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New North American records of Pyraloidea (Lepidoptera: Crambidae, Pyralidae) from southern Florida

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Abstract. We report six new North American records, one new state record, and one rare record of pyraloid moths from southern Florida, together with diagnostic characters for all taxa. We transfer *Ennomosia* Amsel from Spilomelinae to Glaphyriinae, *Cangetta micralis* (Hampson) **n. comb.** from *Deuterophysa* Warren, and *Microthyris lelex* (Cramer) **n. comb.** from *Cyclocena* Möschler. We revise *Pseudocabotia* Blanchard and Knudson **rev. stat.** to a subgenus of *Ancylosis* Zeller, with its type species *A. (P.) balconiensis* (Blanchard and Knudson) **n. comb.**, and discuss the classification of *Cabotia* Ragonot as a subgenus of *Ancylosis*.

Key Words: Florida, distribution, Glaphyriinae, Phycitinae, Spilomelinae.

Introduction

We summarize new records of pyraloid moths collected in southern Florida from the 1970s to 2013. TSD collected the majority in the 1980s and 1990s. A few have been supplemented by recent collections by JEH and plant inspectors with the Florida Department of Agriculture and Consumer Services, Division of Plant Industry (FDACS-DPI). Most were collected with mercury vapor light in weedy areas. In one case, larvae were discovered in one location several years after the first adults were caught elsewhere. Otherwise, actual breeding populations have not been discovered, although the time and distance among the collection events suggest that some of these species are established in the environment. We note host records from other places if breeding populations are to be sought. Since the species are poorly known, we take the opportunity to transfer some of them to other taxa, supported by evidence of shared characters.

Abbreviations used herein include:

BMNH	The Natural History Museum (London, UK)
CMNH	Carnegie Museum of Natural History (Pittsburgh, PA, USA)
CUIC	Cornell University Insect Collection (Ithaca, NY, USA)
FSCA	Florida State Collection of Arthropods (Gainesville, FL, USA)
JEHC	James E. Hayden Collection (Gainesville, FL, USA)
MGCL	McGuire Center for Lepidoptera and Biodiversity, UF FLMNH (Gainesville, FL, USA)
NMNH	National Museum of Natural History (Washington, D.C., USA)
TSDC	Terhune S. Dickel Collection (Anthony, FL, USA), to be deposited in the FSCA
ZMHB	Museum für Naturkunde (Berlin, Germany)

Complete synonymies may be found in Nuss et al. (2013). Label data in quotation marks are verbatim. Images of similar species may be found at the Moth Photographers' Group Website (North American Moth Photographers Group 2013).

***Ennomosia basalis* (Hampson)**
Figures 1A–B, 3A–B, 4A, 5C–E.

Clupeosoma basale Hampson, 1897: 217 (Barbados).
Ennomosia basalis: Munroe 1995: 77.

New records. 1M: "FLORIDA: Monroe Co. Upper Key Largo 6 MAR 1992 Terhune S. Dickel mercury vapor lamp" (NMNH); 1M: "FLORIDA: Monroe Co. Key Largo Hammocks State Botanical Site. 2 MAR 1995 Terhune S. Dickel Collected at MV light" (NMNH); 1M: same data, (slide JEH 1368) (TSDC); 1 F: FL: Monroe Co. Key Largo Hammocks State Botanical Site 31-III-1995, MV light. T.S. Dickel (slide JEH 1369) (TSDC).

Discussion. The Florida specimens are similar to the lectotype, slightly more yellow, although that could be attributed to fading of the type specimen. The species is smaller than the type of the genus, *E. geometridalis* Amsel, 1956 of Venezuela, and the outer edge of the brown basal area of the forewing is transverse rather than oblique. We transfer *Ennomosia* Amsel, 1956 to Glaphyriinae based on the following characters. Males of both species possess a costal retinacular hook. The tympanic bullae are round, and the fornix tympani protrudes over the venula prima (Fig. 5E). The male valvae are broad and simple (narrower in *E. basalis*, Fig. 4A), and the tegumen is elongate. In the female of *E. basalis*, the ductus seminalis is wide and emerges from the lateral wall of the corpus bursae. The maculation unmistakably resembles that of many glaphyriines. It shares genitalic characters with *Chilozela* Munroe, 1964, *Eupoca* Warren, 1891, and *Macreupoca* Munroe, 1964: broad valvae, a simple juxta without processes, and a membranous corpus bursae without abundant sclerotization (Munroe 1964). However, the falcate forewing more resembles that of *Scybalistodes* Munroe, 1964. The position of the genus in Glaphyriinae remains unclear.

Other material examined. *Ennomosia basalis* (Hampson) lectotype (not dissected) (BMNH). *Ennomosia geometridalis* Amsel: holotype (ZMHB, not dissected); Venezuela, Tachira, NMNH slide 114714 (NMNH). *Chilozela trapeziana* (Sepp, 1840): 1M: Trinidad, JEH slide 1083 (CMNH). *Glaphyria sesquistrialis* Hübner, 1823: 1M: USA, PA, JEH slide 995 (CMNH); 1F: USA, MO, MGCL slide 936 (FSCA). *Gonodiscus* Warren, 1891 sp.: 1F: Chile, north of Antofagasta JEH slide 904 (CMNH). *Macreupoca* sp.: 1M, 1F: Chile: Coquimbo and Atacama Prov., NMNH slides 114735, 114736 (NMNH).

***Neoleucinodes torvis* Capps**
Figures 1C–D, 3C–D, 4B, 5F, 6.

Neoleucinodes torvis Capps, 1948: 77 (Cuba); Munroe, 1995: 63.
Leucinodes pusilla Amsel, 1956: 162 (Venezuela).

New records. 1M: "FLA.: Dade County Fuchs Hammock near Homestead Nov 15, 1984 Terhune S. Dickel", [green rectangle] "Genitalia slide By DCF [male symbol] USNM 57,234", "Neoleucinodes torvis Capps Det. D.C. Ferguson, 1984" (NMNH); 1F: same data except "Feb 9, 1985", "*Neoleucinodes torvus* [sic] Capps Det. D.C. Ferguson 1986" (T.S. Dickel genitalia vial 860, Feb. 11, 1990) (TSDC); 3F: same data except "27 Dec 1991" and "29 Dec 1991" (TSDC); 1M, 3F, 2 larvae, 1 pupa: "USA, FL: Broward Co. Davie North South garden, ex S. torvum fruit 26.06594°N 80.31239°W 24-IV-2013 A. Derksen, J. Hayden E13-2721", MGCL slide 1205M (FSCA, NMNH).

Discussion. Only one other species of *Neoleucinodes* Capps, 1948, *N. prophetica* (Dyar, 1914), has been previously recorded in North America. It is larger and has more abundant black scaling on the wings, including a black subbasal line and forewing apical orange spot suffused with black. The orange spot on the forewing posterior edge is nearly triangular, and the hind wing apical spot is well developed with orange and black scales. *Neoleucinodes torvis* has less black scaling, the orange forewing spot is oblique, and the hind wing apical spot is pale orange, as weakly colored as the other faint lines. Female

N. torvis have labial palpi with an elongate apical meron, almost as long as the second meron, similar to *N. elegantalis* (Guenée, 1854). Male *N. torvis* have the valva apically broader and a short, hook-shaped cornutus, whereas *N. prophetica* and *N. elegantalis* have a long, nearly straight cornutus. Female *N. torvis* have an appendix bursae that is absent in the other two species.

Most Florida specimens of *N. prophetica* come from Key Largo (Monroe Co.), but we have also seen specimens from Homestead (Miami-Dade Co.) and near Copeland, Janes Scenic Drive (Collier Co.) (FSCA, NMHH). Kimball (1965) listed the first specimen from Siesta Key.

The small number of specimens caught by TSD and the absence of other collections initially suggested that the species was localized to Homestead. Remarkably, while drafting this paper, a DPI inspector and JEH collected *N. torvis* as larvae in Broward County, FL. They were boring in fruit of a large *Solanum torvum* Sw. tree in a community garden. The pink larvae (Fig. 6) bore a hole usually next to the calyx of the immature green fruits. Pupation lasted 11–12 days, like that reported for *N. elegantalis* (Molet 2012). *Neoleucinodes torvis* has been previously reared from *S. torvum* (Capps 1948) and also fruit of *Solanum rudepannum* Dunal (Diaz and Solis 2007). *Neoleucinodes prophetica* has been raised on *Solanum erianthum* D. Don (FL: Key Largo, 14 Feb. 1984, H. Glenn; FSCA).

Other material examined. *Neoleucinodes torvis* Capps: 1M: Dominica, NMNH slide 114945 (NMNH); 1F: Dominica, NMNH slide 114946 (NMNH). *Neoleucinodes elegantalis* Guenée: 1M: Bolivia: Sara, JEH slide 1098 (CMNH); 1M: Peru: Pasco, JEH slide 1515 (CUIC); 1M: Costa Rica: Alajuela, MGCL slide 1148 (MGCL); 1F: Costa Rica: Turrialba, NMNH slide 114950 (NMNH); 1M: Brazil: MG, NMNH slide 114955 (NMNH); 1F: Brazil: PA, NMNH slide 114959 (NMNH); 1F: Mexico: Tamps., NMNH slide 114960 (NMNH); 1M: Guatemala, MGCL slide 1239 (MGCL). *Neoleucinodes prophetica* (Guenée): 1M, 3F: FL: Key Largo, MGCL slides 187, 188, 1191, 1212 (FSCA); 1M: FL: Collier Co., MGCL slide 1145 (FSCA); 1M, 1F: Honduras: Pico Bonito, MGCL slides 1192, 1197 (MGCL); 1M: Dom. Rep.: El Seibo, NMNH slide 114964 (NMNH); 1F: PR: Toro Negro, MGCL slide 712 (JEHC).

***Lineodes triangulalis* Möschler**
Figures 1E, 3E, 4C.

Lineodes triangulalis Möschler, 1890: 305 (Puerto Rico).
Lineodes cyclophora Hampson, 1913b: 316 (Mexico).
Lineodes triangularis Walsingham, 1915: 456 (unjust. emend.)
Lineodes serpulalis?: Druce 1895: 265 (nec Lederer, 1863)

New records. 1M: "Terhune S. Dickel RR Coll.", "FLORIDA: Monroe County, Bahia Honda State Recreation Area 8 Nov 1991 Terhune S. Dickel" (TSDC).

Discussion. This species is not new to Florida, having been raised on leaves of pepper plant ("*Capsicum frutescens*"; Dyar 1901). However, this is the only specimen seen since then. It can be distinguished from other Nearctic species of *Lineodes* Guenée, 1854 and *Atomopteryx* Walsingham, 1891 by maculation and the male fibula, which is straight, needle-like, and oblique to the sacculus. The other species have either no fibula, or one that has a distal expansion with a hook or teeth and that does not reach to the sacculus.

Other material examined: *Lineodes triangulalis*: Lectotype, Puerto Rico (ZMHB); 1M, 1F: Dominica, NMNH slides 114920, 114921 (NMNH); 1F, 1M: USA, TX, Brownsville, NMNH slides 114953, 114956 (NMNH).

***Cangetta micralis* (Hampson) n. comb.**
Figures 1F, 3F, 4D, 5G.

Deuterophysa micralis Hampson, 1907: 7 (Jamaica).

New records. 1 F: "FLORIDA: Monroe Co. Upper Key Largo 22 Feb 1992 Terhune S. Dickel mercury vapor lamp", "J.E. Hayden slide no. 1587F"; 1F: same data except "11 Mar 1992" (TSDC); 1F: "FLORIDA: Monroe Co. Key Largo Hammocks State Botanical Site. 2 Feb 1995. Terhune S. Dickel Collected at MV light" (TSDC); 1 (sex unknown): "Florida: Monroe Co. No Name Key Apr. 21, 1987 Terhune S. Dickel Mercury Vapor Lamp" (TSDC); 1 (sex unknown): "USA Fla. Monroe Co. / Key Vaca Crane Pt. / Hammock 17.V.1990 / MV & UVL B. Landry" (NMNH); 1M: "FLORIDA: Monroe Co. Key Largo Key vi.9.1975 Mrs. Spencer Kemp blacklight trap", "FLMNH-MGCL slide M00377" (FSCA); 1M, headless: "FLORIDA: Monroe Co., Big Pine Key 12-I-1988 John B. Heppner" (FSCA); 1 (sex unknown): "Florida: Dade County. Long Pine Key, Everglades Natl. Pk. 28-IV-1975", "At (UV) Blacklight", "J.B. Heppner collector", "Project Photo J. B. Heppner 8858" (FSCA).

Discussion. *Cangetta micralis* (Hampson, 1907) is a small spilomeline widespread in the Caribbean and South America. Distinctive characters include glossy violet maculation, the toothed fibula, and the rectangular, laterally setose uncus. In Florida, the more common *Deuterophysa fernaldi* Munroe, 1983 is larger, has long, porrect palpi, and has a triangular, yellowish-white costal spot and a fovea on the forewing. The larval behavior of *C. micralis* in Florida is unknown, but in the Brazilian cerrado, they feed on the buds and flowers of *Palicourea rigida* Kunth (Rubiaceae) (Diniz and Morais 2002).

The species is transferred from *Deuterophysa* Warren to *Cangetta* Moore, 1886 on the basis of the following characters: the labial palpi are slightly upturned, protruding about the length of the head, and the maxillary palpi are prominent and narrow. The wings are concolorous and have dark transverse lines that are relatively straight on the forewing, with only slight basal curvature on the costa and anal fold. Forewing Rs_1 is stalked with Rs_{2+3}, and a fovea is absent; M_2 and M_3 are stalked in the hind wing. In the male genitalia, the valve fibula is directed ventrodistad and bears three to five digitiform processes. The uncus is broad and bears several large, elongate, non-bifid setae on the ventrolateral margins. The female genitalia are simple and have only minor sclerotization about the antrum. The curved digiti of the fibula, which resemble the teeth of salad tongs, and the broad uncus with large setae along the ventrolateral margins are unusual among spilomelines.

Cangetta micralis is the only described representative of its genus in the New World. It differs from congeners by its uniformly dark gray-violet maculation, without a pale costal triangle or terminal spots on the forewing. It differs from the type of the genus, *C. rectilinea* Moore, 1886, by vein Rs_4 of the forewing arising separately from the cell and by the presence of three metathoracic tibial spurs. Males have an uncus with parallel sides (rather than an ovate uncus), and females have one frenular bristle and lack an obvious appendix bursae.

Examined species of *Deuterophysa* Warren, 1889 differ in several characters. The antennal flagellomeres are thick and have one row of dorsal scales, with ventral side bare. The labial palpi are at least as long as the head, often longer. The whitish forewing costal spot is lunate and distinctly margined. The male genitalia have broad valvae, a fibula that lacks digitiform projections, a prominent sacculus, and a transtilla consisting of two acute projections. The simple uncus is nearly bare, and the gnathos is well-developed with an obvious medial process. The phallus has a caecum penis. The tympanal organs are similar to those of *Cangetta* but have a shallow puteolus posterior of the tympanic ridge. Based on available material, the female genitalia of *Cangetta* are indistinctive and qualitatively similar to those of *Deuterophysa*, lacking distinct sclerotizations except around the antrum.

Collection of the specimens over two decades suggests that *C. micralis* was resident in the Florida Keys at least from 1975–1995, and it is probably still present but not detected for lack of collecting effort. The species is also present on the mainland, as evidenced by one specimen from Long Pine Key.

Other material examined. *Cangetta rectilinea* Moore: 1M, 1F: Sri Lanka, NMNH slides 114733, 114768 (NMNH). *Cangetta* sp. near *rectilinea*: 1M, 1F: Taiwan: Taichung, 1100m MGCL slides 389, 390 (FSCA). *Deuterophysa fernaldi* Munroe: 1M, 1F: USA, FL: Collier Co., MGCL slides 380, 381 (FSCA). *Deuterophysa* spp.: 2M: USA, Puerto Rico, Bosq. Est. Toro Negro, JEH slides 790 (CMNH) and 1551 (JEHC); 1F: USA, Puerto Rico, Sierra Luquillo, JEH slide 791 (CMNH); 1M: Venezuela: Rancho Grande, MGCL slide 388 (FSCA).

***Nomophila triticalis* Berg**
Figures 2A, 3G, 4E.

Nomophila tetricalis [*sic*] Berg, 1875a: 136. *Nomen nudum*.
Nomophila triticalis Berg, 1875b: 155; Munroe, 1973: 180 (Argentina).
Nomophila squalidalis Hampson, 1913a: 511 (Argentina).

New records. 1M: "FLORIDA: Monroe Co. Key Largo Hammocks State Botanical Site. 20 Mar. 1996 Terhune S. Dickel Collected at MV light"; 1M: "FLORIDA: Monroe Co. Upper Key Largo 28 Feb. 1992 Terhune S. Dickel mercury vapor lamp", "Project Photo J. B. Heppner 9460" (TSDC); 1M: "USA, FL: Indian River Co. Vero Beach, SE 9 St. FMEL impoundment 27.58701°N 80.36875°W 18-V-2012. UV. J.E. Hayden." MGCL slide 1290.

Discussion. Heppner (2011) listed this species for Florida without comment. It is much smaller than the widespread and abundant *N. nearctica* Munroe, 1973. It is also distinguished by a short, slight cornutus, a separate, quadrate sclerotization on the wall of the phallus, and an uncus that is not apically split (unique among species of *Nomophila* Hübner, 1825). The species is native to Argentina and not recorded elsewhere, so artificial transport would best explain its appearance. The time and distance between the collection events could reflect separate introductions, but considering that it is a small, obscurely marked species and the 2012 specimen was not from near a port, it is probably already more widely distributed in Florida.

***Microthyris lelex* (Cramer) n. comb.**
Figures 2B, 3H, 5A.

Phalaena lelex Cramer, 1777: 2, pl. 97 fig. C (Surinam).
Botis flexalis Möschler, 1881: 424 (Surinam).
Botys janiralis Möschler, 1886: 78 (Jamaica).
Cyclocena gestatalis Möschler, 1890: 309, fig. 20 (Puerto Rico).
Haritala foviferalis Hampson, 1895: 335 (Grenada).
Lygropia (Cyclocena) lelex: Hampson, 1899: 727.
Lygropia lelex: Klima, 1939: 231; Wolcott, 1948: 665.
Cyclocena lelex: Munroe, 1995: 77.

New records. 1M: "Florida: Monroe Co. Key Largo Hammocks State Botanical Site 24 Feb 1995 Terhune S. Dickel Collected at MV light", "J.E. Hayden slide no. 2412 M" (TSDC).

Discussion. The record is of a single specimen, but the species' uniqueness deserves comment. *Microthyris lelex* is widespread in the Caribbean, Central, and northern South America, and it has been traditionally placed in the monotypic genus *Cyclocena* Möschler, 1890 **n. syn.** Although Munroe (1995) did not assign *Cyclocena* to a genus group of Spilomelinae, Möschler (1890) had already recognized its close relationship to *Microthyris* Lederer, 1863. *Microthyris anormalis* (Guenée, 1854) breeds in southern Florida, and *M. prolongalis* (Guenée, 1854) has been recorded as a stray. They uniquely share with *M. lelex* a pincer-shaped apex of the phallus. Other shared characters are 1) gnathos complete, V-shaped, without a medial process, 2) one simple, narrow fibula closer to the sacculus than to the costa of the valva, 3) costa of valva membranous and wider distad than proximad, 4) the postmedial line of the fore- and hind wings is contracted near the wing costa and extended distad between M_2 and CuA_2, 5) in females (not shown), the posterior third of the ductus bursae is expanded and lightly sclerotized, and 6) the corpus bursae has one granulose, thorn-shaped signum. *Microthyris* species other than *M. lelex* differ primarily in the male sexual characters, which include large leg tufts, antennal modifications, a hind wing extension in *M. prolongalis*, and tufts of hairs on the valvae. In *M. lelex,* the legs are not tufted and antennae not modified, but the forewing has a large fovea distal of the cell between M_1 and M_2 that compresses the cell into the basal quarter of the wing. The fovea may be homologous

to the transparent maculae in the other species. The simple presence of secondary sexual characters, regardless of particular expression, could be a deeper-level synapomorphy. Females lack the fovea and other secondary characters.

In size and color, *M. lelex* can be confused with several other spilomelines, such as the common *Herpetogramma phaeopteralis* (Guenée, 1854) (Tropical sod webworm). That species lacks a fovea, and the forewing postmedial line is not distinctly projected distad as in *M. lelex*. Another is *Penestola bufalis* (Guenée, 1854), which does have a male fovea but very different genitalia; it inhabits coastal mangrove swamps and shorelines.

Munroe (1995) placed *Microthyris* in his "*Syllepte* group," although he left *Cyclocena* unplaced. From our observations, we characterize this group by a reduced uncus that is usually truncate and lacks robust, bifid chaetae (in some cases with a few elongate, simple setae). Members also generally share rectangular or oval valvae with straight costae, a cyclindrical, slightly bulbous saccus, and a tegumen with a broad medial extension. In females, the colliculum is broad and flat rather than tightly cylindrical, and the one or two signa are round and granulose, sometimes extended as horn(s) or an elongate trough.

Microthyris species are leaf-tiers on *Ipomoea*. *Microthyris anormalis* is a pest on sweet potato (*Ipomoea batatas*) in Peru (Vergara de Sánchez and Sánchez 1989), the Virgin Islands (Wolcott 1948) and rarely in Florida (FDACS-DPI regulatory database 2013). In Cuba, it has been raised on the same host and on *Turbina corymbosa* (Bendicho-Lopez 1998). Dyar (1901) raised *M. anormalis* on morning glory (*Ipomoea* sp.) in southern Florida. Records of *M. lelex* are rare, but Wolcott (1948) recorded it on sweet potato in Puerto Rico, and it has been raised on *Ipomoea batatas* in Guanacaste, Costa Rica (e.g. 09-SRNP-44557 in Janzen and Hallwachs 2013). A few other members of the *Syllepte* group, such as *Lygropia tripunctata* (Fabricius, 1794), *Pleuroptya silicalis* (Guenée) and species of *Phostria* Hübner, 1819, also feed on *Ipomoea* and other Convolvulaceae.

Other material examined. *Microthyris lelex*: 1M: Costa Rica, JEH slide 664 (CMNH); 1M: Colombia, Valle Prov., MGCL slide 1124 (FSCA); 1M: Peru, Junin (FSCA); 1F: Honduras, Atlantida, Pico Bonito Lodge, MGCL #221172, slide 1669 (MGCL). *Microthyris anormalis*: 1M: USA, FL, Key Largo, MGCL slide 402 (FSCA); 1F: USA, FL, Collier-Seminole St. Pk., MGCL slide 403 (MGCL); 1M: Dominican Republic, Barahona, MGCL slide 1126 (MGCL). *Microthyris asadias* (H. Druce, 1899): 1M, 1F: Costa Rica, MGCL slides 1142, 1143 (MGCL). *Microthyris* sp. near *asadias*: 1F: Ecuador, Yanayacu, JEH slide 1580 (in Lee Dyer Collection, U. Nevada, Reno, NV, USA). *Microthyris prolongalis*: 1M: Honduras: Pico Bonito, MGCL slide 425 (MGCL); 1F: Puerto Rico, San German, MGCL slide 1125 (FSCA). *Herpetogramma phaeopteralis*: 1M: USA, FL, Alachua Co, 6-X-1973, J.B. Heppner, MGCL slide 157; 1F: ditto, 29-VIII-2007 J.B. Heppner, MGCL slide 181 (FSCA). *Lygropia unicoloralis* (Guenée, 1854): 1M: Bolivia, Rio Yapacani, JEH slide 697 (CMNH); 1F: Costa Rica, JEH slide 698 (CMNH). *Lygropia tripunctata*: 1M, 1F: USA, FL, Winter Park, MGCL slides 360, 361 (FSCA); 1M, 1F: USA, FL, Gainesville, CLR slides 64, 65 (MGCL). *Lypotigris reginalis* (Stoll, 1781): 1M, 1F: Mexico, Veracruz, MGCL slides 419, 420 (FSCA). *Pantographa limata* Grote and Robinson, 1867: 1M: USA, PA, JEH slides 657, 658 (CMNH). *Penestola bufalis*: 1M, 1F: USA, FL, Monroe Co. Long Key, 31-III-1984, H.D. Baggett, MGCL slides 220, 221 (FSCA). *Phostria oajacalis* (Walker, 1866): 1M: Nicaragua, JEH slides 742, 743 (CMNH). *Pleuroptya silicalis* (Guenée, 1854): 1M: USA, AL, JEH slide 726 (CMNH); 1F: USA, FL, JEH slide 727 (CMNH).

***Ancylosis (Cabotia) bonhoti* (Hampson) n. comb.**
Figures 2C, 3I, 5B, H.

Encystia Bonhoti Hampson, 1901: 256 (Bahamas).
Cabotia bonhoti: Heinrich, 1956: 201; Shaffer, 1995: 99.

New records. 9F: "FLORIDA: Dade Co. Fuchs Hammock near Homestead, MVL, Terhune S. Dickel." Dates: 29 Apr. 1980 (slide JEH 2223); 28 Dec. 1986; 1 & 17 Jan. 1987; 13, 16 & 18 Apr. 1987; 1 & 5 May 1990 (TSDC). 1F: "USA, FL: Miami-Dade Co. Miami, 10360 SW 118 St. on wall. 19-III-2013. Olga

Garcia. E13-1734". MGCL slide 1113 (FSCA). 1M, 5F: "USA, FL: Miami-Dade Co. Homestead, UF TREC hammock, 25.507532°N 80.504201°W MV+UV 23-IV-2013 J. Hayden & A. Derksen"; MGCL slides 1304, 1311 (FSCA).

Discussion. TSD collected the Fuchs Hammock specimens, and H. Neunzig identified them as "*Cabotia* sp." in 1987. They will be published in a forthcoming Moths of North America fascicle. More recently, a female was collected by a FDACS-DPI plant inspector at a residence in Miami in March 2013, and the next month, JEH collected a male and females at the University of Florida's Tropical Research and Education Center in Homestead.

Cabotia Ragonot, 1888 is widespread in the Caribbean and South America; its type species, *C. semidiscella* Ragonot, 1888, is Argentine. Heinrich (1956) notes that the differences among the species are slight and that some of the names may be conspecific. We identify ours as *A. (C.) bonhoti* based on proximity to the type locality in the Bahamas, and the genitalia of the single male are like those illustrated by Heinrich (1956). The New World species of *Cabotia* can be characterized by the fusion of some of the thumbtack-shaped signa into a line, but the distribution of the unfused signa seems to follow no consistent pattern.

Roesler (1973) revised *Cabotia* to a subgenus of *Ancylosis* Zeller, 1839. We provisionally follow this classification because it reflects many shared characters of venation and genitalia, including stalked forewing Rs_2 and Rs_3, hind wing M_2 and M_3 fused entirely and stalked with CuA_1, the generally similar male genitalia, and the corpus bursae with numerous tack-shaped signa. However, Roesler's description of *Cabotia* does not agree in certain key characters with Heinrich's (1956) nor with our specimens, and it may be questioned whether the Palaearctic species placed in *Ancylosis (Cabotia*) are monophyletic with the New World ones. The male antennae of New World *Cabotia* do have a distinct sinus, the male maxillary palpi are brush-like and nest inside a groove in the labial palpi, which are porrect, and each valva has a clasper near the base. Roesler's descriptions of *Ancylosis* and *Cabotia* accordingly need revision. Nevertheless, subgenera are useful for reflecting the unity of and divisions within the genus.

***Ancylosis (Pseudocabotia) balconiensis* (Blanchard and Knudson) n. comb.**
Figures 2D, 3J, 5I.

Pseudocabotia balconiensis Blanchard and Knudson, 1985: 235 (USA: Texas); Shaffer, 1995: 99.

New records. 1M: "USA, FL: Bro.[ward] Co. Hollywood N. Ocean Dr. Port Everglades 26.091028°N 80.109828°W UV trap 20/21-VII-2013 J.E. Hayden". MGCL slide 1288 (FSCA).

Discussion. The species was described from central Texas. The Florida specimen was collected among *Coccoloba* trees and weeds on the barrier island adjacent to Port Everglades. The high-traffic location is less than surprising, but without knowledge of its host plants, the introduction pathway remains speculative. It is smaller and paler than *A. bonhoti*, and the cluster of fused tack-shaped signa in the crook of the diverticulum bursae is unique.

We revise *Pseudocabotia* Blanchard and Knudson, 1985 as a subgenus of *Ancylosis*. *Ancylosis (Pseudocabotia) balconiensis* actually fits Roesler's (1973) characterization of Palaearctic *Cabotia* better than does *A. bonhoti* in its possession of non-sinuate male antennae, simple maxillary palpi, and absence of valve claspers. In view of the classificatory problems discussed under *A. bonhoti*, we refrain from assigning *A. balconiensis* to another subgenus. Indeed, Old World "*Cabotia*" species might be better assigned to *Pseudocabotia*, but such further actions should depend on phylogenetic analysis.

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Ferguson identified the first *N. torvis*. Koen Maes (Agrobiosys International) generously provided perceptive insight into the diagnostic characters and generic limits of *Cangetta*. After external reviews, the Honduras Lepidoptera survey of the MGCL, led by Jacqueline Miller and Deborah Matthews Lott, provided a female *M. lelex* that confirmed our initial predictions about genitalic characters. Personnel of the NMNH assisted with a loan of specimens of other material. We thank Koen Maes, Brian Scholtens (College of Charleston), and FDACS-DPI personnel Louis Somma, Susan Halbert, Paul Skelley, Greg Hodges and Wayne Dixon for constructively reviewing the manuscript. Research and travel were facilitated by USDA APHIS agreement 12-8130-0149-CA with FDACS-DPI, "Digital Identification of Microlepidoptera on Solanaceous Plants." This is Florida Department of Agriculture and Consumer Services, Division of Plant Industry, Entomology Contribution Number 1254.

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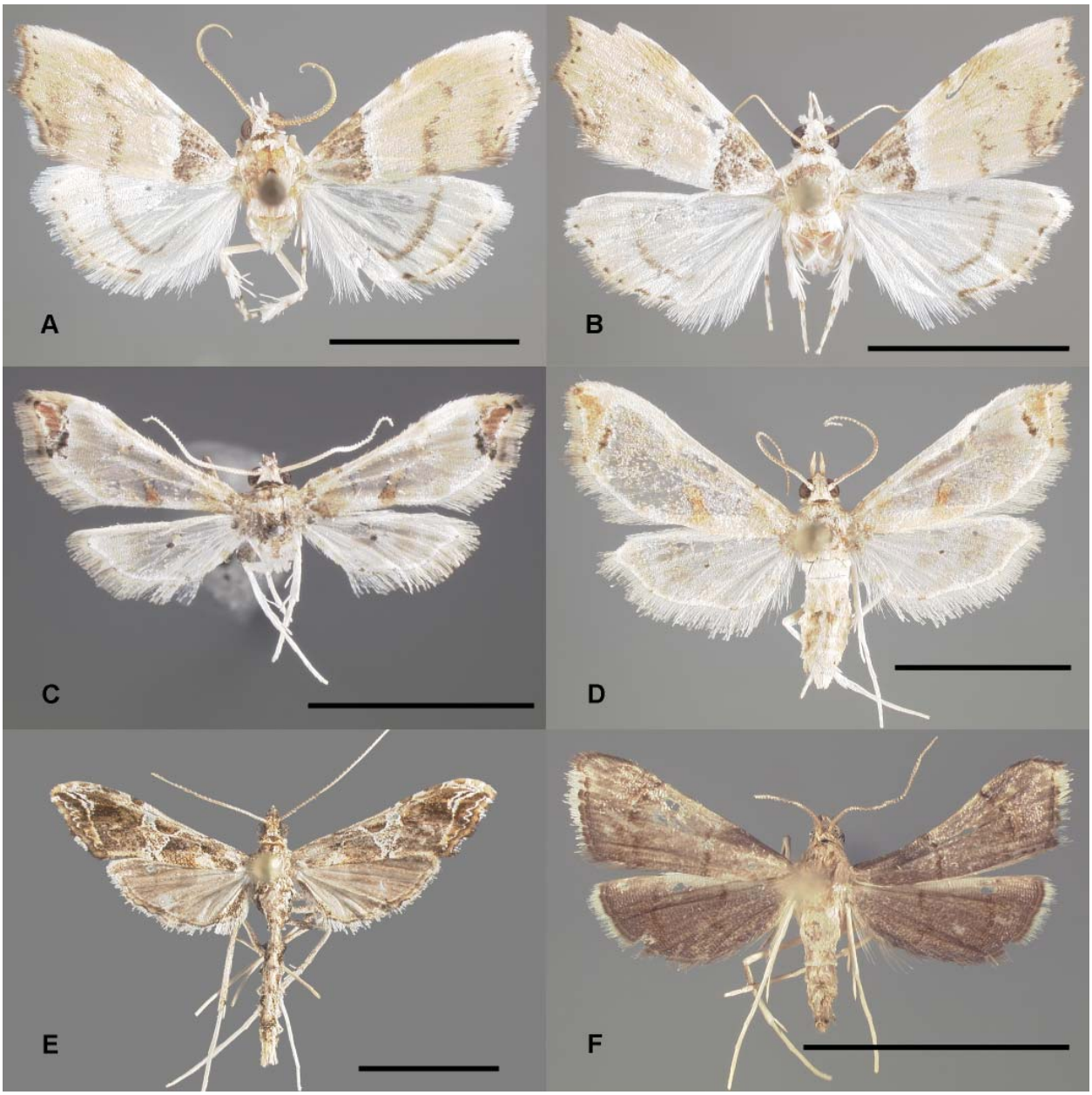

Figure 1. Habitus: **A)** *Ennomosia basalis* male (FL, Key Largo, March 1995; TSDC). **B)** *E. basalis* female (FL, Key Largo, March 1995; TSDC). **C)** *Neoleucinodes torvis* male (raised ex larva, FL, Davie, April 2013; FSCA). **D)** *N. torvis* female (FL, Fuchs Hammock, 27 Dec. 1991; TSDC). **E)** *Lineodes triangulalis* (FL, Bahia Honda, 8 Nov. 1991; TSDC). **F)** *Cangetta micralis* (FL, Key Largo Hammocks St. Bot. Site, 2 Feb. 1995; TSDC). Scale bars = 5 mm.

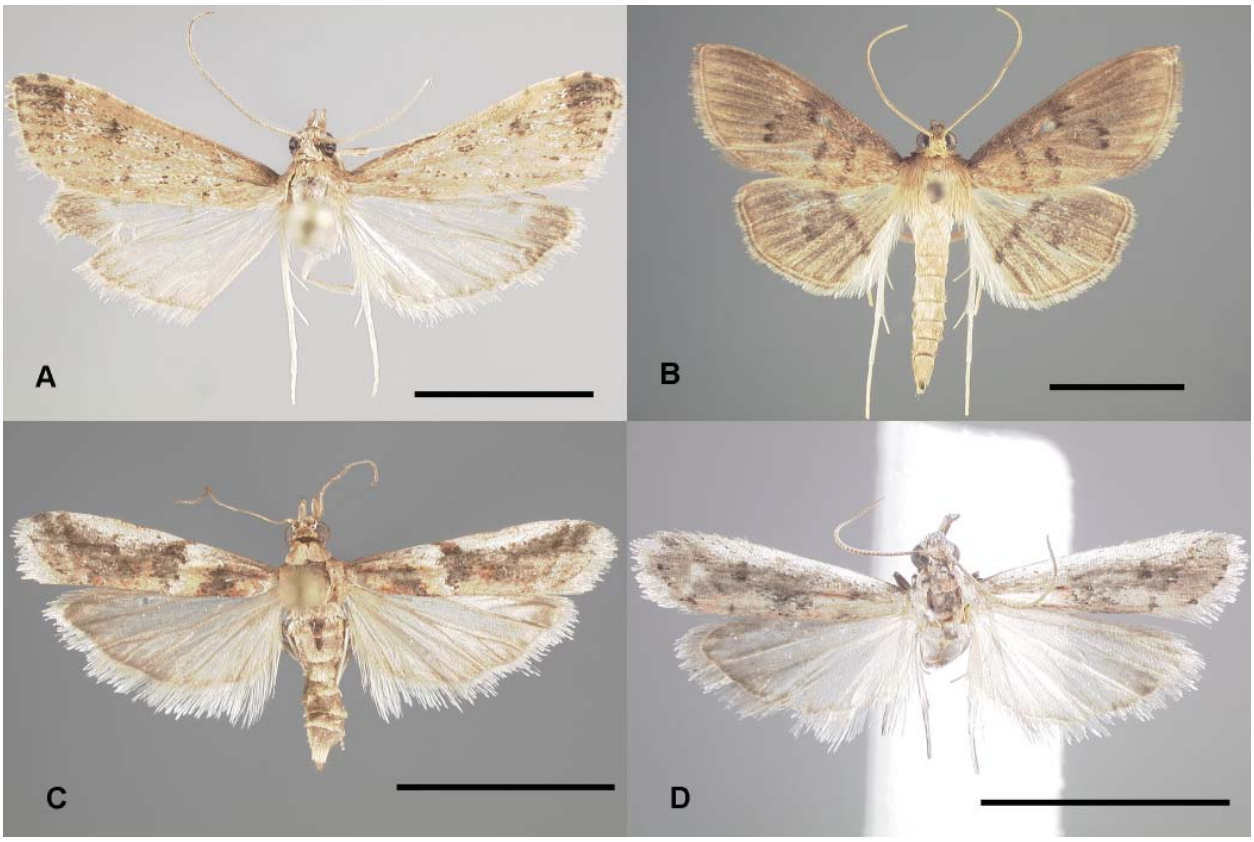

Figure 2. Habitus: **A)** *Nomophila triticalis* (FL, Vero Beach; FSCA). **B)** *Microthyris lelex* (FL, Key Largo Hammocks St. Bot. Site, 24 Feb. 1995; TSDC). **C)** *Ancylosis bonhoti* (FL, Fuchs Hammock, 28 Dec. 1986; TSDC). **D)** *Ancylosis balconiensis* (FL, Hollywood, Port Everglades, 20/21 July 2013; FSCA). Scale bars = 5 mm.

Figure 3. Heads in lateral aspect (not to scale): **A)** *Ennomosia basalis* male (same as Fig. 1A). **B)** *E. basalis* female (same as Fig. 1B). **C)** *Neoleucinodes torvis* male (Dominica, Mar. 1965; NMNH). **D)** *N. torvis* female (Dominica, Oct. 1964; NMNH). **E)** *Lineodes triangulalis* (same as Fig. 1E). **F)** *Cangetta micralis* (FL, Upper Key Largo, 22 Feb. 1992; TSDC). **G)** *Nomophila triticalis* (same as fig. 2A). **H)** *Microthyris lelex* (same as Fig. 2B). **I)** *Ancylosis bonhoti* (FL, Fuchs Hammock, 28 Dec. 1986; TSDC). **J)** *Ancylosis balconiensis* (same as Fig. 2D).

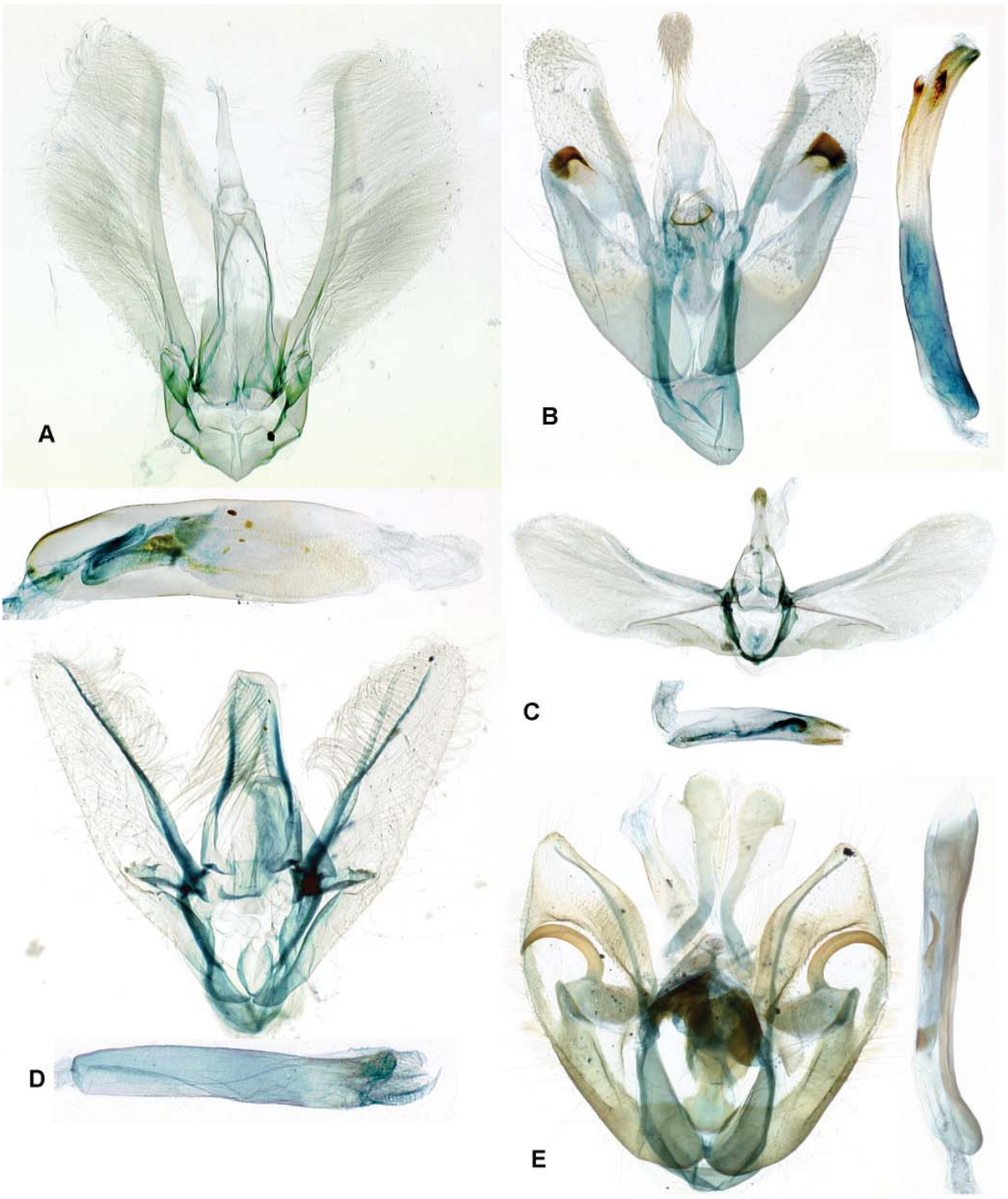

Figure 4. Male genitalia (not to scale): **A)** *Ennomosia basalis* (FL, Monroe Co. Key Largo Hammocks State Bot. Site, 2 Mar. 1995, JEH slide 1368; TSDC). **B)** *Neoleucinodes torvis* (FL, Broward Co. Davie, 24 Apr. 2013 ex *S. torvum* fruit, MGCL slide 1205; FSCA). **C)** *Lineodes triangulalis* (TX, Cameron Co. Brownsville, 3 Dec. 1975, NMNH slide 114956; NMNH). **D)** *Cangetta micralis* (FL, Monroe Co. Key Largo, 9 June 1975, MGCL slide 377; FSCA). **E)** *Nomophila triticalis* (FL, Vero Beach, MGCL slide 1290; FSCA).

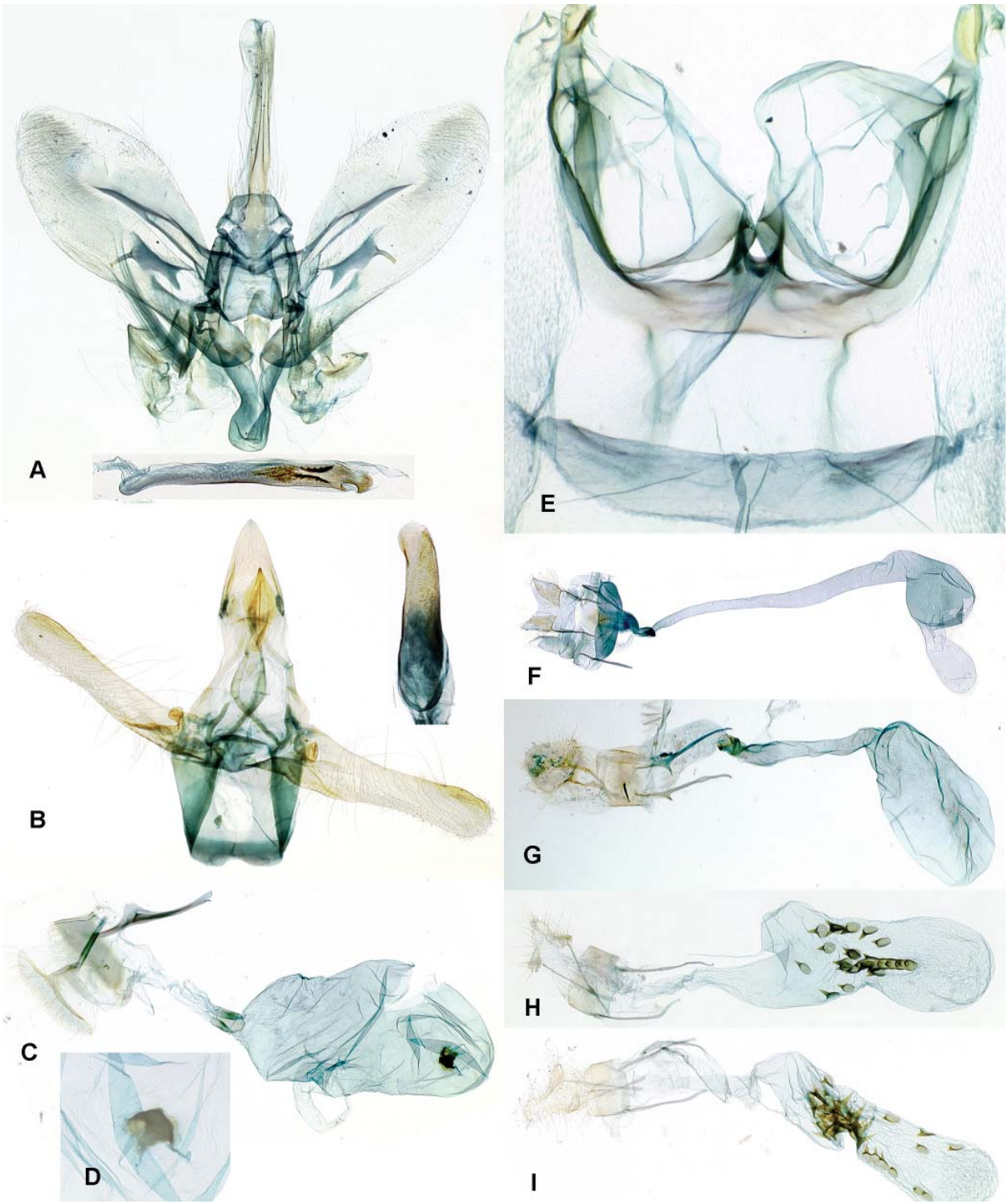

Figure 5. Male genitalia: **A)** *Microthyris lelex* (Colombia, Valle Prov. Anchicaya Dam, 11 Aug. 1973, MGCL slide 1124; FSCA). **B)** *Ancylosis bonhoti* (FL, Homestead, April 2013; MGCL slide 1304; FSCA). **C)** Female genitalia of *Ennomosia basalis* (FL, Monroe Co. Key Largo Hammocks State Bot. Site, 31 Mar. 1995, JEH slide 1369, TSDC). **D)** same as previous, detail of signum. **E)** tympanal organs of female *E. basalis* (JEH slide 1369). Female genitalia: **F)** *Neoleucinodes torvis* (Dominica, Clarke Hall, 26-31 Oct. 1964, NMNH slide 114946; NMNH). **G)** *Cangetta micralis* (FL, Monroe Co. Upper Key Largo, 11 Mar. 1992, JEH slide 1587; TSDC). **H)** *Ancylosis bonhoti* (FL, Miami-Dade Co. Miami, 19 Mar. 2013, MGCL slide 1113; FSCA). **I)** *Ancylosis balconiensis* (FL, Hollywood, MGCL slide 1286; FSCA).

Figure 6. *Neoleucinodes torvis* larvae on fruit of *Solanum torvum*, FL, Davie, April 2013. Scale in mm.