

## Larvae of the three common North American species of *Phylocentropus* (Trichoptera: Dipseudopsidae)

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**Abstract:** The caddisfly genus *Phylocentropus* includes 7 extant species globally, of which 5 occur in eastern North America and 2 in eastern Asia. Larvae of the 3 most common North American species [*Phylocentropus carolinus* Carpenter, *P. lucidus* (Hagen), and *P. placidus* (Banks)] were associated with identifiable adults and diagnostic characters are described. Larvae of these 3 species may be distinguished by overall length of mature larvae, head color pattern, and number of spines on the hind tibiae. Larvae of other species of this genus are unknown.

**Key words:** *Phylocentropus carolinus*, *Phylocentropus lucidus*, *Phylocentropus placidus*, species diagnosis, water quality monitoring

### Introduction

Larvae of the caddisfly genus *Phylocentropus* are best known for the long tubes they construct in the generally sandy substrates where they live, typically in lotic depositional waterways (Vorhies 1909, Wallace *et al.* 1976, Wiggins 1996a, Merritt & Cummins 1996). They are filter feeders, eating fine organic seston removed from suspension in the water column by means of a net spun in an outflow arm of the tube; water is probably circulated through the tube by larval undulations in the vertical part of the tube above the outflow arm (Wallace *et al.* 1976, Wiggins 1996a, Merritt & Cummins 1996).

The genus *Phylocentropus* was recently transferred from Polycentropodidae to the family Dipseudopsidae (Wells & Cartwright 1993) and a phylogeny of the genus within that family inferred (Weaver & Malicky 1994). As a result of these studies, *Phylocentropus* was shown to be the only genus of Dipseudopsidae in North America.

Three of the 5 Nearctic species of *Phylocentropus* are especially common east of the Mississippi River (Schuster & Hamilton 1984). *Phylocentropus carolinus* Carpenter occurs in 2 disconnected regions including Maine, New Hampshire, Ontar-

io, and Québec in the north and Louisiana to Kentucky to South Carolina in the south. *Phylocentropus lucidus* (Hagen) is known throughout the east from Maine and Québec to Illinois and Louisiana and the Florida panhandle. *Phylocentropus placidus* (Banks) is the most widely distributed species in the genus, with records throughout the east and as far west as Manitoba, Minnesota, and eastern Texas. The remaining 2 North American species are much more restricted in distribution. *Phylocentropus auriceps* (Banks) occurs rarely in the mountainous areas of Georgia, North Carolina, South Carolina, and Virginia. *Phylocentropus harrisi* Schuster & Hamilton is known from a single male specimen captured in southern Alabama. Two described species of *Phylocentropus* are from eastern Asia (*Phylocentropus orientalis* Banks from Malaysia and *P. shigae* Tsuda from Japan). The remaining 4 species of the genus are fossil species described from Baltic amber (*Phylocentropus antiquus* Ulmer, *P. ligulatus* Ulmer, *P. simplex* Ulmer, and *P. spiniger* Ulmer).

Larvae of *Phylocentropus* may be distinguished from those of other North American caddisfly genera by the membranous meso- and metanota and tergum IX, the acute prothoracic trochantins







