

PARASITOIDS AND PREDATORS ASSOCIATED WITH
SYNTOMEIDA EPILAIS (LEPIDOPTERA: ARCTIIDAE) ON
OLEANDER

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Oleander, *Nerium oleander* L., is an apocynaceous ornamental shrub native to the Mediterranean region. It is planted widely in the southern United States, from Florida to California, throughout the Caribbean and into Mexico (Reinert 1980). In Florida, oleander is ubiquitous in central and southern regions, often planted in municipal parks, recreational areas, highway right-of-ways, around public buildings and in homeowner's yards.

One of the major insect pests of oleander in Florida and the Caribbean is the larva of the arctiid moth, *Syntomeida epilais* (Walker) (the "polka-dot wasp moth"). Oleander caterpillars are predictable and perennial pests, often defoliating oleander bushes during multiple generations per year. This species appears to be a native of the Neotropics. It is indigenous throughout Florida, the Keys and the Dry Tortugas (Kimball

1965), and it is present in Mexico, the Caribbean region and northern countries of South America (Bratley 1932).

Larvae and adults of *S. epilais* contain cardiac glycosides obtained from their host plant (Rothschild et al. 1973) and are distasteful to avian predators (Jones 1934), as are other cardiac glycoside-containing insects such as the monarch butterfly, *Danaus plexippus* (L.) (Brower et al. 1967). Parasitoids recorded from *S. epilais* include the tachinid flies *Chetogena* (= *Euphorocera*) *floridensis* (Townsend), *Lespesia aletiae* (Riley) (Patton 1958) and *Lespesia* sp. (Fernald 1934). No published records of predation have been found.

Collections of immature stages of *S. epilais* were made in several areas of Florida as part of an effort to understand the contribution of natural enemies to population regulation of the oleander caterpillar. In addition to several small collections, large numbers of immatures were collected on four occasions (Table 1). Larvae were fed cut oleander foliage while prepupae and pupae were placed in cylindrical plastic containers (15-cm diam × 25-cm height) for emergence of adults.

On Davis Island on 4 August 1991, numerous larvae were collected on oleander and from the leaf litter below oleander. Pupae were collected from aggregations in depressions in the trunk of an oak tree. Individuals of an unidentified *Brachymeria* species were observed flying around the plants and pupation sites. These wasps were also observed in August 1994, in Clearwater, although no collections were made. Wasps flew quickly and buzzed loudly, similar to houseflies. *Brachymeria incerta* (Cresson) and two species of tachinid (*C. floridensis* and *L. aletiae*) emerged from *S. epilais* collected on Davis Island. This is a new host record for *B. incerta* which has been listed both as a primary parasitoid attacking pupae of many Lepidoptera and as a secondary parasitoid attacking *Carcelia lagoae* (Townsend) and other Lepidoptera-parasitizing tachinids (Burks 1960). *Brachymeria incerta* was confirmed as a primary parasitoid of *S. epilais* by presenting mated females with pupae of *S. epilais* that had been reared from second instars in the laboratory and, therefore, were unlikely to contain larvae of larval/pupal parasitizing tachinids. Adult *B. incerta* emerged from these pupae approximately 1 month later.

TABLE 1. DATES AND LOCATIONS OF COLLECTIONS FOR *S. EPILAIS* NATURAL ENEMIES FROM OLEANDER IN FLORIDA.

Collection Date	Collection Location (Collected by)	<i>S. epilais</i> Immature States Collected	Natural Enemies Encountered
4-Aug-91	Davis Island, Hillsborough Co. (F. D. Bennett)	Larvae, prepupae, pupae	<i>Brachymeria incerta</i> , tachinids
11-Aug-93	Gainesville, Alachua Co. (H. J. McAuslane)	Larvae, prepupae, pupae	<i>Brachymeria incerta</i> , fire ants
20-Jun-94	Homestead, Dade Co. (H. J. McAuslane)	Larvae	Pathogens, tachinids
6-Jan-95	Gainesville, Alachua Co. (H. J. McAuslane)	Larvae, prepupae, pupae	Tachinids, pteromalid hyperparasite of tachinid, pathogens

In Gainesville, on 11 July 1993, predation by an immature pentatomid *Podisus maculiventris* (Say) was observed on a third-instar *S. epilais* feeding on oleander. The nymph was reared to adulthood on third-instar oleander caterpillars. This pentatomid is a generalist feeder but has not been recorded from *S. epilais* according to McPherson (1982). Many *B. incerta* were reared from the pupae collected from an aggregated pupation site in Gainesville on 11 August 1993. The geographic range of *B. incerta*, listed as central and southern Florida, West Indies, Guyana and Brazil (Burks 1960), can be extended to north Florida. The pupal mass was also heavily infested by red imported fire ants, *Solenopsis invicta* Buren, which were observed feeding actively on *S. epilais* pupae.

Two tachinids emerged from a collection of larvae in Homestead on 20 June 1994. However, of the 300+ larvae collected, more than 80% of them succumbed to a pathogen. The symptomology proceeded from the excretion of large, liquid feces, to the desiccation of the abdomen, to death. However, the specimens were not examined microscopically to determine the nature of the pathogen.

Of the approximately 100 larvae collected in Gainesville on 8 January 1995, 13 went on to pupate and produce moths while 57 produced *L. aletiae*. In addition, three adults of the hyperparasitic perilampid *Perilampus hyalinus* Say were reared from puparia of *L. aletiae*. While *P. hyalinus* has been collected from *Lespesia frenchii* (Williston), *L. euchaetiae* (Webber) and *L. melalophae* (Allen) (Krombein et al. 1979), it has not been recorded from this species. The remainder of the larvae suffered mortality due to a pathogen that produced symptoms characteristic of a viral infection (degeneration of the larval body to a black liquid).

Despite the casual nature of these observations, they indicate that a number of potentially significant natural enemies and pathogens of *S. epilais* exist in Florida. However, despite these sources of mortality, oleander caterpillar continues to defoliate oleander regularly in southern portions of the state. Despite the toxic nature of *S. epilais* larvae and pupae, the predators and parasitoids associated with this species are generalist feeders. In a similar situation, *Euploea core corinna* (W. S. Macleay), a native nymphalid in Australia that has exploited oleander as a novel host, is attacked by two species of tachinid (*Paradrino laevicula* Mesnil and *Winthemia neowinthemioides* [Townsend]) and *Brachymeria lasus* (Walker) which also are generalist feeders (Rahman & Zalucki 1986).

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SUMMARY

The oleander caterpillar, *Syntomeida epilais*, is attacked in Florida by various generalist parasitoids including the tachinids *Lespesia aletia* and *Chetogena* (= *Euphorcera*) *floridensis* and the chalcidid *Brachymeria incerta* (new host record). Fire ants, *Solenopsis invicta*, a predatory pentatomid, *Podisus maculiventris*, and pathogens also attack *S. epilais*.

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