

PAPAYA FRUIT FLY (TOXOTRYPANA CURVICAUDA GERSTAECKER), 1860<sup>1</sup>  
(DIPTERA: TEPHRITIDAE)

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SYNONYMS: MIKIMYIA FURCIFERA BIGOT, 1884 ——— BRAZIL

INTRODUCTION: THE PAPAYA FRUIT FLY, TOXOTRYPANA CURVICAUDA GERSTAECKER, IS ONE OF THE MOST IMPORTANT PESTS OF PAPAYA WHEREVER THIS FRUIT IS GROWN. IT IS DIFFICULT TO CONTROL AND REQUIRES TAKING SOME PREVENTIVE MEASURES. IT WAS INTRODUCED INTO FLORIDA ABOUT 1905, PROBABLY ON SHIPMENTS OF PAPAYAS FROM THE BAHAMAS OR THE WEST INDIES. IT BECAME ESTABLISHED FIRST ON THE KEYS AND IN THE VICINITY OF MIAMI FROM WHERE IT EVENTUALLY SPREAD TO PRACTICALLY ALL PORTIONS OF THE STATE WHERE PAPAYAS ARE GROWN. THIS FRUIT FLY AND THE PAPAYA WEBWORM, HOMALOPALPIA DALERA (DYAR), ARE THE PRINCIPAL PESTS OF BOTH WILD AND CULTIVATED PAPAYAS IN FLORIDA.

DISTRIBUTION: VIRGIN ISLANDS (ST. JOHN); FLORIDA, SOUTHERN TEXAS, AND MEXICO SOUTH TO BRAZIL, WEST INDIES, BAHAMA ISLANDS. DIVISION OF PLANT INDUSTRY FILES RECORD THE PAPAYA FRUIT FLY FROM THE FOLLOWING FLORIDA COUNTIES: BREVARD, BROWARD, CHARLOTTE, DADE, HIGHLANDS, HILLSBOROUGH, INDIAN RIVER, LEE, MANATEE, MARTIN, ORANGE, PALM BEACH, PINELLAS, ST. LUCIE, SARASOTA, VOLUSIA. THE PAPAYA FRUIT FLY HAS BEEN COLLECTED IN FLORIDA IN EVERY MONTH OF THE YEAR IN BOTH ADULT AND LARVAL STAGES.

HOSTS: PAPAYA, MANGO. OCCASIONAL INFESTATION OF MANGOES IS BELIEVED TO REPRESENT CHANCE OR FORCED OVIPOSITION IN THE ABSENCE OF PAPAYA, AND PROBABLY OCCURS WHEN POPULATIONS OF THIS FRUIT FLY ARE UNUSUALLY HIGH. IT IS NOT CONSIDERED TO BE AN IMPORTANT PEST OF MANGOES.

LIFE HISTORY AND HABITS: A FEMALE MAY PRODUCE 100 OR MORE EGGS. OVIPOSITION OCCURS SHORTLY BEFORE SUNSET OR OCCASIONALLY EARLY IN THE MORNING. TYPICALLY THE FEMALE THRUSTS HER OVIPOSITOR THROUGH THE MEAT OF THE FRUIT AND DEPOSITS A CLUSTER OF 10 OR MORE LONG, SLENDER EGGS AMONG THE SEEDS IN THE CENTRAL CAVITY OF THE PAPAYA. THE LARVAE USUALLY FEED ON THE SEEDS AND LINING OF THE SEED CAVITY, THEN EAT THEIR WAY OUT OF THE FRUIT AND DROP TO THE GROUND FOR PUPATION IN THE SOIL. INFESTED FRUIT USUALLY RIPEN OR TURN YELLOW PREMATURELY AND DROP TO THE GROUND. EGGS USUALLY ARE LAID IN SMALL FRUIT, ABOUT 2-3 INCHES IN DIAMETER, BUT THEY MAY BE DEPOSITED IN SMALLER AND LARGER FRUIT, INCLUDING SOME WHICH ARE NEARLY RIPE. HOWEVER, THE JUICE OF UNRIPE FRUIT IS FATAL TO THE LARVAE; ESCAPE FROM THE INNER CAVITY OF THE FRUIT MUST BE MADE THROUGH THE SOFT TISSUE OF RIPE FRUIT. THE EGG HATCHES ABOUT 12 DAYS AFTER OVIPOSITION. LARVAL DEVELOPMENT IN THE FRUIT REQUIRES ABOUT 15-16 DAYS, WHILE PUPAL DEVELOPMENT REQUIRES 2-6 WEEKS DEPENDING UPON TEMPERATURE AND HUMIDITY OF THE SOIL.

IDENTIFICATION: THE PAPAYA FRUIT FLY, YELLOW AND BROWN MARKED WITH BLACK, RESEMBLES SEVERAL COMMON SPECIES OF VESPID WASPS IN SIZE, FORM, AND GENERAL COLORATION, AS WELL AS BEHAVIOR. THE LIVE FLY WALKS ABOUT ON PAPAYA FRUIT WITH ITS BODY WELL ELEVATED UPON ITS SLENDER LEGS AND EXHIBITS A NERVOUSNESS OF MOVEMENT SIMILAR TO THAT OF SOME OF THE WASPS. THE FEMALE IS REMARKABLE FOR ITS LONG, SLENDER, CURVED OVIPOSITOR, WHICH EXCEEDS THE LENGTH OF ITS BODY (FIG. 1 & 2). LENGTH: BODY, EXCLUSIVE OF OVIPOSITOR, 8.5-12.5 MM; OVIPOSITOR (MEASURED IN A STRAIGHT LINE FROM BASE TO TIP) 9-14 MM; WING, 8.5-12.5 MM. THE MALE CLOSELY RESEMBLES THE FEMALE IN COLORATION AND GENERAL APPEARANCE, WITHOUT THE OVIPOSITOR; THE ABDOMEN IS PEDUNCULATE, BLUNT AT THE TIP, LESS DISTINCTLY BANDED THAN IN THE FEMALE AND MORE HAIRY. LENGTH: BODY, 11-13.5 MM; WING, 8.5-11 MM.

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<sup>1</sup>CONTRIBUTION No. 158, ENTOMOLOGY SECTION

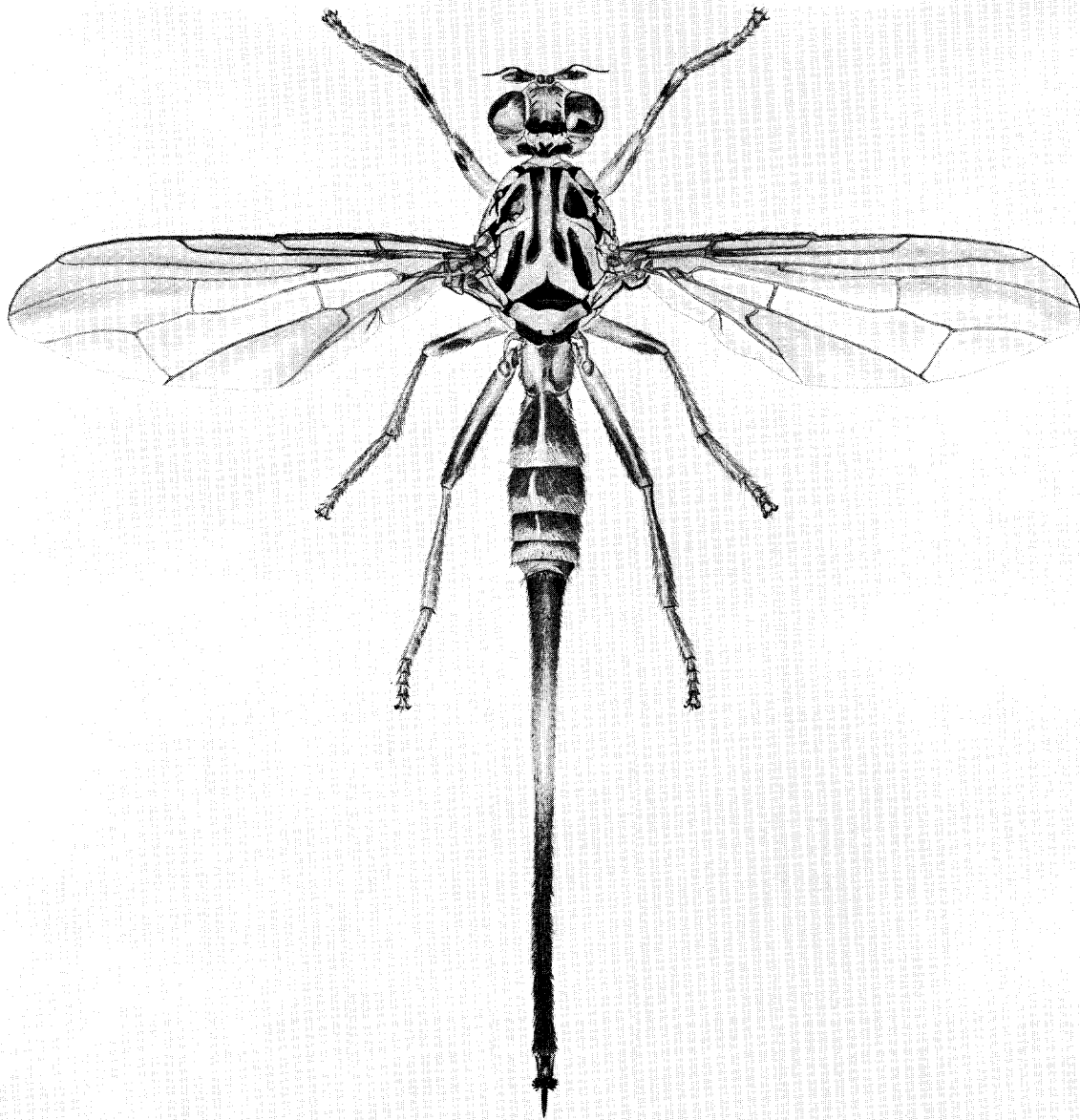


FIG. 1. TOXOTRYPANA CURVICAUDA GERSTAECKER, ADULT FEMALE.



FIG. 2. OVIPOSITOR SHEATH OF TOXOTRYPANA CURVICAUDA GERSTAECKER.