

# A CATALOGUE OF THE LARVAEVORIDAE OF FLORIDA <sup>1</sup>

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The Larvaevoridae (Tachinidae), or parasitic flies, comprise a large and cosmopolitan family. It consists of some 300 genera and 5000 species, of which 190 genera and 1500 species occur in North America (Essig, 1942). The Florida species range in size from tiny three millimeter *Chaetostigmoptera crassinervis* (Walton) to the large spiny *Juriniopsis adusta* (Wulp) which is 18 millimeters in length.

Adult Larvaevoridae are nectar feeders, and some have been reported attracted to honeydew secretions of other insects. Some plants that have a decidedly offensive odor to man are attractive to them.

The larvae typically are parasitic within the bodies of other insects. One has been reported from a sowbug, a terrestrial crustacean, and a few have been recorded from other arthropods. The greatest number of species parasitize larvae and pupae of the Lepidoptera. Certain members of other orders, including Coleoptera, Orthoptera, Hemiptera, Dermaptera, Hymenoptera and Diptera, are parasitized to a much lesser extent.

## PHYLOGENETIC POSITION

The taxonomic position of the Larvaevoridae is usually given as being near the Sarcophagidae, to which they are related. Various authors have placed this family either in the superfamily Oestroidea or Muscoidea, or have grouped it along with the Hypodermatidae, Oestridae, Cuterebridae, Calliphoridae and Sarcophagidae in the superfamily Tachinoidea (Enderlein, 1936).

The group, or restricted parts of it, has had several family names, including Tachinidae, Echinomyidae, Phasiidae, and Megaprosopidae. The name used in this paper is the one in current usage.

## REARING PROCEDURES

It was necessary to rear host insects in the laboratory to secure host records. Whenever a certain host species became prevalent, 25 to 100 larvae were collected. Mature larvae were selected for rearing as many species are not parasitized until their last instar. Also, this materially cut down the labor of feeding and caring for them. The caterpillars or other host insects were hand-picked and placed in a large paper bag with a quantity of their host plant, and the top of the bag was twisted tightly. These containers make light, easily handled transportation cages.

Transference to rearing jars was done immediately after each collecting trip. Rearing containers consisted of two screened cages and wide-mouthed, gallon jars for the larger operations, and pint jars for individual rearing.

<sup>1</sup> Based, in part, on a thesis submitted as partial fulfillment of the requirements for the degree of Master of Science.

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The plant material was washed if dusty or dry. Cotton batting was wrapped around the ends of the stems, which were then placed in a small jar of water. After the rearing container was filled to a depth of two or three inches with clean, fresh, moist sand, the food material in its container was firmly embedded in the sand. Then the larvae were introduced. Finally, about two thicknesses of cheesecloth were tied over the mouth of the jar and a label with all collection data was attached.

After the initial setting up of the rearing jars, fresh water was added to the plant material daily. As most of the larvae had voracious appetites, it was necessary to gather fresh food every other day.

At intervals of three to five days, all plant refuse and fecal pellets were removed, or the larvae were moved to clean cages. After all the larvae had entered the ground or had spun cocoons, all plant material was removed. A twisted paper towel or other vertical support was placed in the cage to provide a resting place for adult hosts and parasites. Larvaevoridae, like the Lepidoptera, must assume a vertical position to expand their wings. In order to allow them time to dry and harden, the flies were killed in late afternoon of the same day they emerged.

After the adults hosts and parasites stopped emerging, the sand was sieved. Any remaining pupae were cleaned with a camel's hair brush and transferred to clean sand or vermiculite for storage.

#### COLLECTING AND PRESERVING PROCEDURES

Since adult larvaevorids are nectar feeders, the most profitable collecting sites are areas of blooming shrubs and flowers. *Viburnum*, *Melilotus alba* and butterfly bush in spring, and *Solidago* sp., *Bidens pilosa* and *Polygonum hydropiperoides* in fall yielded the greatest variety of specimens. Midmorning is the most favorable time for collection. The Ormiini, parasites of nocturnal Orthoptera, are often taken at lights. Ultraviolet light promises to be a good method of collecting seldom seen species which are not attracted to incandescent or neon lights.

Adults were killed in a chloroform tube and pinned immediately if possible. When there were reared specimens that could definitely be associated with a puparium, this was pinned in a capsule beneath the adult which emerged from it. In mass rearings, puparia were preserved in alcohol.

In order to study details of larval mouth hooks, cuticle and spiracles, it was necessary to mount them on slides. The procedure, modified from Dr. A. N. Tissot's aphid-mounting technique, is as follows:

Prick larva in several places near anterior end. Partially sever last segment from body. Place in five percent, cold potassium hydroxide overnight or in hot solution for twenty to thirty minutes. Using a blunt instrument remove body contents by pressing gently from anterior to posterior end. Wash in water by alternately pressing and releasing integument. Transfer to the following solutions in order, allowing the larval skin to remain in each about thirty minutes.

acetic alcohol (10% acetic acid in distilled water and 95% alcohol 1 to 1)

70% alcohol

95% alcohol

95% alcohol, clove oil 5 to 1

95% alcohol, clove oil 1 to 1

pure clove oil

Place a drop of Canada balsam on slide. Arrange the larva in balsam on the slide, turning the last segment spiracles up, the skin flattened and mouth hooks protruding or extracted. Apply glass cover slip. After several days, when the slides are dry, labels can be affixed.

#### FLORIDA LARVAEVIDAE

Previous contributions to a knowledge of Florida Larvaevoridae include the study of specimens collected by Mrs. A. T. Slosson, mostly from the Biscayne Bay area. C. W. Johnson's two lists in 1895 and 1913 cited many records of Larvaevoridae. H. L. Dozier's ecological study in 1920 added more host records.

The following list alphabetically lists records of over 200 species of Larvaevoridae from Florida. These records include specimens from my own collection, and the collections of the Entomology Departments of the Florida Agricultural Experiment Station, the State Plant Board of Florida, and the University of Florida College of Agriculture. Published records from the literature are also included.

Records from sources other than my own are quoted in original form and content, except that the most recent name of the parasite has been cited.

Information under each species is as complete as possible, giving in order locality, date, collector, catalog number, and host. Records from the literature follow the same order, with the author and literature citation last.

Footnotes followed by the initials C.W.S. are comments by C. W. Sabrosky, mostly from personal correspondence. Notes and comments in brackets are my own.

Unless otherwise indicated specimens from the above named collections were identified by C. W. Sabrosky.

#### Abbreviations

The following abbreviations are used in the catalog.

U.V.—ultraviolet

P—C. N. Patton catalog numbers

AES—Entomology Department, Florida Agricultural Experiment Station

SPB—Entomology Department, State Plant Board of Florida

CED—Entomology Department, College of Agriculture, University of Florida

#### *Achaetoneura* Brauer and Bergenstamm

##### A. *aletiae* (Riley)

Gainesville, Fla., 10/12/53 to 10/30/53, C. N. Patton, P-200B. Thirteen specimens reared from cage of 50 *Estigmene acrea* (Drury) larvae. Gainesville, Fla., 11/18/53, C. N. Patton, P-202. Parasite larva emerged from larva of *Megalopyge opercularis* (A. & S.) on above date, pupated in soil, and adult emerged 11/30/53.

Gainesville, Fla., 4/10/54, C. N. Patton, P-220A. Six flies reared from 500 larvae or pupae of *Malacosoma americana* (F.).

Poe Springs, Fla., 9/23/54, C. N. Patton, P-225B. One specimen reared from over 50 larvae of *Megalopyge pyxidifera* (A. & S.).

?Gainesville, Fla., 8/26/30, AES 7242. Reared from the Bella moth. [*Utethesia bella* (L.)]

- Ocala, Fla., 12/22/31, A. N. Tissot, AES 7786. Reared from *Xanthopastes timais* Cramer, larvae taken from *Hymenocallis crassifolius*. det. J. M. Aldrich.
- Gainesville, Fla., 10/13/39, A. N. Tissot, AES 8544. Reared from larvae or pupae of *Mocis repanda* (F.).
- Gainesville, Fla., 11/24/34, W. P. Hunter. Reared from larvae of *Urbanus proteus* L.
- St. Petersburg, Fla., 11/26/55, C. N. Patton, P-286. About 30 flies reared from over 200 larvae and pupae of *Syntomeida epilais* Walker.
- Gainesville, Fla., 9/28/55, C. N. Patton, P-262A. Reared from *Datana ministra* (Drury) larvae. Flies emerging 10/11/55.
- A. sp., probably *archippivora* (Williston)  
Clearwater, Fla., 6/1/53, L. S. Maxwell, AES 10245B. Reared from larvae or pupae of *Laphygma frugiperda* (A. & S.) on St. Augustine grass.
- A. sp. nr. *cuculliae* Webber  
Gainesville, Fla., 4/6/48, A. N. Tissot, AES 9940B. Reared from *Estigmene acraea* Drury larvae and pupae collected in a lupine field.
- A. *frenchii* (Williston) complex<sup>3</sup>  
Gainesville, Fla., 9/9/55, C. N. Patton, P-256. Parasites of *Datana integerrima* G. & R. collected on 8/12/55 on *Hicoria tomentosa*.  
Oleno State Park, Fla., 9/8/55, C. N. Patton, P-257. Parasites of *Datana ministra* (Drury), two lots collected on *Hicoria tomentosa* on 8/14/55.
- A. sp. nr. *laniiferae* Webber  
Eagle Lake, Fla., 10/30/48, Mrs. Maude Cowden, AES 9609. Parasites of *Eupseudosoma involutum* var. *floridanum* Grote. Two host larvae sent in on above date. One larva found dead 11/6/48, and two days later, two fly puparia were found in the soil. Flies emerged 11/17/48.
- A. *piperi* Townsend  
Gainesville, Fla., 10/10/53, C. N. Patton, P-211. Taken on *Bidens pilosa*. det. H. J. Reinhard.
- A. *rileyi* (Williston)  
Gainesville, Fla., 11/3/37, K. V. Wheeler. Ex orange dog pupa.  
Gainesville, Fla., 1940, D. B. Fogarty, CED. Ex *Papilio cresphontes* Cramer.
- A. *schizurae* Townsend  
Gainesville, Fla., April 13-14, H. L. Dozier. (Dozier, 1920 : 372).
- Acroglossa* Williston
- A. *hesperidarum* Williston  
Inverness, Fla., March 10, 22, Robertson. (Johnson, 1913 : 74).
- Acronarista* Townsend
- A. *mirabilis* Townsend  
Palm Beach, Fla., Dyar. (Townsend, 1908 : 85, orig. desc.).
- Actia* Robineau-Desvoidy
- A. *americana* (Townsend)  
Gainesville, Fla., 5/29—6/5/55, L. A. Hetrick, P-273A. U.V. light trap.
- Admontia* Brauer and Bergenstamm
- A. sp.  
Alachua Co., Fla., 4/12/38, CED.

<sup>3</sup> "I believe that what has been called '*frenchii*' may be a complex requiring further study."—C. W. S.

*Admontiopsis* Townsend

- A. tarsalis* (Coquillett)  
Gainesville, Fla., 4/13/55, L. A. Hetrick, P-271. U.V. light trap.

*Aphira* Robineau-Desvoidy

- A. ocypterata* Townsend  
Florida, Mrs. Slosson. (Johnson, 1913 : 72).

*Archytas* Jaenicke

- A. apicifer* (Walker)  
Gainesville, Fla., 3/20/55, C. N. Patton, P-237. Reared from pupa of *Pseudaletia unipuncta* (Haworth), pupated within host pupa.  
Gainesville, Fla., 11/22/53, C. N. Patton, P-209. On *Bidens pilosa*.
- A. aterrimus* (Robineau-Desvoidy)  
Gainesville, Fla., 4/10/54, C. N. Patton, P-220. Ninety-seven flies reared from over 500 *Malacosoma americana* F. pupae. The parasite pupa was located in the anterior end of the host pupa. Adult flies emerged about 9 A.M., and were most active at night.
- A. convexiforceps* Brooks  
Miami, Fla., Nov. 11-21, Townsend. (Brooks, 1949 : 23, orig. desc.).
- A. lateralis* (Macquart)  
Gainesville, Fla., April 13-14, H. L. Dozier. Most abundant parasite reared from *Malacosoma americana* F. (Dozier, 1920 : 372).  
Gainesville, Fla., 1940, Fogarty, AES. Ex *Malacosoma americana* F.
- A. marmoratus* (Townsend)  
Sabrosky (1955) refers published Florida records of *A. incerta* (Meigen) to this species, with which he synonymizes *A. piliventris* (Meigen), stating that *A. incerta* occurs only in South America.  
Tallahassee, Fla., 9/23/54, AES 105272B. From *Laphygma frugiperda* (A. & S.) collected on badly damaged hegari.  
Goulds, Fla., 4/2/42, AES 10483. Reared from a pupa of (probably) *Prodenia latifascia* Wlk., collected on above date; fly emerged 4/27/42. det. M. T. James, 1945.  
Gainesville, Fla., 7/31/53, AES 10320B. Reared from *Laphygma frugiperda* (A. & S.) collected on millet. Flies emerged 8/15 and 8/16.  
Gainesville, Fla., 9/12-18/55, L. A. Hetrick, P-279L. U.V. light trap.
- A. metallicus* (Robineau-Desvoidy)  
Ocala National Forest, Fla., 10/24/54, C. N. Patton.  
Otter Creek, Fla., 10/1/55, C. N. Patton, P-261C. On *Polygonum hydro-piperoides*.
- A. rufiventris* Curran  
Sebring, Fla., 6/26/53, H. V. Weems.  
Alachua Co., Fla., 10/20/49, H. A. Denmark.

*Belvosia* Robineau-Desvoidy

- B. bifasciata* (Fabricius)  
Blue Springs, Fla., 11/9/54, C. N. Patton, P-227. Reared from *Anisota* sp. nr. *rubicunda* (F.). Parasites pupate inside host pupae.
- B. borealis* Aldrich  
Highlands Hammock State Park, Fla., 3/27/51, H. V. Weems. On *Cornus stricta*.
- B. slossonae* Coquillett  
Otter Creek, Fla., 10/1/55, C. N. Patton, P-261D. On *Polygonum hydro-piperoides*.
- B. townsendi* Aldrich  
Otter Creek, Fla., 10/1/55, C. N. Patton, P-261A. On *Polygonum hydro-piperoides*.

*Beskia* Brauer and Bergenstamm

- B. aelops* (Walker)  
Gainesville, Fla., 9/16/17, J. R. Watson, AES 1939.  
Alachua Co., Fla., 10/20/40, CED.

*Biomya* Rondani

- B. angustifrons* Reinhard  
Gainesville, Fla., 5/29—6/5/55, L. A. Hetrick, P-273B. U.V. light trap.
- B. aurigera* (Coquillett)  
Gainesville, Fla., 7/30—8/3/55, L. A. Hetrick, P-277E. U.V. light trap,  
3 spm.
- B. georgiae* (Brauer and Bergenstamm)  
Gainesville, Fla., 7/30—8/3/55, L. A. Hetrick, P-277A. U.V. light trap,  
27 spm. [Other dates yielded only a few spm.]

*Blepharipeza* Macquart

- B. inermis* (Bigot)  
Charlotte Harbor, Fla., Mrs. Slosson. (Johnson, 1895 : 332).

*Bonnetia* Robineau-Desvoidy

- B. comta* (Fallen)  
Leesburg, Fla., 4/19/42, AES 10485. Reared from a larva of *Feltia subterranea* (F.) which died 5/2/42. The next day, a fly puparium was found. Adult emerged 5/13/42. det. M. T. James, 1945.

*Bucentes* Latrielle

- B. geniculata* (DeGeer)  
Inverness, Fla., Feb. 12-Mar. 22, Robertson. (Johnson, 1913 : 71).

*Carcelia* Robineau-Desvoidy

- C. amplexa* (Coquillett)  
Key West, Fla., 7/15/18, E. L. Gehry, SPB 3373. Nine flies from one pupa of *Megalopyge opercularis* (A. & S.). det. R. T. Webber.  
Key West, Fla., 12/7/29, R. G. Milner. Ex *Megalopyge opercularis* (A. & S.). det. Merrill.
- C. diacrisiae* Sellers  
Gainesville, Fla., 5/6/55, C. N. Patton, P-242B. One fly reared from larva of *Estigmene acrea* (Drury).
- C. flavirostris* (Van der Wulp)  
St. Petersburg, Fla., SPB 8361. Ex *Megalopyge opercularis* (A. & S.), reared from pupae. det. R. T. Webber.  
Key West, Fla., 7/15/18, SPB. Ex *Megalopyge opercularis* (A. & S.). Adults emerged 9/11/21. [The lapse of three years is impossible; the adults undoubtedly emerged in 1918.]
- C. formosa* (Aldrich and Webber)  
Gainesville, Fla., 1933, CED. Ex *Automeris io* (F.).  
Gainesville, Fla., 4/27/29, AES 10652. *Automeris io* (F.).
- C. lagoae* (Townsend)  
Gainesville, Fla., 3/5/54, L. A. Hetrick, P-217. Four adults emerged from cocoon of *Megalopyge opercularis* (A. & S.).  
Jacksonville, Fla., 5/4/54, W. F. Lyons, AES 10476. Five specimens emerged from a cocoon of *Megalopyge opercularis* (A. & S.) received on 12/9/53.
- C. reclinata* (Aldrich and Webber)  
Gainesville, Fla., 10/12/53 to 10/30/53, C. N. Patton, P-200A. Five adults reared from cage of 50 *Estigmene acrea* (Drury) larvae.  
Gainesville, Fla., 1/7/54, C. N. Patton, P-213. Six parasites from a single larva of *Epantheria deflorata* F., pupated 12/23/53, emerged 1/7 to 1/10/54.

Palatka, Fla., 12/9/53, C. N. Patton, P-205. Mature larva of *Ecpantheria deflorata* F. collected on 11/1/53, appeared freshly molted. Eight parasite larvae pupated in soil, about 12/5/53. Adults emerged 12/9/53 to 12/12/53.

Gainesville, Fla., 10/27/54, C. N. Patton, P-231. Seven flies reared from a single larva of *Estigmene acrea* (Drury).

C. sp.

Gainesville, Fla., 11/6/38, AES 8314B. Parasites of hag-moth larvae or pupae. Of the 14 pupae, only one perfect adult emerged. [*Phobetreron pitheciium*?]

*Cenosoma* Van der Wulp

C. *signifera* Van der Wulp

Highlands Hammock State Park, Fla. 3/29/51, H. V. Weems.

*Ceracia* Rondani

C. *dentata* (Coquillett)

Georgetown, May 10, 1894, C. W. Johnson. (Johnson, 1895 : 334).

Biscayne Bay, Fla. (Johnson, 1913 : 73).

C. (n. sp.?) near *dentata* Coquillett

Gainesville, Fla., 9/26—10/5/55, L. A. Hetrick, P-281. U.V. light trap, 1 spm.

*Ceratomyiella* Townsend

C. *angusticornis* (Townsend)

Inverness, Lake Worth, Mar. 3-19, Mrs. Slosson. (Johnson, 1913 : 73).

Miami, Fla., Oct. 8 and 15, Townsend. (Reinhard, 1934c : 16).

*Chaetogaedia* Brauer and Bergenstamm

C. *analisis* (Van der Wulp)

Otter Creek, Fla., 10/1/55, C. N. Patton, P-261H. On *Polygonum hydropiperoides*.

Alachua Co., Fla., 3/15/35, CED.

gen. sp. nr. *Chaetogaedia*

?Gainesville, Fla., 8/10/30, H. E. Bratley, AES 7260. Parasite of *Litoprosopus* sp., larva collected on Washingtonia palm. Fly emerged 10/6/30.

*Chaetoglossa* Townsend

C. *nigripalpus* Townsend

Inverness, Fla., Feb. 23, Robertson. (Townsend, 1892b : 126).

C. *picticornis* Townsend

South Florida, Feb. 16, Apr. 4, Robertson. (Townsend, 1892b : 126).

C. *violae* Townsend

Inverness, Fla., Feb. 16, Mar. 26, Robertson. (Townsend, 1892b : 126). Florida. (Johnson, 1913 : 72).

*Chaetophleps* Coquillett

C. n. sp.<sup>4</sup>

Gainesville, Fla., 7/18/38, R. J. Wilmot, AES 8522. Four larvae emerged from a roach, *Periplaneta americana* (L.).

Gainesville, Fla., 9/19-23/55, L. A. Hetrick, P-280G. U.V. light trap. 1 spm.

*Chaetophlepsis* Townsend

C. *townsendi* (Smith)

Miami, Fla., Oct. 27, Townsend. [♂ holotype] and Ft. Meade, Fla., Aug. 30, 1919. [♀] (Reinhard, 1952 : 16).

<sup>4</sup>"Poor condition, all wings broken, but apparently a new species. Very few records from cockroaches of any kind."—C. W. S.

- Alachua Co., Fla., 11/7/38, H. Hixon.  
 Gainesville, Fla., 9/19-23/55, L. A. Hetrick, P-280H. U.V. light trap.  
 1 spm.  
 Gainesville, Fla., 10/6-14/55, L. A. Hetrick, P-282H. U.V. light trap.  
 3 spm.

*Chaetostigmoptera* Townsend

- C. crassinervis* (Walton)  
 Gainesville, Fla., 9/19-23/55, L. A. Hetrick, P-280F. U.V. light trap.  
 1 spm.

*Cholomyia* Bigot

- C. inaequipes* Bigot  
 Gainesville, Fla., 9/19-23/55, L. A. Hetrick, P-280A. U. V. light trap.  
 3 spm.  
 Gainesville, Fla., 10/6-14/55, L. A. Hetrick, P-282A. U.V. light trap.  
 5 spm.

*Chrysotachina* Brauer and Bergenstamm

- C. alcedo* (Loew)  
 Gainesville, Fla., 9/2/54, C. N. Patton, P-224. Six flies reared from between 30 and 40 larvae of *Urbanus proteus* L. Four more pupae were attacked by a fungus and were discarded.  
 Gainesville, Fla., 10/6-14/55, L. A. Hetrick, P-282C. U.V. light trap.  
 2 spm.

*Cistogaster* Latreille

- C. immaculata* Macquart  
 "This species ranges from Alberta to Quebec in Canada, Illinois to Texas east to the Atlantic Coast in the United States." (Brooks, 1945 : 230). [Fattig also recorded it from Georgia.]

*Cnephalomyia* Townsend

- C. floridana* Townsend  
 White Springs, Fla., Oct.-Nov., Townsend. (Johnson, 1913 : 73).  
 Miami and White Springs, Fla., Oct.-Nov., 1908, Townsend. (Townsend, 1912 : 113. orig. desc.).

*Copecrypta* Townsend

- C. ruficauda* (Van der Wulp)  
 Lake Worth, Fla., Mrs. Slosson. (Johnson, 1913 : 74).

*Cryptomeigenia* Brauer and Bergenstamm

- C.* sp.  
 Gainesville, Fla., 5/15-20/55, L. A. Hetrick, P-274D. U.V. light trap.  
 1 spm.

*Cuphocera* Macquart

- C. hirsuta* (Townsend)  
 Alachua Co., Fla., 3/5/55, H. V. Weems. At *Melilotus alba*.

*Cylindromyia* Meigen

- C. binotata* (Bigot)  
 Gainesville, Fla., 5/5/55, C. N. Patton.  
*C. fumipennis* (Bigot)  
 Otter Creek, Fla., 10/1/55, C. N. Patton, P-261N. On *Polygonum hydropiperoides*.  
 Avon Park, Fla., 3/26/54, F. W. Mead, SPB.

*Doryphorophaga* Townsend

- D. australis* Reinhard  
 Gainesville, Fla., 6/30/37, CED. Ex potato beetle.

<sup>5</sup> "Described from Ohio and Texas and recorded from Long Island, N. Y."—C. W. S.

- D. sedula* Reinhard<sup>5</sup>  
Gainesville, Fla., 4/20-23/55, L. A. Hetrick, P-272. U.V. light trap.  
1 spm.

*Epidexia* Townsend

- E. pulverea* (Coquillett)  
Florida. (Coquillett, 1897 : 115. orig. desc.) [as *Masicera*]  
*E.* (n. sp.?)  
Alachua Co., Fla., 10/31/?.

*Epidexiopsis* Townsend

- E. orbitalis* Townsend  
Miami, Fla., Oct. 28, 1908. (Townsend, 1916a : 308. orig. desc.).

*Euantha* Van der Wulp

- E. liturata* (Olivier)  
Alachua Co., Fla., May 7, 1938, H. Hixon.  
Alachua Co., 10/27, 1938, CED. [This might mean 10/27/38].

*Eucelatoria* Townsend

- E. armigera* (Coquillett)  
Gainesville, Fla., 3/19/42, A. N. Tissot, AES 10482. Reared from a larva of *Agrotis ypsilon* (Rothm.). The larva died on 3/23 and two days later, two fly puparia were found. Flies emerged 4/6 and 4/7/42. det. M. T. James, 1945.  
*E. comosa* Van der Wulp  
Florida. (Ingram, Jaynes, and Lobdell, 1939 : 657).  
*E. rubentis* (Coquillett)  
Gainesville, Fla., 8/11/55, C. N. Patton.  
Gainesville, 9/1/55, C. N. Patton.  
Gainesville, Fla., 7/30-8/3/55, L. A. Hetrick, P-277B. U.V. light trap.  
7 spm.  
*E.* sp. (? dark *rubentis* Coq.)  
Gainesville, Fla., 3/20/55, C. N. Patton, P-236. Two dozen larvae of *Pseudaletia unipuncta* (Haw.) collected on above date. Flies emerged: 2 on 4/6/55, 1 on 4/7/55, 1 on 4/11/55.

*Eucordyligaster* Townsend

- E. minuscula* (Van der Wulp)  
Gainesville, Fla., 10/3/53, C. N. Patton. Resting on azaleas.  
Highlands Hammock State Park, Fla., 3/15/52, H. V. Weems.

*Euphasiopteryx* Townsend

- E. dominicana* (Townsend)  
Biscayne Bay, Fla., Mrs. Slosson; Hollywood, Fla., March 2, 1939, W. Benedict. (Sabrosky, 1953 : 295).  
*E. ochracea* (Bigot)  
Gainesville, Fla., 9/17/38, R. J. Wilmot, AES 8343.  
Florida—Belleair, Ft. Drum, Ft. Myers, Hollywood, Morrison Field, and So. Miami. (Sabrosky, 1953 : 299).

*Euthera* Loew

- E. tentatrix* Loew  
Worthington Springs, Fla., 7/18/47, P. W. Calhoun, AES 9311. Reared from an adult bug—*Euschistus servus* Say, collected on cotton. Fly emerged 7/27/47.  
Gainesville, Fla., 7/20-23/55, L. A. Hetrick, P-276B. U.V. light trap.  
1 spm.

Gainesville, Fla., 9/12-18/55, L. A. Hetrick, P-279C. U.V. light trap.  
1 spm.

*Eutheresia* Townsend

*E.* sp.

Gainesville, Fla., 10/6-14/55, L. A. Hetrick, P-282J. U.V. light trap.  
1 spm. det. H. J. Reinhard.

*Eutrichopoda* Townsend

*E. abdominalis* Townsend

Panama City, Fla. (Sabrosky, 1950 : 336).

*Exopalpus* Van der Wulp

*E.* n. sp. nr. *smithi* (Van der Wulp)<sup>6</sup>

Alachua Co., Fla., 4/17/38.

*Exorista* Meigen

*E. mella* (Walker) (*larvarum* of American authors)

Gainesville, Fla., 5/22/55, C. N. Patton, P-244. Sixteen flies reared from the pupae of *Estigmene acrea* (Drury). One or two is the usual number from one host pupa, but I have seen three. Parasite larvae emerge from host pupae and pupate in soil.

Live Oak, Fla., 5/20/55, C. N. Patton, P-246. Fourteen flies emerged from cage of 33 *Estigmene acrea* (Drury) larvae and pupae.

Marianna, Fla., 5/19/51, W. W. Glenn, AES 9991. Two specimens reared from about 6 hosts—*Apantesis phyllira* Drury.

Gainesville, Fla., 4/12/48, A. N. Tissot, AES 9941A. Reared from *Estigmene acrea* (Drury), larvae collected in lupine fields. [See AES 9488. Out of 6 parasitized larvae, 24 larvaevorids were reared, the above species and *Gymnocarcelia ricinorum* (Tns.).]

Live Oak, Fla., 4/6/51, AES 9892. About 17 flies reared from larvae? of *Apantesis phyllira* Drury. Only 1 moth obtained from some 20 larvae.

*Frontiniella* Townsend

*F. parancilla* Townsend

Crestview, Fla., 8/1/47, F. W. Barber, AES 9930. Reared from pupae of *Tetralopha scortealis* (Led.). Fly puparia formed within pupae of the moths.

*Gaediopsis* Brauer and Bergenstamm

*G. flavipes* Coquillett

Otter Creek, Fla., 10/1/55, C. N. Patton, P-261K. On *Polygonum hydropiperoides*.

*Genea* Rondani

*G. aurea* James

Monticello, Fla., 7/26/14, A. I. Fabis. Bred from *Tetralopha subcanalis* Wlk. (James, 1943 : 112. orig. desc.).

*Goniomima* Townsend

*G. luteola* (Coquillett)

Pelican Lake and Belle Glade, Fla., May 3, 1955, D. D. Questal. From *Leucania* sp. on sugar cane.

*Guerinia* Robineau-Desvoidy

*G. simulans* (Meigen)

Gainesville, Fla., spring, 1954, C. N. Patton, P-233. Parasites of a small sawfly on *Fraxinus* sp.

<sup>6</sup> "This is the species recorded as *Nemoraea smithi* in Johnson's 'Diptera of Florida' (1913). If one from Mexico is correct as *smithii*, the Florida species is slightly different."—C. W. S.

*Gymnocarcelia* Townsend

- G. ricinorum* Townsend  
Gainesville, Fla., 10/12/53, C. N. Patton, P-200C. Eleven specimens reared from cage of 50 *Estigmene acrea* (Drury) larvae.  
Gainesville, Fla., 11/22/53, C. N. Patton, P-201. Four parasite larvae emerged from a single isolated prepupa of *E. acrea* (Drury).  
Gainesville, Fla., 4/9/48, G. W. Dekle, AES 9939. Eight flies reared from single larva of *Estigmene acrea* (Drury).  
Gainesville, Fla., 5/15/55, C. N. Patton, P-243. Twenty-nine flies reared from larvae of *Estigmene acrea* (Drury).  
Live Oak, Fla., 5/17/55, J. E. Brogdon, P-245. Twenty-four flies reared from 33 larvae of *Estigmene acrea* (Drury).

*Gymnoerycia* Townsend

- G. rubra* Townsend  
Miami, Fla., 11/16/08, Mrs. Townsend. (Townsend, 1916a : 313. orig. desc.).

*Houghia* Coquillett

- H. septipennis* Coquillett  
Gainesville, Fla., 9/12-18/55, L. A. Hetrick, P-279J. U.V. light trap. 1 spm.  
Gainesville, Fla., 9/19-23/55, L. A. Hetrick, P-280K. U.V. light trap. 1 spm.

*Juriniopsis* Townsend

- J. adusta* (Van der Wulp)  
Gainesville, Fla., 10/5/55, C. N. Patton, P-267. Three empty puparia found in larval skin of *Ecpantheria deflorata* F.  
*J. floridensis* Townsend  
Sebring, Fla., 6/26/53, H. V. Weems.

*Leschenaultia* Robineau-Desvoidy

- L. leucophrys* (Wiedemann)  
Gainesville, Fla., 3/31/38, A. N. Tissot, AES 8147A. Reared from larvae of *Estigmene acrea* (Drury).  
Gainesville, Fla., 4/27/44, AES 10231. Reared from larvae or pupae of *Euchaetias egle* Drury collected on climbing milkweed. det. CNP.

*Leskiella* James

- L. brevirostris* James  
Florida. (James, 1943 : 97. orig. desc.).

*Leskiomima* Brauer and Bergenstamm

- L. cinerea* James  
Orlando, Fla., Jan., 1930, D. J. Nicholson. (James, 1943 : 101. orig. desc.).  
Alachua Co., Fla., 2/13/54, SPB.  
*L. tenera* (Wiedemann)  
Monticello, Fla., J. B. McGill. Reared from *Acrobasis juglandis* (LeB.) larvae. (James, 1943 : 102).

*Leskiopalpus* Townsend

- L. depilis* (Coquillett)  
Everglades National Park, Fla., 12/28/51, H. V. Weems.  
Alachua Co., Fla., 4/29/36. Reared from fern roller.  
Lake County, Fla., 11/1/53, SPB.

(To be Continued)