phasmida parasitizing several species in different families throughout the eastern and central United States (Tilgner and McHugh, 1999, Ent. News 110: 151-152). It is not surprising that *A. ferruginea* is a host because the similar *Anisomorpha buprestoides* (Stoll) is also parasitized by this fly (Neff and Eisner, 1960, Bull. Brooklyn Entomol. Soc. 55: 101-103). As stated in Tilgner and McHugh (1999), more data need to be obtained about the biology of *P. antennalis*. This record represents the fourth known host for *P. antennalis* (Tilgner and McHugh 1999).

Perilampus species utilize various hosts. They are known to be parasitoids of wood-boring Anobiidae (Coleoptera), Chrysopidae (Neuroptera), twig-nesting Sphecidae (Hymenoptera), and the sawfly families Diprionidae and Tenthredinidae (Hymenoptera) (Darling, 1997). They are also hyperparasitoids of Ichneumonidae (Hymenoptera), Braconidae (Hymenoptera), and Tachinidae (Diptera), which are parasitoids of Lepidoptera, Coleoptera, Orthoptera, and Raphidioptera (Darling 1997). The hosts of *Perilampus* species are typically restricted at least to a specific order of insect. *Perilampus hyalinus*, however, is an exception. It has been shown to be a primary parasitoid of both Diprionidae (Hymenoptera) and Acrididae (Orthoptera) and a secondary parasitoid of Diprionidae via Tachinidae and Ichneumonidae (Tripp, 1962, Can. Entomol 94: 1250-1270). This record represents the thirty-sixth host of *P. hyalinus* (Gordh, 1979, *In* Catalog of Hymenoptera of America north of Mexico. Vol. 1. Symphyta and Apocrita (Parasitica). Smithsonian Institution Press, Washington, DC. 1198 pp.).

This is the first report of hyperparasitism of a phasmid by *Perilampus hyalinus*, and of parasitism of *Anisomorpha ferruginea* by *P. antennalis*. The authors predict that rearing other Phasmida parasitized by Tachinidae will provide new host records for *Perilampus*, and could be a source of *Perilampus* species new to science.

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