UF UNIVERSITY of FLORIDA
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EENY-534

Green lacewings (of Florida) Neuroptera: Chrysopidae[1]

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Introduction

The Chrysopidae are one of the largest and economically most important families of the Neuroptera. There are about 1,300 currently recognized species included in about 87 genera and three subfamilies (Brooks and Bernard 1990)

Figure 1. Dorsal view of head and pronotum, *Plesiochrysa brasiliensis* (Schneider).
Credits: Jeffrey Lotz, Florida Department of Agriculture and Consumer Services, Division of Plant Industry.

in the world. In Florida, there are 22 species in 9 genera, all placed in the subfamily Chrysopinae (Penny et al. 1997).

Figure 2. Frontal view of head, *Chrysopodes collaris*.
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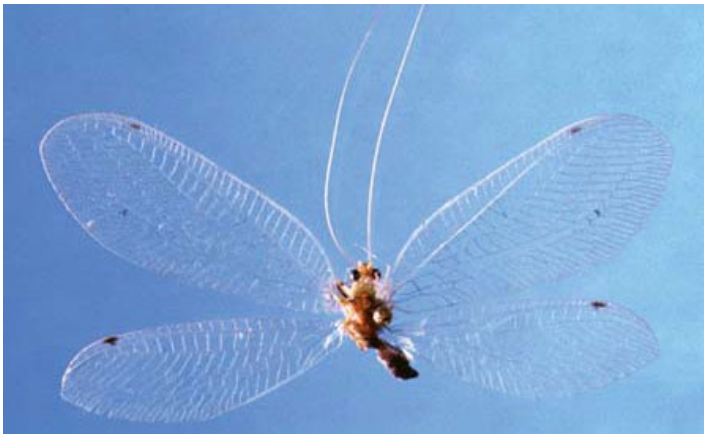

Figure 3. *Leucochrysa insularis* (Walker).
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The larvae are voracious predators of small, comparatively soft-bodied arthropods such as aphids, scale insects, whiteflies, thrips, insect eggs, and other prey (Muma 1959; Canard et al. 1984). For this reason they are used widely in biological control. The adults (Figs. 1 to 4) are usually predators, but a few species only feed on pollen.

Figure 4. Larva of *Ceraeochrysa valida* (Banks).
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Identification

The members of this family are usually greenish in color when alive but often turn yellowish after death. Certain groups are brownish in color. Nearly all members of this family have a tympanic organ located ventrally on the base of the radial vein (except species of Nothochrysinae), which is unique among insects. Adult green lacewings have biting mouthparts: the mandibles can be symmetrical or asymmetrical; they have long, filamentous antennae; and the wings have abundant and characteristic venation including usually the intramedian cell (im), the shape of which has generic value (Figs. 5-7, 9). In contrast to many Neuroptera, the chrysopid wing membrane is transparent and without microtrichia.

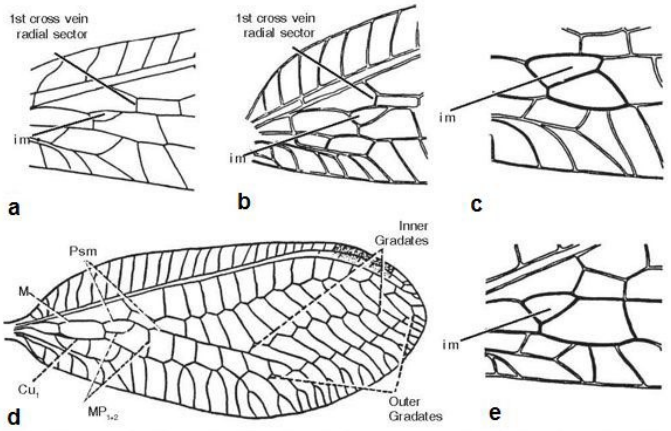

Figure 5. **a**. Base of forewing and intramedian cell (im) of *Chrysoperla* sp.; **b.** Base of forewing of *Chrysopa* sp.; **c.** Base of forewing of *Leucochrysa insularis;* **d.** Forewing of *Chrysopa* sp.; **e.** Base of forewing of *Nodita* sp. (after Bickly and MacLeod 1956).

Key to Genera of Green Lacewings of Florida

Adults

1. Flagellomeres 6-10 very broad, at most 1.1 times longer than broad; pretarsal claws simple; eyes large, greatest diameter nearly as much as interocular diameter; larvae associated with ants (Belanopterygini) **2**

1'. Flagellomeres 6-10 narrower, at least 1.25, usually more than 1.5 times longer than broad; pretarsal claws often with subbasal tooth; eyes usually smaller, greatest diameter much less than interocular diameter; larvae not associated with ants.....**3**

2. Pronotum twice as broad as long, with 8 large dark brown spots; antennal flagellum black at base ..... ***Abachrysa* Banks**

(*Abachrysa eureka* Banks 1931, only species in the genus, is found in the southeastern USA [AL, AR, FL, GA. MS, TX].)

2'. Pronotum about 1.5 times as broad as long, lacking spots but with broad dark red or purplish marginal or submarginal band; antennal flagellum completely pale brown .....***Nacarina* Návas**

(Only 1 species in Florida, *Nacarina robusta* (Banks) 1905; known from the Panhandle and Highlands County.)

3. Hind wing pterostigma with dark brown spot (Fig. 3); antenna longer than forewing (Leucochrysini); forewing intramedian cell (im) quadrangular or foot of basal sectoral cross vein of forewing about same level as origin of radial sector; larvae are trash-carriers **4**

3'. Hind wing pterostigma without dark brown spot; antenna usually shorter than forewing; forewing intramedian cell (im) triangular, basal sectoral cross vein distal to origin of radial sector; larvae not trash-carriers (except *Ceraeochrysa*).....**5**

4. Forewing intramedian cell (im) quadrangular (Fig. 7).....***Leucochrysa* McLachlan**

(Only 1 Florida species, *Leucochrysa insularis* (Walker) 1853; widespread in eastern United States and the Caribbean.)

4'. Forewing intramedian cell (im) triangular (Fig. 9).....***Nodita* Návas**

(There are 3 species in Florida: *N. callota* Banks 1915, *N. floridana* (Banks) 1897 and *N. pavida* (Hagen) 1861.)

5. Hind wing lacking inner gradate cross veins..... ***Eremochrysa* Banks**

(There is 1 unconfirmed record from the Florida Panhandle of *E. punctinervis* (McLachlan) 1869.)

5'. Hind wing with many inner gradate cross veins (Fig. 8).....**6**

6. Forewing with first RS cross vein meeting vein MA distal to apex of intramedian cell (im) (Fig. 5); pronotum without red or orange marginal or submarginal bands (often yellow median band); antennal flagellum pale, gradate cross veins usually green; male sternites VIII and IX fused, apex with distinct lip..... ***Chrysoperla* Steinmann**

(The 4 Florida species are *C. externa* (Hagen) 1861, *C. harrisii* (Fitch) 1855, *C. plorabunda* (Fitch)1855, and *C. rufilabris* (Burmeister) 1839. All species are probably widespread in Florida because they are used for biological control.)

6'. Forewing with first RS cross vein meeting vein MA before apex of intramedian cell (im) (Fig. 6); pronotum usually with red or orange marginal or submarginal bands; antennal flagellum sometimes dark brown, gradate cross veins often dark brown; male sternites VIII and IX not fused, without distinct lip **7**

7. Forewing with radial gradates oblique; pronotum with 4 reddish spots (Fig. 1)..... ***Plesiochrysa* Adams**

(The widespread Neotropical species, *P. brasiliensis* (Schneider), has been reported for Florida.)

7'. Forewing with gradates straight; pronotum marked differently..... **8**

8. Gena unmarked; antennal scape with 1 or more red, brown, or black lines or else colored with homogeneous reddish pigment ..... ***Ceraeochrysa* Adams**
(Most speciose genus in the New World with 6 species in Florida: *C. cincta* (Schneider) 1851, *C. claveri* (Návas), *C. cubana* (Hagen) 1861, *C. lineaticornis* (Fitch) 1855, *C. smithi* (Návas), and *C. valida* (Banks) 1895. Both the adults and trash-carrying larvae have been keyed by Tauber et al. (2000).)

8'. Gena marked with red or antennal scape completely unmarked..... **9**

9. Face marked with red or pink transverse lines between the anterior tentorial pits and below the antennal fossae (Fig. 2); eyes relatively large; wings narrow ..... ***Chrysopodes* Návas**

(*C. collaris* (Schneider) 1851 is found in South and Central Florida.)

9'. Face without such lines or if lines present, colored dark brown; eyes small; wings broad.....***Chrysopa* Leach**

(Penny et al. (2000) have keyed the U.S. species including the Florida species *C. incompleta* Banks, *C. nigricornis* Burmeister 1839, *C. oculata* Say, *C. quadripunctata* Burmeister 1839, and *C. slossonae* Banks.)

Key to Genera of Green Lacewings of Florida Larvae

(unknown: *Abachrysa; Nacarina; Chrysopodes; Plesiochrysa*)

1. Non-trash carriers; abdomen long and slender, longer than head and thorax together, without hooked setae; thorax with scoli no longer than wide **2**

1. Trash carriers; abdomen short and broad (not much longer than head and thorax together), with many hooked setae (Fig. 4); thorax with scoli at least twice as long as wide, bearing elongate setae.....**3**

2. Head capsule with two prominent, black, elongate spots.....***Chrysoperla***

(Larvae are described by Tauber (1974).)

2'. Head capsule with 3 or 4 black or reddish spots.....***Chrysopa***

3. Prothoracic scolus over 5 times longer than wide, extending beyond head (third instar) (Fig. 4)..... ***Leucochrysa; Nodita***

(Notes on larvae by Muma (1959).)

3'. Prothoracic scolus less than 4 times longer than wide, not extending forward beyond head..... **4**

4. Hooked setae on abdomen very long; scolus short, setae not fan shaped; thorax with purplish-red color pattern.....***Eremochrysa***

(Larva described by Smith (1922, 1926).)

4'. Hooked setae on abdomen shorter, inconspicous; scolus longer with setae arranged fan-like..... ***Ceraeochrysa***

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