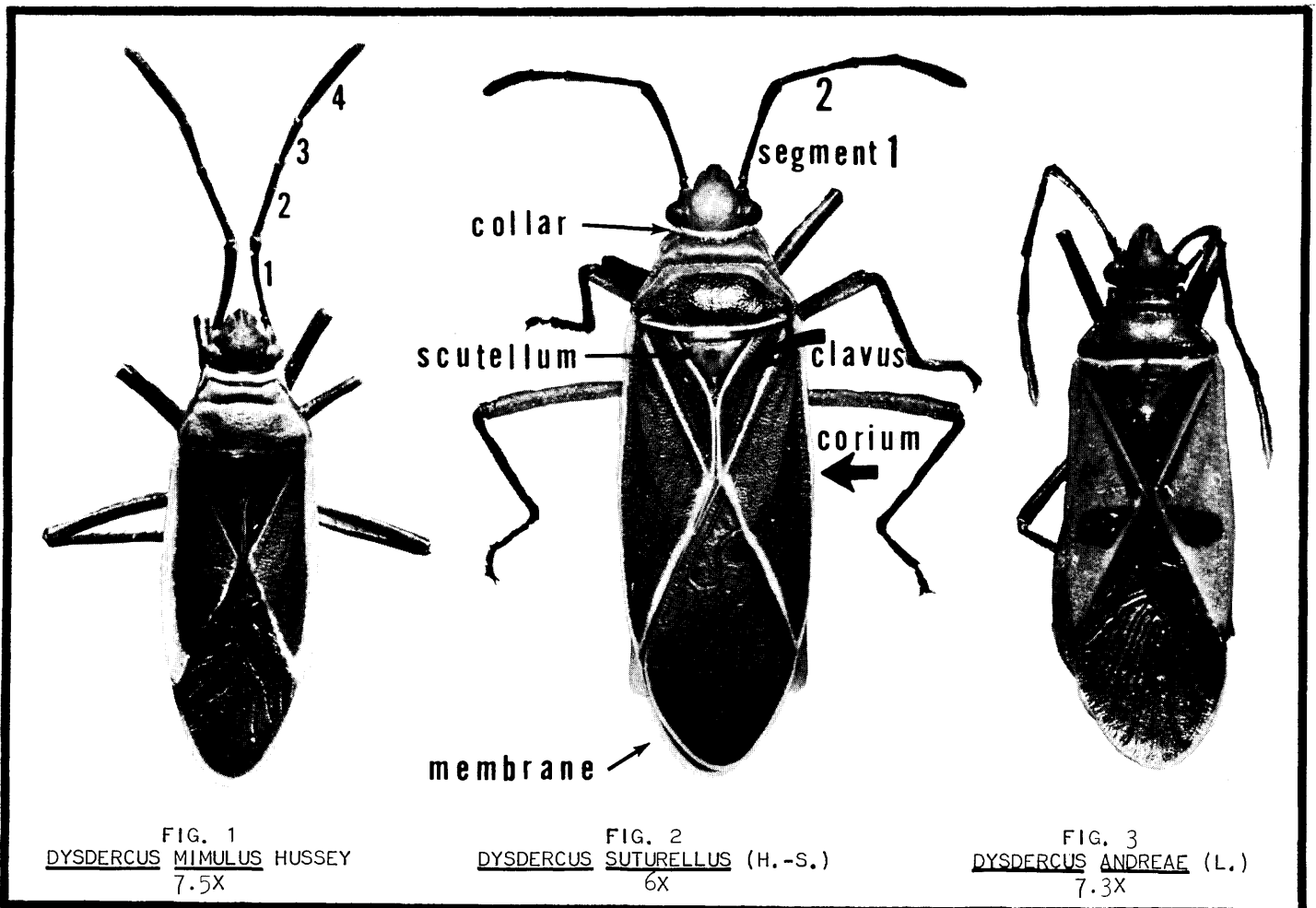


COTTON STAINERS, DYSDERCUS SPP., IN FLORIDA¹
(HEMIPTERA: PYRRHOCORIDAE)

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INTRODUCTION: FOUR SPECIES OF COTTON STAINERS ARE KNOWN FROM FLORIDA. THE MOST IMPORTANT OF THESE IS DYSDERCUS SUTURELLUS (HERRICH-SCHAEFFER). MORRILL (1910) STATED THE COTTON STAINER WAS THE MOST DESTRUCTIVE COTTON PEST IN FLORIDA. THIS SPECIES HAS LOST ITS IMPORTANCE ON COTTON IN RECENT DECADES, PRIMARILY BECAUSE OF (1) THE ELIMINATION OF COTTON WASTE THAT PROVIDED BREEDING AND OVERWINTERING SITES; (2) EFFECTIVE CHEMICAL CONTROLS. THEN, TOO, COTTON HAS LOST ITS FORMER EMINENCE AS A CROP IN FLORIDA. MAXIMUM ACREAGE OF COTTON IN FLORIDA OCCURRED IN 1911 AND AMOUNTED TO 319,000 ACRES. BY 1920, IT WAS DOWN TO 100,000 ACRES AND REMAINED AT ABOUT THAT LEVEL UNTIL 1937, WHEN A DOWNWARD TREND BEGAN. IN 1965, 22,000 ACRES WERE PLANTED, AND THE ESTIMATE FOR 1966 IS APPROXIMATELY 15,000 ACRES. COTTON STAINERS ARE CURRENTLY NOTEWORTHY BECAUSE OF THEIR PRESENCE ON AND OCCASIONAL DAMAGE TO FRUITS AND ORNAMENTALS, PARTICULARLY MALVACEOUS PLANTS SUCH AS HIBISCUS SPP.

HOSTS AND ECONOMIC IMPORTANCE: THE COTTON STAINER DERIVES ITS NAME FROM ITS HABIT OF STAINING COTTON AN INDELIBLE BROWNISH YELLOW. A GROWER AT HAWTHORN, FLORIDA, IN 1902 GINNED ABOUT 1,000 BALES OF LONG-STAPLE COTTON, OF WHICH ABOUT 200 BALES WERE CLASSED AS STAINED. D. SUTURELLUS PUNCTURES AND SUCKS YOUNG BOLLS, PREVENTING THEM FROM COMING TO MATURITY. IT ALSO HAS BEEN A SEVERE PEST OF ORANGE FRUITS ON OCCASIONS. IN PUNCTURING AN ORANGE, A COTTON STAINER OFTEN INSERTS ITS BEAK FULL LENGTH BUT LEAVES NO VISIBLE WOUND; NEVERTHELESS, A SINGLE PUNCTURE MAY CAUSE THE ORANGE TO DROP IN A FEW HOURS FROM THE TREE AND TO DECAY IN ONE OR TWO DAYS, ACCORDING TO HUBBARD (1885). THERE ARE OLD REPORTS OF ORANGE TREES WELL REDDENED WITH COTTON STAINERS IN WHICH WHOLE CROPS WERE LOST. SOME OTHER HOSTS OF D. SUTURELLUS INCLUDE TANGERINES, OKRA PODS, RIPE FRUIT OF PAPAYA, PODS AND BLOSSOMS OF OLEANDER, SEED PODS OF JAMAICA SORREL (HIBISCUS SABDARIFFA), TREE HIBISCUS (H. SYRIACUS), TURK'S CAP, TEAWEED (SIDA SP.), CAESAR'S WEED OR SPANISH COCKLEBUR (URENA LOBATA), SPANISH NEEDLE (BIDENS PILOSA), SEASIDE MAHOE OR PORTIATREE (THESPIESIA POPULNEA), ROSE BUDS AND BLOSSOMS, EGGPLANT, NIGHTSHADE, AND GUAVA. THE HOSTS OF THE OTHER SPECIES OF DYSDERCUS ARE ESSENTIALLY THE SAME AS FOR SUTURELLUS. DIVISION OF PLANT INDUSTRY HAS ONE RECORD OF ROYAL POINCIANA BEING SEVERELY DAMAGED BY D. ANDREAE. THE FEEDING ACTIVITIES



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OF COTTON STAINERS ON COTTON PRODUCE A STAIN ON THE LINT, REDUCING ITS VALUE. A FEW AUTHORITIES HAVE REPORTED THE STAIN COMES FROM EXCREMENT OF THE BUGS. HOWEVER, MOST HAVE STATED THAT THE STAIN PRIMARILY IS A RESULT OF THE BUG PUNCTURING THE SEEDS IN THE DEVELOPING BOLLS CAUSING A JUICE TO EXUDE THAT LEAVES AN INDELIBLE STAIN. FEEDING BY PUNCTURING FLOWER BUDS OR YOUNG COTTON BOLLS USUALLY CAUSES REDUCTION IN SIZE, OR THE FRUITING BODY MAY ABORT AND DROP TO THE GROUND.

GENERAL DESCRIPTION AND HABITS: DYSDERCUS EGGS LOOK VERY MUCH LIKE MICROSCOPIC HENS' EGGS AND ARE LAID SINGLY OR IN SMALL, LOOSE CLUSTERS IN SAND, DEBRIS, OR DECAYING VEGETABLE MATTER. THERE ARE FIVE NYMPHAL STAGES OR INSTARS. THE FIRST USUALLY IS SPENT UNDERGROUND. THE DURATION OF EACH OF THE FIRST FOUR STAGES TYPICALLY AVERAGES FOUR TO FIVE DAYS DURING MIDSUMMER, BUT THE FIFTH STAGE COMMONLY TAKES ABOUT TWICE AS LONG. THE NYMPHS ARE GENERALLY RED. THE FOURTH AND FIFTH INSTARS HAVE DARK WING PADS, AND THE DIVIDING LINES BETWEEN ABDOMINAL SEGMENTS BECOME VERY DISTINCT AS MATURITY IS APPROACHED. THERE ARE SEVERAL GENERATIONS A YEAR. THE LIFE CYCLE CAN VARY FROM ABOUT A MONTH TO THREE AND A HALF MONTHS, DEPENDING PRIMARILY UPON TEMPERATURE DIFFERENCES. THE VARIOUS SPECIES ARE ATTRACTED TO LIGHTS.

DISTRIBUTION: DYSDERCUS SUTURELLUS IS MOST COMMON IN SOUTHERN FLORIDA AND IN CUBA. IT HAS BEEN REPORTED IN JAMAICA AND PUERTO RICO, ALABAMA, GEORGIA, AND SOUTH CAROLINA. IN VIEW OF ITS SCARCITY IN NORTH FLORIDA, IT MUST BE PRESUMED RARE IN THE OTHER THREE STATES MENTIONED. D. ANDREAE RANGES FROM SOUTHERN FLORIDA TO MOST OF THE ANTILLES AND SURINAM. D. MIMULUS RANGES FROM SOUTHERN FLORIDA, TEXAS, AND MEXICO INTO CENTRAL AMERICA AND THE WEST INDIES. THE UNDETERMINED SPECIES IS KNOWN IN THE UNITED STATES FROM TWO SPECIMENS TAKEN AT KEY LARGO KEY AND HOMESTEAD, FLORIDA.

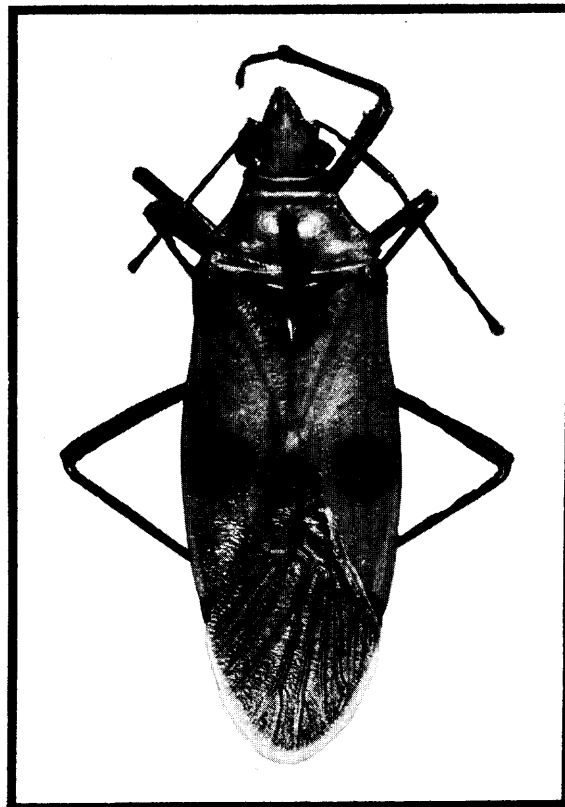


FIG. 4
DYSDERCUS SP. (UNDETERMINED)
6.2X

CONTROL: NO COTTON OR COTTON SEED OR OTHER HOST PLANT DEBRIS THAT COULD SERVE AS BREEDING MATERIAL SHOULD BE LEFT ON THE GROUND. COLONIES OF COTTON STAINERS ON PLANTS CAN BE SHAKEN INTO A BUCKET OF KEROSENE. "TANGLEFOOT" AROUND TREE TRUNKS WILL KEEP YOUNG BUGS FROM CRAWLING UP TO FRUITS AND BLOSSOMS. SMALL HEAPS OF SEEDS, FRUITS, OR BITS OF SUGARCANE CAN BE USED AS BAITS TO ATTRACT COTTON STAINERS. THEN THE INSECTS CAN BE KILLED WITH A SPRAY OF KEROSENE OR SCALDING HOT WATER. INSECTICIDES CAN BE USED ON ORNAMENTALS AND FRUITS, BUT TOLERANCES MUST BE OBSERVED ON EDIBLE FRUITS. FOLLOW THE DOSAGES AND WAITING PERIODS GIVEN ON THE CONTAINERS. CONTROL INFORMATION FOR DYSDERCUS ON ORNAMENTALS IN FLORIDA IS VERY LIMITED, BUT THE FOLLOWING INSECTICIDES ARE SUGGESTED: LINDANE, TOXAPHENE, CARBARYL (=SEVIN), AND ENDOSULFAN (=THIODAN).

KEY TO ADULTS:

- CORIUM PRIMARILY RED OR REDDISH ORANGE SURROUNDING A BLACK SPOT OR BAR ----- 2
- ' CORIUM LIGHT TO DARK BROWN, NOT REDDISH; BLACK SPOT ABSENT, BUT A DARK BAR SOMETIMES VARIOUSLY DEVELOPED FROM OBSCURE TO DISTINCT ----- 3
- (1) LENGTH OVER 13 MM; CORIUM AND CLAVUS WITHOUT PALE BORDERS; BLACK SPOT OF CORIUM ROUND AND LARGE; SCUTELLUM AT LEAST PARTLY DARKENED; COLLAR OF PRONOTUM CONCOLOROUS RED; CLAVUS EMBROWNED ADJACENT TO SCUTELLUM ONLY; (FIG. 4) ----- VERY RARE UNDETERMINED SPECIES
- LENGTH UNDER 12.5 MM; CORIUM AND CLAVUS WITH PALE MARGINS FORMING A "ST. ANDREWS CROSS"; BLACK SPOTS OF CORIUM VARIABLE IN SHAPE AND SIZE BUT NOT ROUND AND GENERALLY FORMING A TRANSVERSE BAR NEAR BASE OF MEMBRANE; SCUTELLUM ENTIRELY REDDISH; COLLAR OF PRONOTUM CONTRASTING PALE YELLOW; CLAVUS ENTIRELY BROWN; (FIG. 3) ----- ANDREAE
- (1') LENGTH 12-17 MM; ANTENNAL SEGMENT I DISTINCTLY LONGER THAN SEGMENT II, THE LATTER APPROXIMATELY 7/10THS THE LENGTH OF THE BASAL SEGMENT; (FIG. 2) ----- SUTURELLUS
- LENGTH 10 MM OR LESS; ANTENNAL SEGMENT I EQUAL OR SUBEQUAL TO SEGMENT II; (FIG. 1) --- MIMULUS

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