INSECTS AND MITES ASSOCIATED WITH SUGARCANE IN FLORIDA

DAVID G. HALL
Research Department
United States Sugar Corporation
Clewiston, Florida 33440

ABSTRACT

A list of insects and mites associated with sugarcane in Florida is presented. Phytophagous species are listed along with their parasitoids and predators. A literature review of sugarcane entomology in Florida is also given.

RESUMEN

Se presenta una lista de insectos y ácaros asociados con la caña de azúcar en la Florida. Se incluyen especies que se alimentan de plantas junto con sus parásitos y depredadores. También se da un resumen de la literatura de la entomología de la caña de azúcar en la Florida.

Sugarcane has been grown commercially in southern Florida since the 1920s and has become one of the most important crops in the State. Some 400,000 acres are currently grown each year in a general area extending around the lower half of Lake Okeechobee in Glades, Hendry, Palm Beach, and Martin counties. Cane is planted during the fall and winter months and reaches maturity 12 to 15 months later. Usually, one plant-cane crop and two to four ratoon crops are harvested. Fields average around 40 acres in size, but some are as large as 80 acres.

Sugarcane in Florida is attacked by a full complement of arthropod pests including root, stalk, and foliage feeders. Different pest problems develop during different seasons each year, but pest problems can occur all year long due to the subtropical climate of the sugarcane region. Sugarcane pests in Florida were reviewed by Ingram et al. (1938) and by Gifford (1964). During the last 23 years, however, a number of new pests such as Perkinsiella saccharicida Kirkaldy and Melanaphis sacchari (Zehntner) have appeared in Florida cane. In addition to new pests, new information on other pests and their natural enemies has become available over the last 23 years.

During 1981-1987, I compiled records of insects and mites associated with sugarcane in Florida along with their predators and parasitoids. The list is based on a literature review and on specimens I collected in sugarcane. Frequent trips were made each year to different areas across the sugarcane growing area of Florida to collect specimens. Specimens were also collected during other sugarcane research projects. Many phytophagous species were collected and held in a laboratory to determine if they had been attacked by parasitoids.

Orders are presented alphabetically as are families within orders. Pest species are listed along with their parasitoids and, in some cases, specific predators. The more important pest species are denoted by an asterisk (*). General predators and some noteworthy non-pest species are also listed. Throughout the list, insect and mite species that were common in cane are denoted by superscript "a". All species I personally observed are designated by superscript "b". Where possible and appropriate, a general comment on each listed species is presented along with references pertaining to the
species in Florida sugarcane. Finally, the taxonomist who identified specimens for me is named (det. = determined by). Affiliations for most of the taxonomists are abbreviated: "BMNH" is the British Museum of Natural History, London; "BRI" is the Biosystematics Research Institute, Agriculture Canada, Ottawa, Ontario; "FSCA" is the Florida Center for Arthropod Systematics, Florida State Collection of Arthropods, Division of Plant Industry, Gainesville, Florida; "SI" is the Smithsonian Institute, Washington, D.C.; and "USDA" is the Systematic Laboratory, Insect Identification and Beneficial Insect Introduction Institute, United States Department of Agriculture, Beltsville, Maryland.

ACARINA

ERIOPHYIDAE

TETRANYCHIDAE

*Oligonychus stickneyi* (McGregor) ab—A common pest of leaves. Damage by this mite is sometimes extensive. Miticides occasionally used for control. (Hall 1986a, Strayer 1975) (det. H. A. Denmark, FSCA)

predators:
Phytoseiidae—*Fundisetus cesi* (Muma)b, *Neoseiulus umbriticus* (Chant)b (det. H. A. Denmark, FSCA)

Paratetranychus simplex (Banks)—(Box 1953, Ingram et al. 1951)

TARSONEMIDAE:

*Steneotarsonemus bancrofti* (Michael)—First found on sugarcane stalks in Florida at Canal Point in 1922 by E. W. Brands. (Ingram et al. 1938, Ingram et al. 1951)

TYDEIDAE

*Pronematulus* sp.b—The feeding habits of this mite in cane were not known. (det. H. A. Denmark, FSCA)

COLEOPTERA

ALLECULIDAE

*Lobopoda* sp*b—The larvae resemble wireworms and were occasionally encountered in the soil. Apparently saprophytic. (det. R. E. Woodruff, FSCA)

CARABIDAE

*Calosoma scrutator* (Fab.)b—A general predator.

*Scarites subterraneus* Fab. ab—A general predator common in cane. (det. R. E. Woodruff, FSCA)

CERAMBYCIDAE

*Prionus* sp—(Box 1953)

CHRYSEOMELIDAE

*Diabrotica* spp—(Gifford 1964)

COCCEINELIDAE

General predators of aphids and other small arthropods:

*Coleomegilla maculata fuocilabrio* (Mulsant)b—(det. R. D. Gordon)

*Cycloneda sanguinea* (Lin.)ab—(Gifford 1964) (det. R. D. Gordon)
Diomus melshheimeri Weise—(Gifford 1964) (There were no FSCA records for this species in Florida)
Hippodamia convergens Guerinab—(det. R. D. Gordon)
Ola v-nigrum Mulsantb—(det. R. D. Gordon)
Stethorus utilis (Horn)b—Observed feeding on eggs of Oligonychus eucalypti.
(det. R. D. Gordon)

CURCULIONIDAE

Pachneus litus (German)b—Large infestation levels of adults observed in several fields during 1987. (det. F. N. Young, FSCA)
Sphenophorus coerulescens (Gyllenhall)b—Low population levels sometimes found in cane, large levels uncommon. (Hall and Remik 1982) (det. R. E. Woodruff, FSCA)
Sphenophorus venatus vestitus (Chittenden)b—Low population levels sometimes found in cane, large levels uncommon. (Hall and Remik 1982) (det. R. E. Woodruff, FSCA)

ELATERIDAE

Aeolus dorsalis Say—(Box 1953, Wilson 1940)
A. perversus (Brown)b—Uncommon in cane. (det. E. C. Becker, BRI)
C. fulci (Lance)b—Common wireworm in cane. (Gifford 1964, Strayer 1975) (det. E. C. Becker, BRI)
C. rudes Brownb—Common wireworm in cane. (det. E. C. Becker, BRI)
C. scissus (Schaeffer)b—Adults common in light-traps operated in cane fields. (det. E. C. Becker, BRI)
Parasitoid reared from unidentified wireworn of the genus Conoderus: Anomalos juncidum (Say)b (Ichneumonidae) (det. V. K. Gupta, FSCA)
Dolopis sp.—(Wilson 1940)
Glycyphora bimarginata Schaefferb—Small wireworm often present. (det. E. C. Becker, BRI)
Ischiodontus sp.b—Localized populations of this wireworm are sometimes encountered. (det. T. J. Spilman, USDA)
Parasitoid:
Bethylidae—Prionosea armifera (Say)b (det. A. S. Menke, USDA)

Neotrichophorus carolinensis (Schaeffer)b—A large wireworm occasionally seen in cane. (det. E. C. Becker, BRI)
Orthotostenus infuscatus (German)b—Adults sometimes collected at light-traps operated in cane fields. (Box 1953, Ingram et al. 1938, Ingram et al. 1951) (det. E. C. Becker, BRI)

NITIDULIDAE

Carpophilus humeralis (Fab.)ab—Commonly associated with decaying seedpieces in the soil. (det. W. A. Connell, USDA)
SCARABAEIDAE

Anomola marginata (Fab.)—Common. (Gordon and Anderson 1981, Hall 1987b, Prewitt and Summers 1981)


Dyscineutus morator (Fab.)—Adults commonly collected at light traps in cane fields, but larvae rarely found in cane. (Gordon and Anderson 1981)

Euphoria sepulchralis (Fab.)—Common in some areas. (Gordon and Anderson 1981, Strayer 1975)


Pupae of the following parasitoid species were often collected in the soil around cane infested by grubs, notably C. parallela:

Tiphia—Tiphia floridana floridana Robertson, Tiphia spp

(det. R. W. Carlson, USDA)

Scoliidae—Scolia bjineta Fab. (det. R. W. Carlson, USDA)

STAPHYLINIDAE


Anotylus insignitus (Gravenhorst)
A. nanus (Erichson)
A. hebiticornis Notman
Athela macrops Notman
A. sp
Bolomegilla pallidus Casev
Diechus schaumii Kraatz
Meruera venustula (Erichson)
Philonthus hepaticus Erichson
Sminthus debilicornis (Wollaston)
Thoracophorus sp
Tinotus sp

COLLEMBOLA

ENTOMOBRYIDAE

Salina bota Christiansen & Bellinger—A yellowish, fast-moving species often present on the underside of sugarcane leaves. (det. M. M. Bush-Davis, SI)

ONYCHIURIDAE

Lepidocyrtus cyanus Tullberg—(Box 1953, Ingram et al. 1951)
Onychiurus armatus (Tullberg)—(Ingram et al. 1951)
Pseudoseminella violenta (Folsom)—(Ingram et al. 1951)
DERMAPTERA

LABIDURIDAE

Labidura riparia (Pallas)\textsuperscript{ab}—A general predator, notably of Diaatraea saccharalis.

(Ingram et al. 1951)

DIPTERA

ASILIDAE

Robberfly larvae sometimes appear to be important predators of scarab grubs.

Diogmites neoturnatus Bromley—(det. A. G. Scarbrough, FSCA) (R. H. Cherry, pers. comm.)

prob. Diogmites esuriens Bromley\textsuperscript{b}—(det. S. W. Bullington, Virginia Polytech Inst. and St. Univ.)

Triorla interrupta (Macquart)\textsuperscript{b}—(det. S. W. Bullington, Virginia Polytech. Inst. and St. Univ.)

OTITIDAE

Euxesta stigmata Loew—Adults often in sugarcane fields. (det. H. V. Weems, FSCA) (O. Sosa, pers. comm.)

SYRPHIDAE

Allograpta exotica (Wiedemann)\textsuperscript{b}—A general predator of aphids and mites. (Hall 1987a) (det. F. C. Thompson, USDA)

HEMIPTERA

CYDNIDAE

Cyrtomenus ciliatus (Palisot de Beauvois)\textsuperscript{b}—Low population levels found in a few fields. (det. J. E. Eger, Dow Chemical USA)

Pangaenus bilineatus (Say)\textsuperscript{b}—Low population levels found in a few fields. (det. J. E. Eger, Dow Chemical USA)

PENTATOMIDAE

Andrallus spinidens (Fab.)\textsuperscript{b}—Occasional predator, notably of Mocis latipes. (det. J. E. Eger, Dow Chemical USA)

Podisus maculiventris (Say)\textsuperscript{b}—Occasional predator. (det. J. E. Eger, Dow Chemical USA)

HOMOPTERA

APHIDIDAE

Hysteroneura setariae (Thomas)—(Gifford 1964, Ingram et al. 1988) (There were no FSCA records for this aphid in Florida sugarcane)

Melanaphis sacchari (Zehntner)\textsuperscript{a}—Common and sometimes present at large levels. (Hall 1987a, Mead 1978, Summers 1978b)

parasitoid:

Aphidiidae—Lysiphlebus testaceipes (Cresson)\textsuperscript{b} (det. P. M. Marsh, USDA)

Rhopalosiphus maidis (Pitch)—(Gifford 1964, Ingram et al. 1988) (There were no FSCA records for this aphid in Florida sugarcane)

\textsuperscript{*}Sipha flavua (Forbes)\textsuperscript{ab}—An important pest of cane. Common but frequently localized within a cane field. Insecticides occasionally used for control. (Bregger
et al. 1959, Gifford 1964, Hoffman 1959, Ingram et al. 1938, Ingram et al. 1951, Strayer 1975)

CERCOPIDAE

Protopia bicincta (Say)b—Low population levels sometimes occur but no economic damage has been reported. (Gifford 1964, Ingram et al. 1938, Ingram et al. 1951, Strayer 1975)

CICADELLIDAE

Draeculacephala portola Ballab—Common but has not been reported to cause economic damage in Florida cane. (Gifford 1964, Ingram et al. 1951, Strayer 1975)

parasitoids:

Mymaridae—Lygaenon koebelei (Perkins)
Trichogrammatidae—Ufens niger (Ashmead)

Homalodisma insita (Walker)b—(det. J. P. Kramer, USDA)

Two leafhoppers, Graminella nigrifrons (Forbes) and Bactuta caldwelli Blocker, were collected in sweepnet samples taken in young cane fields. Draeculacephala producta (Walker) and D. inscripta (Van Duzeek) were collected at blacklight traps operated in cane fields. (cicaedilids det. J. P. Kramer, USDA)

CIXIIDAE

Myndus crudus Van Duzeeka—Sometimes present in low numbers. (det. J. P. Kramer, USDA)

COCCIDAE

*Pulvinaria elongata* Newstead—Damage by this scale can be severe. Localized infestations sometimes occur. These scales frequently controlled by natural enemies. (Ingram et al. 1951, Williams et al. 1969)

parasitoids:

Aphelinidae—Coccophagus lycimnia (Walkerc), Coccophagus spb, Encarsia spb

Encyrtidae—Homospilus spb, Metaphycus flavus (Howard)c, Metaphycus sppb, prob. Trichomasthus spc. Cheilonurus pulvinariae Doscher was a hyperparasite of *M. flavus*. (parasitoids det. M. E. Schauff, USDA)

DELPHACIDAE

Perkinsiella saccharicida Kirkaldya—Common but has not caused serious damage in Florida cane. (Hall 1985b, Nguyen et al. 1984, Sosa 1982, Sosa 1985b, Sosa and Cherry 1982)

predator:

Miridae—Tytthus parviceps (Reuter)d (det. T. J. Henry, USDA)

parasitoid:

Mymaridae—Anagrus sp

Succussyphus succharicidus Westwood—Common but usually not present in large enough numbers to be damaging. (Bregger et al. 1959, Gifford 1964, Ingram et al. 1938, Ingram et al. 1951, Strayer 1975)

predators:

Miridae—Tytthus parviceps (Reuter)d (det. T. J. Henry, USDA)

Reduviidae—Zelus longipes (Linn.) (Released into cane during 1960 and may still be present; F. D. Bennett, pers. comm.)
parasitoids:
Mymaridae—Anagrus armatus (Ashmead)
Trichogrammatidae—Paracentrobia (=Abella) spp
Dryinidae—Psuedogonatopus variistratiatus Fen.\(^b\)
Stylopidae—Stenocranophilus quadratus Pierce

The following delphacids were collected in sweepnet samples taken in young cane fields: Sogatodes molinus Fennah, Delphacodes propinqua (Fieber), Delphacodes puella (Van Duzeze), Sogatella kolophon (Kirkaldy), Pisonotus piceus (Van Duzeze), and Megamelus gracilis Beamer. (delphacids det. J. P. Kramer, USDA)

**Diaspididae**
*Aspidiella sacchari* (Cockerell)—(Box 1953, Dekle 1976, Williams et al. 1969)
parasitoid:
Encyrtidae—Adelencyrtus moderatus (Howard) (det. J. Noyes, BMNH) (F. D. Bennett, pers. comm.)

**Pseudococcidae**
*Dysmicoccus brevipes* (Kuwana)\(^{ab}\)—Common but not regarded as an economic pest.
(Box 1953, Gifford 1964, Ingram et al. 1938, Ingram et al. 1951, Strayer 1975, Warner 1941)
parasitoid:
Encyrtidae—Metaphycus sp.\(^b\) (det. M. E. Schauf, USDA)
*Dysmicoccus brevipes* Cockerell—On sugarcane at the Miami World Collection of Sugarcane. (det. A. Hamon, FSCA) (F. D. Bennett, pers. comm.)

**Hymenoptera**

**Formicidae**
Over 30 different species of ants have been reported in Florida sugarcane fields (Adams et al. 1981a, Adams et al. 1981b, Carroll 1970, Prewitt et al. 1981). The imported red fire ant, *Solenopsis invicta* Buren, is common. It may be an important predator of *Diatraea saccharalis* and other insects.

**Lepidoptera**

**Elachistidae**
*Dicranocetes* sp.\(^b\)—Low population levels of this leafminer sometimes occur. (Hall 1983) (det. R. W. Hodges, USDA)
parasitoids:
Eulophidae—*Chrysocharis imbratus* (Walker)\(^b\), *Cirrospilus* sp.\(^b\)
(det. M. E. Schauf, USDA)

**Hesperidae**
prob. *Lerema accius* Abbot and Smith\(^b\)—Uncommon.

**Noctuidae**
*Agrotis ipsilon* (Hufnagel)\(^b\)—(Box 1953, Ingram et al. 1938, Ingram et al. 1951) (det. R. W. Poole, USDA)
*Agrotis malefida* Guenée—(Box 1953, Ingram et al. 1938, Ingram et al. 1951)
*Agrotis subterranea* (Fab.)\(^b\)—(Box 1953, Ingram et al. 1951) (det. R. W. Poole, USDA)
Anicla infecta (Ochsenheimer) — (det. R. W. Poole, USDA)

Elaphira chaledonoda (Hubner) — (Box 1953, Ingram et al. 1953, Ingram et al. 1958, Ingram et al. 1955)

Elaphira nucicolora (Guenée) — (Box 1953, Ingram et al. 1958, Ingram et al. 1955)

Leucania latiuscula Herrich-Schäffer — (Gifford 1964, Ingram et al. 1958, Ingram et al. 1951, Strayer 1975, Wylie 1946)

parasitoids:

Tachinidae—Arctytes piliventris Van der Wulp, Belvosia luteola Coquillett, Eucelatoria rubentis (Coquillett)

Bracconidae—Cotesia floridanus Muesebeck, C. rufocoxalis (Riley)

Euplophidae—Enopectus plathypterus Howard

Ichneumonidae—Ichneumon sp near laetus Brulle, Netelia comora Townsend, Ophion ansoylonereu Cameron, undet. sp of Ichneumonini

Leucania scirpulica (Guenée) — Low levels are common in some areas. (det. R. W. Poole, USDA)

parasitoid:

Bracconidae—Cotesia rufocoxalis (Riley) (det. P. M. Marsh, USDA)

Meropleon cosmion Dyar — (Ingram et al. 1951)


parasitoids:

Sarcophagidae—Sarcodexia sternodontis (Townsend) (det. N. E. Woodley, USDA)

Tachinidae—Chetogena sp. (det. N. E. Woodley, USDA)

Ichneumonidae—Encocspilus sp. (det. L. A. Stange, FSCA), Gambrus ultimus (Cresson) (det. V. K. Gupta, FSCA)

Bracconidae—Rogas sp. (det. S. R. Shaw, USDA)

Chalcididae—Spiochalcis sp. (det. E. E. Grissell, USDA)

Prodenia eridania (Cramer) — (Gifford 1964)

Spodoptera frugiperda J. F. Smith — Large infestations sometimes occur. (Gifford 1964, Ingram et al. 1953, Ingram et al. 1951, Strayer 1975) (det. R. W. Poole, USDA)

parasitoids:

Tachinidae—Lespestia archippivora (Riley) (det. N. E. Woodley, USDA)

Bracconidae—Metereus autographae Muesebeck (det. P. M. Marsh, USDA)

Parasitoids reported to be active against some cutworms and armyworms (Box 1953, Ingram et al. 1953):

Bracconidae—Agathis texana (Cresson)

Ichneumonidae—Enpseropus purgatus (Say), Paniscus ocellata Viereck

Tachinidae—Eucelatoria comosa (Van der Wulp)

PYRAIIDA

Diatraea cambidoides Grote — (Box 1953)

Diatraea ovanaeons Dyar — Low infestation levels occur. (det. D. C. Ferguson, USDA)

*Diatraea saccularis (Fab.) — An important, widespread pest. Insecticides often used for control. (Adams et a. 1981b, Alvarez and Kidder 1981, Box 1953,

parasitoids:

Braconidae—Agathis stigmatera (Cresson)b, Cotesia flavipes (Cameron)b (det. P. M. Marsh, USDA)

Trichogrammatidae—Trichogramma fasciatum (Perkins), Trichogramma minutum Riley

Elasmopalpus lignosellus (Zeller)ab—Large infestations sometimes occur. (Bregger et al. 1969, Gifford 1964, Ingram et al. 1988, Ingram et al. 1951, Mathes et al. 1953, Strayer 1975)

parasitoids:

Tachinidae—Chetogena floridensis (Townsend)b (det. N. E. Woodley, USDA)

Braconidae—Orgilus elasmopalpi Muesebeckb (det. P. M. Marsh, USDA)

Herpetogramma bipunctalis (Fab.)b—The southern beet webworm is uncommon in cane. (det. J. B. Reppner, FSCA)

Marasmia trapezalis (Guenée)ab—Large infestations sometimes occur. (Strayer 1975) (det. D. C. Ferguson, USDA)

parasitoids:

Braconidae—Agathis discolor (Cresson)b, Agathis texana (Cresson)b, Chelonus (Microchelonus) spb, Dotichogenidea spb, Rogas laphygmae Viereckb (det. P. M. Marsh, USDA)

Tachinidae—Chetogena floridensis (Townsend)b (det. N. E. Woodley, USDA)

NEUROPTERA

CHRYSOPIDAE

Chrysopelea externa (Hagan)b—A general predator of aphids and mites. (det. L. A. Stange, FSCA)

HEMEROBIIDAE

Micromus subanticus (Walker)b—A general predator of aphids and mites. (det. L. A. Stange, FSCA)

ORTHOPTERA

ACRIDIDAE

Schistocerca obscura (Fab.)b—Localized infestations sometimes occur.

GRYLLIDAE

Gryllus assimilis (Fab.)b

Gryllus firmus Scudderb

GRYLLOTALPIDAE

Mole crickets sometimes kill young cane shoots.
ECTOPSOCIDAE

_Ectopsocus cryptomerioides_ (Enderlein)

—Sometimes present during late spring. Appeared to feed on the sugarcane rust fungus. (det. E. L. Mocford, Ill. State Univ.)

ACKNOWLEDGEMENTS

I am grateful to the taxonomists who identified specimens for me. Rick A. Armstrong provided invaluable assistance with collecting, mounting and submitting specimens for identification. Diana Ford typed the manuscript. For their special assistance during this project, I would like to thank F. D. Bennett, R. H. Cherry, O. Sosa, E. C. Becker, S. W. Bullington, J. E. Eger, H. A. Denmark, M. S. Irey, and R. E. Woodruff.

REFERENCES CITED


---. 1984b. Flooding to control the grub _Ligyrus subtropicus_ (Coleoptera: Scarabaeidae) in Florida sugarcane. J. Econ. Entomol. 77: 254-257.


———. 1985a. Damage by the corn wireworm, Melanotus communis (Gyll.), to plant cane during germination and early growth. J. Amer. Soc. Sugar Cane Techn. 4: 13-17.


Hall: Florida Sugarcane Pests

NGUYEN, RU, O. Sosa, JR., AND F. W. MEAD. 1984. Sugarcane delphacid, Perkini-

fields for effective sugarcane borer control. J. Amer. Soc. Sugar Cane Techn. 1:
86.

Florida. Proc. 2nd Inter-Amer. Sugar Cane Sem.—Insect and Rodent Pests:
49-450.

PREWITT, J., R. BROWN, T. L. CARPENTER, G. B. POWELL, AND T. E. SUMMERS.
1981. Known distribution of the imported fire ant Solenopsis invicta Buren in
Florida sugarcane fields: benefit or problem for the future. Proc. Amer. Soc.
Sugar Cane Techn. 8: 160.

REAGAN, T. E. 1984. Insecticide resistance studies with Florida and Louisiana suga-
cane borer populations. J. Amer. Soc. Sugar Cane Techn. 3: 90.

resistance in sugarcane borer populations in Louisiana. J. Econ. Entomol. 66:
576.

J. 43(9): 17-19.


SCARAMUZZA, L. C. 1942. Results attained in the biological control of Diatraea sac-
charalis (F.) in Florida. J. Econ. Entomol. 35: 642-645.

Proc. 2nd Inter-Amer. Sugar Cane Sem.—Insect and Rodent Pests: 145-152.

SOSA, O., JR. 1982. Discovery of a new insect pest of sugarcane in Florida, Perkini-
siella saccharicida Kirkaldy, a North American record. Proc. 3rd Inter-Amer. Sugar
Cane Sem.—Varieties and Breeding: 223-226.

SOSA, O., JR. 1983a. Sugar cane borer survey of the 1980-1981 sugarcane variety tests in


SOSA, O., JR. 1984a. Effect of white grub (Coleoptera: Scarabaeidae) infestations on suga-
cane yields. J. Econ. Entomol. 77: 183-185.

SOSA, O., JR. 1984b. Losses caused by the white grub Lixyurus subtropicus in sugarcane. J.
Amer. Soc. Sugar Cane Techn. 3: 91-92.

SOSA, O., JR. 1985a. Evaluation of sugar cane clones for resistance to the sugar cane borer
in Florida. J. Amer. Soc. Sugar Cane Techn. 4: 118.

SOSA, O., JR. 1986b. The sugarcane delphacid, Perkinsiella saccharicida (Homoptera: Del-
phacidae), a sugarcane pest new to North America detected in Florida. Fla.
Entomol. 68(2): 367-369.

SOSA, O., JR. AND R. CHERRY. 1982. Status of Perkinsiella saccharicida Kirkaldy,
the sugarcane planthopper in Florida, and some background information on this

SOSA, O., JR. AND J. B. BEAVERS. 1985. Entomogenous nematodes as biological
control organisms for Lixyurus subtropicus (Coleoptera: Scarabaeidae) in suga-


Amer. Soc. Sugar Cane Techn. 3: 124.

SUMMERS, T. E. 1976a. Some calculated costs and returns from monitoring Florida sugarcane
for the sugarcane borer, Diatraea saccharalis (F.). Proc. Amer. Soc. Sugar Cane
Techn. 5: 130.

SUMMERS, T. E. 1976b. Parasitism and control of the sugarcane borer by field released

SUMMERS, T. E. 1978a. Flooding for the control of the white grub Bothynus subtropicus in
A NEW SPECIES OF EFFERIA COQUILLETT (DIPTERA: ASILIDAE), STAMINEA SPECIES GROUP, FROM GRAND CAYMAN ISLAND, WEST INDIES

A. G. SCARBROUGH
Department of Biological Sciences
Towson State University
Baltimore, Maryland 21204

ABSTRACT

Efferia caymanensis is described as a new species from Grand Cayman Island, West Indies. This species is the first Efferia reported from the Cayman Islands and the first member of the staminea group reported from the West Indies. Illustrations of the terminalia are included.