

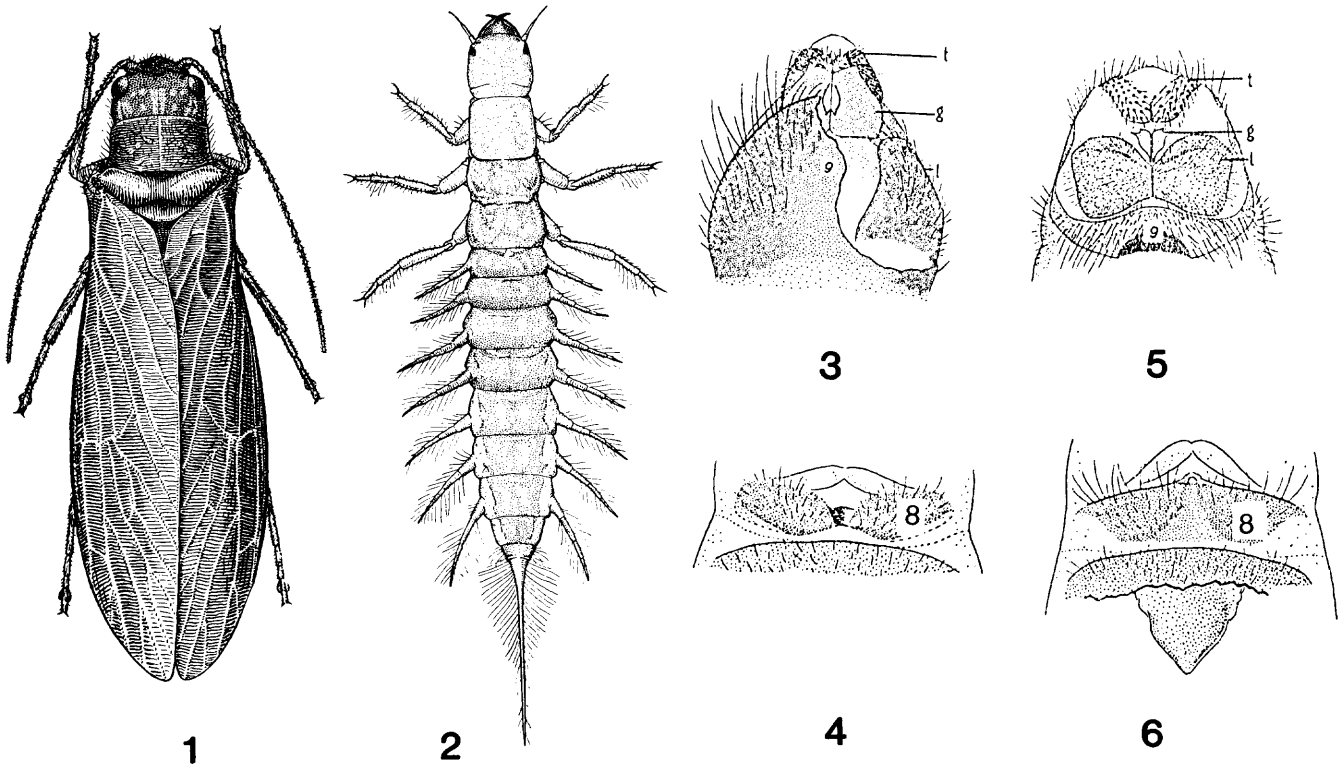
## The Alderflies of Florida (Megaloptera: Sialidae)<sup>1</sup>

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**INTRODUCTION:** Although the North American forms of this family are probably the richest fauna in the world with 23 species, only one of these has been recorded from Florida (Tarter et al., 1978). To date, only eight adult specimens have been collected in North Florida and the Panhandle. These were determined recently by M. F. Whiting and represent three species of *Sialis*. The biology and habits of the species have been treated in detail by Davis (1903) and Evans (1978). These insects are considered beneficial.

Adults are moderately large insects (11-14 mm) with dark brown bodies and brown suffused wings (Fig. 1). They move fairly rapidly and are mostly diurnal. Adult life span is probably short since the soft mouthparts do not seem fitted for extensive feeding. The eggs are laid in rows--forming large masses situated on branches, bridges, and other objects overhanging the water. The eggs are cylindrical with a distinct apical curled tassel. The larvae live in water and are predaceous, hunting mostly caddisflies under stones and other habitats. There are as many as 10 larval instars, and the larval stage lasts up to 2 or more years. When mature, the larva crawls out of the water and digs into the bank to form an earthen cell several feet from the edge of the water. Larval respiration occurs through 7 pairs of tracheal filaments located laterally on the abdomen. These filaments along with the caudal filament make the larva (Fig. 2) distinctive among all aquatic larvae.

Adults are extremely archaic insects with the wing venation nearly unchanged since the Permian (200+ million years ago). Adams (1958) stated that no other living insect group shares so many wing features with the Protoperlaria, a fossil order considered ancestral to the Plecoptera. The bilobed fourth tarsomere together with a hypognathous head and broad base of the hindwing are diagnostic adult characters.



Figures 1-6. *Sialis* spp. 1) Adult; 2) Larva; 3) Male terminalia of *S. vagans* (ventral view); 4) Female terminalia of *S. vagans* (ventral view); 5) Male terminalia of *S. joppa* (ventral view); 6) Female terminalia of *S. joppa* (ventral view) (Figures from Ross, 1937).

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Key to *Sialis* of Florida  
(modified from Ross, 1937)

1. Legs with pale red femora . . . . . *americana* (Rambur)  
Legs with black femora . . . . . 2
2. Head strongly sloping medially from posterior margin to clypeus, vertex to front head completely dull throughout with even sculpture; male with sternite 9 produced into a flap covering most of genitalia (Fig. 3); female sternite 8 narrow and divided into 2 separate lobes by a median depression (Fig. 4) . . . . .  
. . . . . *vagans* Ross  
Head not evenly sloped from posterior margin to clypeus, front polished and concave in contrast to vertex; male sternite 9 not produced into a flap (Fig. 5); female sternite 8 broad, not divided into 2 separate lobes (Fig. 6.) . . . . . *joppa* Ross

**FLORIDA SPECIES AND RECORDS** (all in the Florida State Collection of Arthropods, Division of Plant Industry, Gainesville).

*Sialis americana* (Rambur), 1842. **USA Records:** Connecticut, Georgia, Louisiana, Maryland, Mississippi, New Jersey, North Carolina, Ohio, South Carolina, Texas, West Virginia. **Florida records:** Alachua Co.: Gainesville, Beville Heights, June 5, 1979, L. Stange (1 female-black light trap). Baker Co.: Junction S-241 E and Ocean Pond, Osceola National Forest, May 16, 1977, J. Wiley (2 males, 1 female - blacklight trap). Marion Co.: Ross Prairie, May 21, 1974, Holler & Woodruff (1 female - blacklight trap). Santa Rosa Co.: Jay, June 23, 1962, T. W. Boyd (1 female - blacklight trap).

*Sialis joppa* Ross, 1937. **USA Records:** Connecticut, Delaware, Illinois, Louisiana, Maine, Maryland, Michigan, New Hampshire, New York, North Carolina, Ohio, Pennsylvania, Vermont, Virginia, West Virginia, Wisconsin. **Florida Records:** Liberty Co.: Torreya State Park, May 9-17, 1968, H.V. Weems, Jr., (1 male - malaise trap).

*Sialis vagans* Ross, 1937. **USA records:** Connecticut, Georgia, Illinois, Indiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Vermont, Virginia, Wisconsin, and Canada. **Florida records:** Okaloosa Co.: 4.5 mi N Holt, Blackwater River State Forest, March 20, 1979, L. Stange (1 male - blacklight).

**SURVEY AND DETECTION:** Larvae can be collected with bottom scoops. Although past studies have shown alderflies to be diurnal and collected by beating bushes near streams, all specimens captured to date in Florida have been in blacklight or malaise traps. All records to date have been in the spring (March-June).

**LITERATURE CITED**

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Tarter, D.C., W.D. Watkins, D.L. Ashley, and J.T. Goodwin. 1978. New state records and seasonal emergence patterns of alderflies east of the Rocky Mountains (Megaloptera: Sialidae). *Entomol. News* 89:231-234.

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