ENTOMOLOGY CIRCULAR No. 113
OCTOBER 1971

FLORIDA DEPARTMENT OF AGRICULTURE & CONSUMER SERVICES
DIVISION OF PLANT INDUSTRY

ANNOTATED KEY TO LEAFFOOTED BUGS, LEPTOGLOSSUS SPP., IN FLORIDA (HEMIPTERA: COREIDAE)[1/]

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INTRODUCTION: LEAFFOOTED BUGS ARE CONSPICUOUS INSECTS (USUALLY 5/8 TO ONE INCH LONG) THAT MAKE A BUZZING SOUND IN FLIGHT, AND OFTEN ARE NUMEROUS (SOMETIMES IN COLONIES) ON A VARIETY OF FRUITS, VEGETABLES, GRAINS, NUTS, AND SEEDS. ORDINARILY THESE BUGS ARE CONSIDERED MINOR ECONOMIC PESTS, BUT SOMETIMES LARGE NUMBERS ACCUMULATE, CAUSING ECONOMIC DAMAGE. FEEDING ON CITRUS, PEACHES, AND OTHER FRUITS MAY RESULT IN FRUIT DROP OR DISTORTED, UNDERSIZED, POOR QUALITY FRUITS WITH BLEMISHES; ALSO, FEEDING RESULTS IN PUNCTURES THAT ALLOW PATHOGENS TO ENTER AND CAUSE ROTTING. THE MOST ABUNDANT AND IMPORTANT SPECIES OF LEPTOGLOSSUS IN FLORIDA IS THE LEAFFOOTED BUG, L. PHYLLOPUS (LINNAEUS). ADDITIONAL INFORMATION ON L. PHYLLOPUS MAY BE OBTAINED IN CIRCULAR No. 107 BY MEAD (1971). MUCH INFORMATION BELOW HAS BEEN EXTRACTED FROM THE REVISION BY ALLEN (1969).

THERE ARE SIX SPECIES OF LEPTOGLOSSUS OCCURRING REGULARLY IN FLORIDA. TWO MORE NEOTROPICAL SPECIES HAVE BEEN REPORTED IN FLORIDA, EACH BASED ON A SINGLE SPECIMEN.

FIG. 1.
L. FULVICORNIS

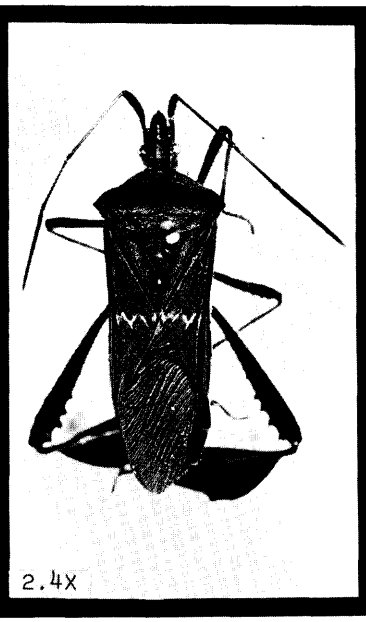


FIG. 2.
L. STIGMA

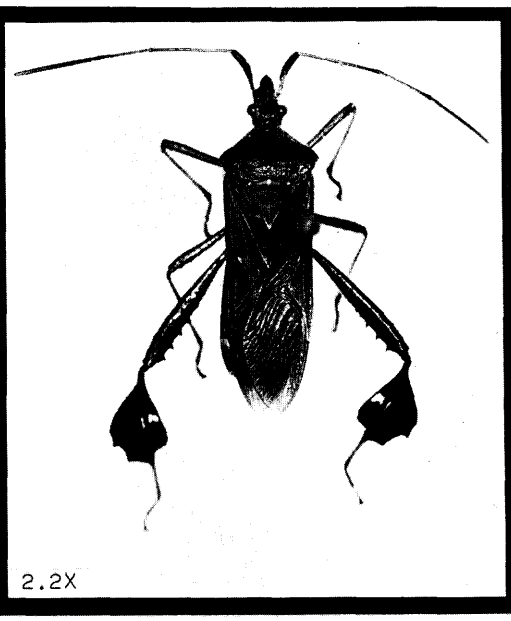


FIG. 3.
L. OPPOSITUS

FIG. 4.
L. ASHMEADI

FIG. 5.
L. GONAGRA

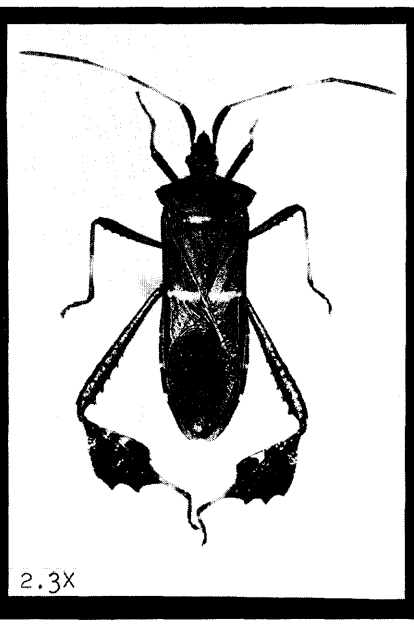


FIG. 6.
L. PHYLLOPUS

FIG. 7.
L. CORCULUS

FIG. 8.
L. CONCOLOR

1/ CONTRIBUTION No. 221, BUREAU OF ENTOMOLOGY

THERE ARE THREE OTHER GENERA IN FLORIDA, CLOSELY RELATED TO LEPTOGLOSSUS, THAT HAVE TIBIAE DILATED ON ONE OR BOTH SIDES, FORMING A THIN FOLIACEOUS PLATE. THE PAPER BY HUSSEY (1953) WAS ESPECIALLY USEFUL IN PREPARING THE FOLLOWING KEY TO THESE GENERA.

KEY TO SEPARATE LEPTOGLOSSUS FROM CLOSELY RELATED GENERA IN FLORIDA

1. DORSALLY, HEAD EXCAVATE (SUNKEN) BETWEEN BASES OF ANTENNAE EXCEPT FOR SPINELIKE TYLUS (MEDIAN FRONT); HEAD IN DORSAL VIEW WITH TYLUS IN FORM OF MEDIAN SPINE PROJECTING FORWARD BETWEEN THE FIRST ANTENNAL SEGMENTS BUT IN LATERAL VIEW HAVING A TRIANGULAR OR RUDDERLIKE FORWARD EXPANSION ---------- ACANTHOCEPHALA

1'. DORSALLY HEAD NOT EXCAVATE BETWEEN ANTENNAL BASES; CONSPICUOUSLY PROLONGED ANTERIORLY, THIS PROLONGATION APPROXIMATELY EQUAL TO ITS WIDTH AT LEVEL OF ANTENNAL BASES, HEAD IN DORSAL VIEW WITH TYLUS SHORT, NOT IN FORM OF A MEDIAN SPINE PROJECTING FORWARD BETWEEN THE FIRST ANTENNAL SEGMENTS, NOR IN LATERAL VIEW IN FORM OF RUDDERLIKE EXPANSION ---------- 2

2. SECOND AND THIRD ANTENNAL SEGMENTS DILATED ON TWO SIDES ---------- CHONDROCERA
ONE SPECIES (LATICORNIS LAPORTE) RECORDED IN SOUTHERN FLORIDA AND THE WEST INDIES.

2'. SECOND AND THIRD ANTENNAL SEGMENTS SIMPLE ---------- 3

3. FIRST ANTENNAL SEGMENT SUBEQUAL IN LENGTH TO PART OF HEAD BEFORE EYES, NEVER EQUAL OR SUBEQUAL TO LENGTH OF ENTIRE HEAD; HIND TIBIAE MORE NARROWLY DILATED, THE OUTER DILATATION NOT SCALLOPED ---------- NARNIA
SEVERAL SOUTHWESTERN U. S. AND MEXICAN SPECIES; ONE EXAMPLE FROM CACTUS IN FLORIDA (UNPUBLISHED)

3'. FIRST ANTENNAL SEGMENT MOST COMMONLY AT LEAST 1/3 LONGER THAN PART OF HEAD BEFORE EYES, SOMETIMES AS LONG AS OR LONGER THAN THE ENTIRE HEAD, MOST RARELY (LEPTOGLOSSUS CORCULUS) SUBEQUAL TO PART BEFORE EYES; HIND TIBIAE COMMONLY MORE WIDELY DILATED, ESPECIALLY ON THE OUTER SIDE, THE OUTER DILATATION USUALLY WIDELY SCALLOPED ---------- LEPTOGLOSSUS

ANNOTATED KEY TO FLORIDA SPECIES OF LEPTOGLOSSUS

1. PRONOTUM WITH A WIDE YELLOWISH ORANGE MARGIN ON ALL SIDES; DORSAL GROUND COLOR BLACK ---------- ASHMEADI HEIDEMANN 1909. FIG. 4; DISTRIBUTION AS IN FIG. 9. TYPE LOCALITY ST. NICHOLAS, FLORIDA (SOUTH JACKSONVILLE AREA OF DUVAL COUNTY NEAR ST. JOHNS RIVER). HOST PLANT: MISTLETOE, PHORADENDRON FLAVESCENS NUTT. THE FLORIDA STATE COLLECTION OF ARTHROPODS (F.S.C.A.) HAS A SPECIMEN TAKEN FROM STEINER TRAP, 22-III-1962. OTHER SPECIMENS WERE COLLECTED IN MAY, NOVEMBER, AND DECEMBER; BLATCHLEY (1926) LISTED AN APRIL 1 RECORD FOR DUNEDIN.

1'. PRONOTUM USUALLY BROWNISH BUT IF LIGHT MARKINGS PRESENT, NOT EXTENDING IN CONTINUOUS BAND AROUND ALL MARGINS; DORSAL GROUND COLOR BROWNISH ---------- 2

2. PRONOTUM WITH A CURVED, TRANSVERSE YELLOW LINE ALONG FRONT MARGIN ONLY; SIDE OF THORAX WITH NUMEROUS YELLOW OR ORANGE SPOTS CONTRASTING WITH BROWN BACKGROUND; SHOULDER OF PRONOTUM ENDING WITH LATERALLY DIRECTED SPINE---------- GONAGRA (FABRICIUS) 1775. FIG. 5; DISTRIBUTION AS IN FIG. 14. FOOD PLANTS AND/OR HOSTS INCLUDE VARIOUS CUCURBITS SUCH AS SQUASH, PUMPKINS, WATERMELONS, CITRONS, BALSAM-APPLE, AND BALSAM-PEAR, MOMORDICA SPP.; NIGHTSHADE, SOLANUM SP.; BRAZILIAN PEPPER, SCHINUS TEREBINTHEFOLIA RADDI; GUAVA, PSIDIUM SPP.; PASSIFLORA, AND OTHER PLANTS AS LISTED BY ALLEN (1969). IN FLORIDA L. GONAGRA IS OFTEN CALLED THE "CITRON BUG" BECAUSE IT COMMONLY MULTIPLIES ON CITRON MELONS IN CITRUS GROVES OR IN OLD WATERMELON FIELDS. WHEN THE CITRONS OR OTHER FOOD SOURCES DRY UP, GONAGRA MAY ATTACK AND DAMAGE EARLY VARIETIES OF CITRUS SUCH AS TANGERINES AND EARLY ORANGES, USUALLY BETWEEN SEPTEMBER 1 AND LATE NOVEMBER. AVAILABLE FLORIDA RECORDS SHOW L. GONAGRA HAS BEEN COLLECTED IN APRIL, MAY, JULY, AND SEPTEMBER THROUGH DECEMBER, MOSTLY IN OCTOBER.

2'. PRONOTUM WITHOUT A CURVED TRANSVERSE YELLOW LINE ALONG FRONT MARGIN; SIDES OF THORAX WITHOUT STRONGLY CONTRASTING YELLOW MARKINGS; SHOULDER OF PRONOTUM NOT SPINED ---------- 3

3. PRONOTUM COARSELY, RUGOSELY (WRINKLY) PUNCTATE, ITS SHOULDERS VERY PROMINENT, BLUNT; NO CROSS-BAND OR PALE MARKINGS ON HEMELYTRA; HEAD MORE THAN 2 1/2 TIMES AS LONG AS WIDTH BETWEEN EYES ---------- FULVICORNIS (WESTWOOD) 1842. FIG. 1; DISTRIBUTION AS IN FIG. 13. NYMPHS AND ADULTS HAVE BEEN REPORTED FEEDING ON FRUITS OF MAGNOLIA SPP. APPARENTLY MAGNOLIA IS THE NATURAL HOST. OCCASIONAL SPECIMENS OF L. FULVICORNIS IN FLORIDA HAVE BEEN COLLECTED ON CALAMONDIN, LOQUAT, AND TUNG; ONE ADULT WAS TAKEN FROM A STEINER TRAP IN A CALAMONDIN TREE. SPECIMENS AND RECORDS AT THE FLORIDA STATE COLLECTION OF ARTHROPODS SHOW TWO EXAMPLES DURING MARCH, THREE FOR JULY AND SEVERAL FROM SEPTEMBER THROUGH DECEMBER.

3'. PRONOTUM NOT RUGOSE, MORE OR LESS FINELY PUNCTATE ONLY; SHOULDERS MUCH LESS PROMINENT; HEMELYTRA OFTEN WITH PALE SPOTS, IRREGULAR LINE, OR BAND; HEAD SHORTER, LESS THAN 2 1/2 TIMES WIDTH BETWEEN EYES ---------- 4

4. SIDE MARGINS OF PRONOTUM BEHIND SHOULDERS MORE OR LESS CRENULATE OR DENTATE ---------- 6

4'. SIDE MARGINS OF PRONOTUM BEHIND SHOULDERS ENTIRE, LACKING SMALL SCALLOPS OR TEETH ---------- 5

5. Outer dilatation of hind tibiae having smooth margin (not scalloped and extending approximately 4/5 tibial length; 4th segment (terminal) of antennae equal to or shorter than 3rd; zigzag dorsal band usually present, sometimes faint or absent ---------- corculus (Say) 1832. Fig. 7; distribution as in Fig. 12. Allen (1969) was unable to confirm published records west of Texas. Type locality: St. Johns River, Florida. DeBarr (1967 & 1970) reported L. corculus feeding on endosperm of pine seeds (slash and longleaf pines, Pinus elliotti and P. palustris, respectively). L. corculus has been known to cause heavy seed losses in southern U. S. pine seed orchards. At Gainesville two specimens have been recovered from a blacklight trap in an open woodland of pines and deciduous trees; a specimen was collected at Miami, February 23, 1958, on jack fruit, Artocarpus integrifolia. Other dates for Florida are in May, July, August, and September.

5'. Outer dilatation of hind tibiae scalloped and extending approximately 3/5 tibial length; 4th segment of antennae longer than 3rd; zigzag band may be present but commonly reduced to a pair of spots, occasionally no pale marks ---------- oppositus (Say) 1832. Fig. 3; distribution as in Fig. 15. Reported in economic literature as attacking essentially the same wide variety of fruits, vegetables, and other crops as L. phyllopus. In older economic literature oppositus has been referred to a "northern leaf-footed plant-bug." The Florida State Collection of Arthropods has more than 20 specimens of L. oppositus from Florida. The majority of these were collected in June and July, with December ranking next. Other specimens were collected in August, September, and February. Blatchley (1926) listed oppositus as scarce at Dunedin and Ft. Myers from December 15 to March 4. Apparently oppositus is sometimes active during warmer days in December. H. V. Weems, Jr., and F. W. Mead took a series of 5 specimens from tree trunks at Florida Caverns State Park, Jackson County, Florida, on December 7, 1957. In Florida two specimens (one each from Hernando and DeSoto Counties) have been collected from Steiner traps hanging in grapefruit trees. Allen (1969) listed papers by Chittenden that give life history details. Briefly, eggs hatch in about 8 days; nymphs require 4 to 5 weeks to become adults; nymphs and adults are gregarious and sometimes form a ball or cluster having up to 30 individuals in a mass.

6. Transverse band on hemelytra always present and straight ---------- 7
6'. Transverse band on hemelytra irregular or zigzag, not straight; or band absent ---------- 8

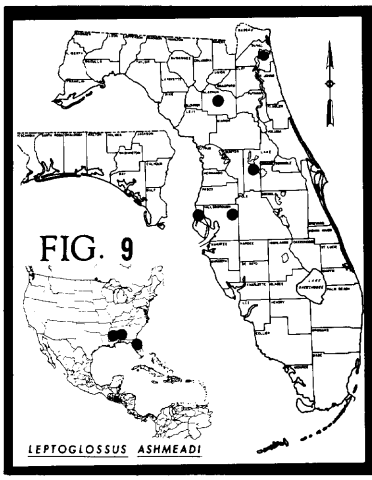
7. Shoulder angles acuminate, acute, and obliquely ascending; pronotal disk with contrasting yellow areas in the form of distinctly separated ovoid spots or larger more quadrate spot partially fusing medially, posterior marginal area of pronotum yellow; hind wings unicolorous (West Indies) ---------- balteatus (Linnaeus) 1771. Distribution as in Fig. 10. Allen (1969) wrote that there is at least one record from Florida (Barber, 1914; Barber gave no specific locality). Allen further stated that the localities cited by Uhler in 1893 were based on erroneous identifications. Food plants: cotton, tomatoes, leguminous plants, oranges, cowpeas; breeds on guava and Luffa spp.

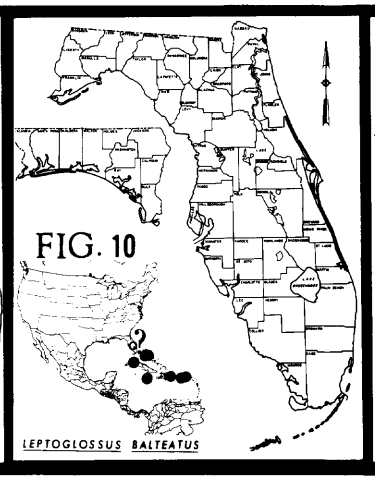
7'. Shoulder angles more rounded, subacute; pronotum concolorous, disk rarely with yellowish areas (if yellow areas are present, they are poorly defined, more diffused and dull), posterior marginal area of pronotum never yellow; hind wings with basal half dark, distal half clear (North and Central America) ---------- phyllopus (Linnaeus) 1767. Fig. 6; distribution as in Fig. 16. Food plants: Wide variety of fruits, vegetables, ornamentals, grains, seeds, nuts. It can be a major pest of citrus when host plants in or near groves become unsuitable, resulting in the bugs flying to ripening fruit in late summer and fall; feeding at this time causes premature color break and fruit drop. A favorite truck crop is tomato. See Allen (1969) and Mead (1971) for other crops. Some recent observations at Gainesville, Florida, include: L. phyllopus feeding on rose buds, causing flowers to open improperly and be distorted (L. C. Kuitert); large numbers on thistle, Cirsium sp., and elderberry, Sambucus sp., April 20, 1971 (D. H. Habeck). Thistles have been reported previously as favorite host plants.

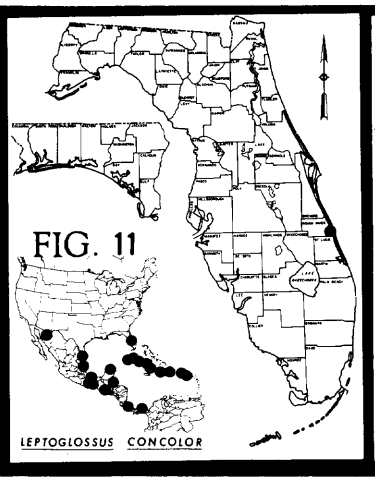
8. Pronotal calli with a rough surface texture, numerous dark thick hairs interspersed with pale hairs on anterior pronotal disk; male genital capsule with a narrow and U-shaped median notch, no dorsal prongs ---------- concolor (Walker) 1871. Fig. 8; distribution as in Fig. 11. Allen (1969) did not list any U. S. Records for this species. Recently he has seen a male specimen (the one in Fig. 8) from Vero Beach, Florida, which he says has the same genital capsule as the male specimens he has referred to as concolor. The Vero Beach specimen was collected by Messrs. Burnett, Campbell, and Jones on Comptonia sp., January 7, 1954. This bug was determined later that year as L. stigma (Herbst) by R. I. Sailer.

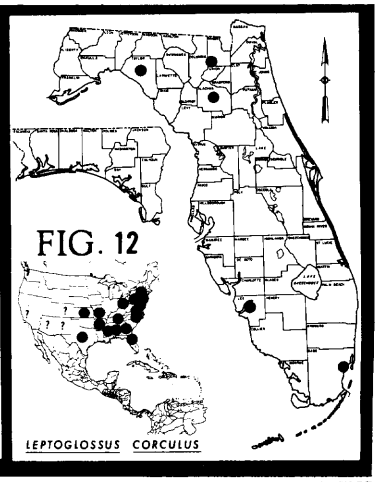
8'. Pronotal calli smooth, pale pilose hairs only on anterior prontal disk; male genital capsule with a rounded median notch; dorsal prongs present ---------- stigma (Herbst) 1784. Fig. 2; distribution as in Fig. 17. The photographed specimen is a female determined and reported as L. stigma by Hussey (1956) as a new U. S. record. This specimen was collected at South Miami, Florida, Plant Introduction Station, June 7, 1956, in approximately 20 sweeps of lychee foliage by D. DeLeon and F. W. Mead. Allen has seen a photograph of this specimen but could not confirm it. He indicated that female specimens of stigma and concolor are very difficult to separate under the best of conditions. Allen (1969) listed the distribution of stigma as Surinam, Ecuador, Brazil, and Paraguay. He suggest that several published host plant records of stigma for the Greater Antilles more than likely pertain to concolor.

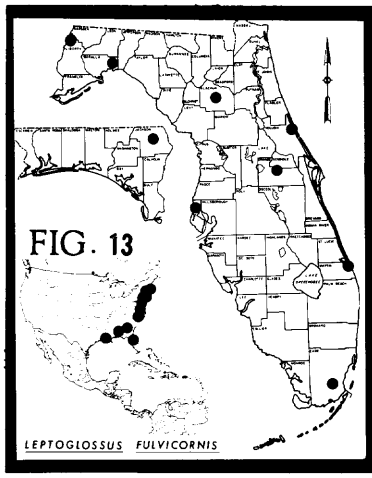
THE DISTRIBUTION MAPS BELOW ARE BASED MAINLY ON INFORMATION AVAILABLE FROM ALLEN (1969) AND RECORDS IN THE FLORIDA STATE COLLECTION OF ARTHROPODS.

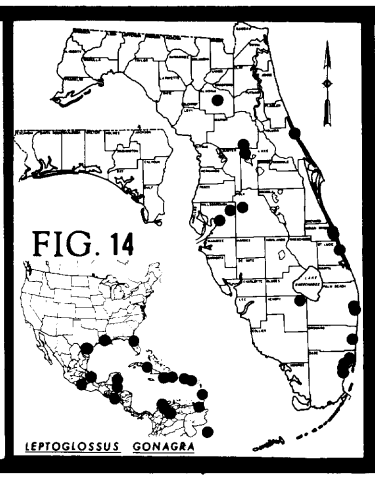


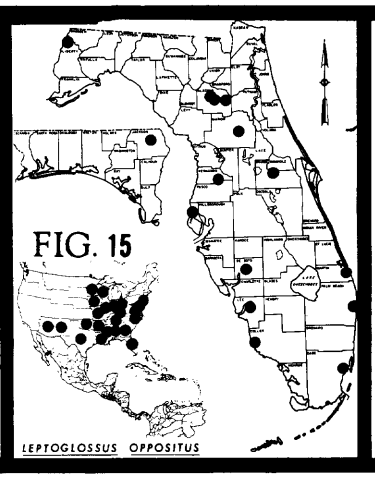


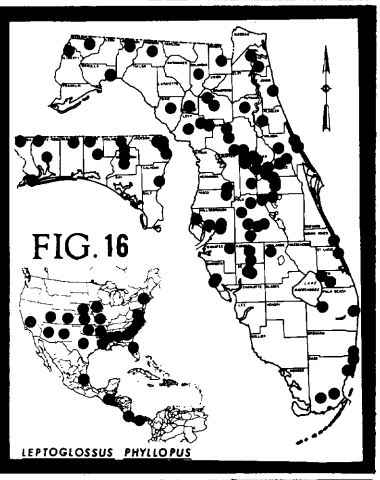


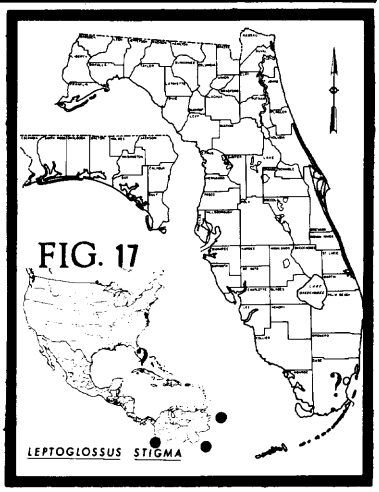












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DEBARR, G. L. 1967. TWO SUCKING INSECTS OF SEED IN SOUTHERN PINE SEED ORCHARDS. SOUTHEASTERN FOREST EXP. STA., ASHVILLE, N. CAR., U. S. FOREST SERV. RES. NOTE SE-78, 3P., 2 FIG.

_____ 1970. CHARACTERISTICS AND RADIOGRAPHIC DETECTION OF SEED BUG DAMAGE TO SLASH PINE SEED. FLORIDA ENT. 53(2); 109-117, 4 FIG.

HUSSEY, R. F. 1953. CONCERNING SOME NORTH AMERICAN COREIDAE (HEMIPTERA). BULL. BROOKLYN ENT. SOC. 48(2); 29-34.

_____ 1956. ADDITIONS TO THE UNITED STATES LIST OF HEMIPTERA. FLORIDA ENT. 39(2):88.

MEAD, F. W. 1971. LEAFFOOTED BUG, LEPTOGLOSSUS PHYLLOPUS (LINNAEUS) (HEMIPTERA:COREIDAE). FLORIDA DEPT. AGR. & CONSUMER SERV., DIV. PLANT INDUSTRY, ENT. CIRC. NO. 107, 2P., 3 FIG.