

CACTUS WEEVILS OF THE GENUS GERSTAECKERIA IN FLORIDA (COLEOPTERA: CURCULIONIDAE)^{1/}

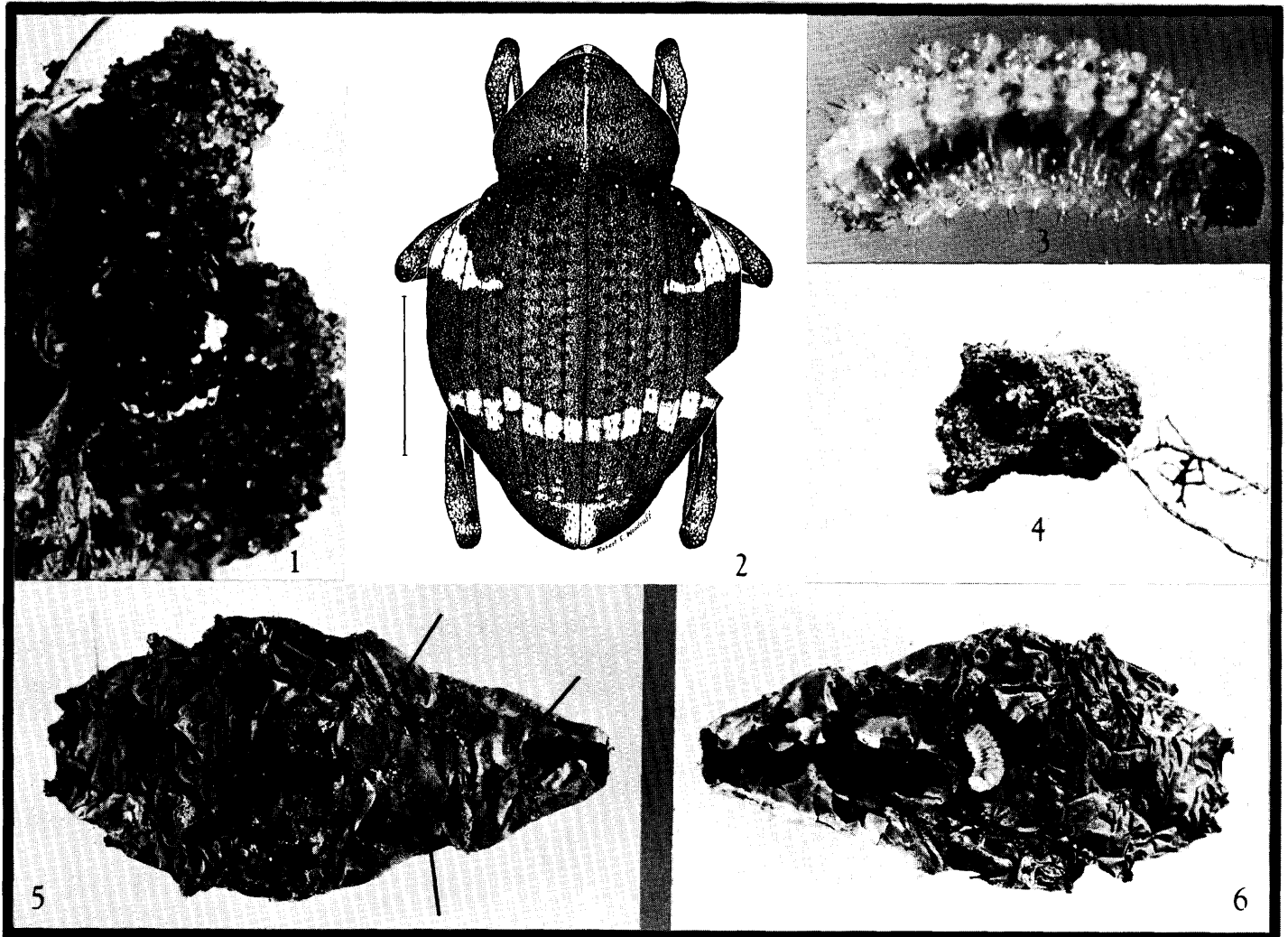
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INTRODUCTION: THE WEEVIL GENUS GERSTAECKERIA CONTAINS TWO SPECIES, G. HUBBARDI (LEC.) AND G. FASCIATA PIERCE, WHICH FEED ON CACTI OF THE GENUS OPUNTIA IN FLORIDA.

DESCRIPTION: GENERAL FACIES AS IN FIG. 2. MEDIUM SIZED WEEVILS (3.5 TO 9 MM), THE BEAK CONCEALED IN A GROOVE. SURFACE COATED WITH MINUTE SCALES WHICH VARY IN COLOR FROM WHITE THROUGH SHADES OF BROWN TO BLACK. THESE SCALES CAN BE RUBBED OFF AND THE PATTERN IS SOMEWHAT VARIABLE. THE GENERAL PATTERN OF WHITE HUMERAL ANGLES AND A BROAD LIGHT COLORED APICAL BAND IS SIMILAR IN MANY SPECIES, INCLUDING THE TWO FLORIDA ONES.

KEY TO THE FLORIDA SPECIES OF GERSTAECKERIA:

1. ELYTRAL COLOR PATTERN PREDOMINANTLY BLACK AND WHITE; LENGTH 6 TO 9 MM; ELYTRA NEARLY TWICE AS WIDE AS PRONOTUM; PENINSULAR FLORIDA; FIG. 2 HUBBARDI (LEC.)
- 1'. ELYTRAL COLOR BLACK WITH WHITE HUMERAL SPOTS AND CAMEL OR TAN SUBAPICAL BAND; LENGTH 3.5 TO 5.5 MM; ELYTRA ABOUT 1.5 TIMES WIDER THAN PRONOTUM; FLORIDA KEYS (MONROE CO.) FASCIATA PIERCE



G. HUBBARDI (LEC.): FIG. 1 - ADULT SHOWING CRYPTIC COLORATION; 2 - DRAWING OF ADULT (LINE = 3 MM); 3 - LARVA (LATERAL VIEW); 4 - PUPAL CASE; 5 - OPUNTIA SP. PAD SHOWING LARVAL MINES (ARROWS); 6 - THE SAME AFTER THE LARVA WAS REMOVED.

BIOLOGY: ALL MEMBERS OF THIS GENUS ARE KNOWN TO BREED IN OPUNTIA CACTI, ALTHOUGH THERE HAS BEEN LITTLE SPECIFIC DATA PUBLISHED ON THEIR LIFE HISTORIES. BRIEF NOTES ON WESTERN SPECIES WERE PUBLISHED BY PIERCE (1907, 1912), AND HUNTER, ET AL (1912). AS FAR AS KNOWN, NONE OF THE LARVAE HAVE BEEN DESCRIBED.

THE ADULTS FEED EXTERNALLY ON THE PADS, OFTEN HIDING BENEATH THOSE ON THE GROUND DURING THE DAY. BOTH FLORIDA SPECIES APPEAR TO BE MORE ACTIVE AT NIGHT. WHEN DISTURBED THEY DROP TO THE GROUND, FOLD UP THE LEGS, AND FEIGN DEATH. THEY ARE DIFFICULT TO DISTINGUISH FROM THEIR SURROUNDINGS (FIG. 1).

THE LARVA OF G. HUBBARDI (FIG. 3), FEEDS WITHIN THE PADS, PRODUCING SEMICIRCULAR SCARS (FIG. 5), LEAVING THE EPIDERMIS INTACT. THE SINGLE PAD IS USUALLY KILLED AND SOMETIMES SEPARATED FROM THE MAIN PLANT. HUNTER, ET AL (1912) SUGGESTED THAT THE WEEVIL APPEARS "...TO FOLLOW THE WORK OF MELITARA PRODENTIALIS WALKER." THIS IS A MOTH OF THE FAMILY PYRALIDAE, THE LARVAE OF WHICH FEED ON OPUNTIA IN FLORIDA.

THE PUPAL CELL OF G. HUBBARDI (FIG. 4) IS FORMED NEAR THE BASE OF THE PAD AND IS COMPOSED OF SAND GRAINS CEMENTED AROUND A CHAMBER OF LARVAL FECES AND DECAYING CACTUS. THE ADULT MAY REMAIN IN THE CELL FOR SOME TIME BEFORE EMERGING. ADULTS HAVE BEEN COLLECTED IN FLORIDA EVERY MONTH EXCEPT JANUARY, JULY, AUGUST, SEPTEMBER, AND OCTOBER. MOST OF THE RECORDS ARE FOR APRIL, MAY, AND JUNE.

HOSTS: ALL KNOWN SPECIES ARE ASSOCIATED WITH CACTI OF THE GENUS OPUNTIA (SENS. LAT.). G. HUBBARDI WAS LISTED BY PIERCE (1912) FROM OPUNTIA VULGARIS. HOWEVER, SMALL (1925) DID NOT LIST THIS SPECIES FROM FLORIDA ALTHOUGH HE DOES LIST APPROXIMATELY 13 OTHER SPECIES OF OPUNTIA FROM WITHIN THE RANGE OF G. HUBBARDI. AT GAINESVILLE I HAVE TAKEN IT ON THE "JOE JUMPER," PROBABLY O. TRACYII. THE LOCALITIES WHERE G. FASCIATA HAS BEEN FOUND ARE WITHIN THE DISTRIBUTION OF AT LEAST 3 SPECIES OF OPUNTIA (DILLENII, KEYENSIS, STRICTA).

THE GENUS OPUNTIA IS A LARGE AND TAXONOMICALLY CONFUSING ONE, WITH THE STATUS OF SEVERAL FLORIDA FORMS SOMEWHAT IN DOUBT. HOWEVER IT IS LIKELY THAT G. HUBBARDI FEEDS ON SEVERAL SPECIES. IT IS POSSIBLE THAT G. FASCIATA, WITH ITS RESTRICTED DISTRIBUTION, IS MORE HOST SPECIFIC.

TAXONOMY: A REVISION OF THE GENUS IS SOON TO BE PUBLISHED BY C. W. O'BRIEN (PURDUE UNIV.). THE LATEST PAPER ON THE GROUP IS BY PIERCE (1912), IN WHICH HE RECOGNIZED FOUR SUBGENERA: XENOSOMINA (2 SPECIES FROM GUATEMALA), OPUNTIAPHILA (1 SPECIES FROM FLORIDA), PHILOPUNTIA (14 SPECIES FROM MEXICO AND SOUTHERN U. S.), AND GERSTAECKERIA SENS. STR. (4 SPECIES FROM WYOMING, COLORADO, TEXAS ARIZONA, AND MEXICO). THE GENUS WAS PLACED IN THE TRIBE CRYPTORHYNCHINI OF THE SUBFAMILY CRYPTORHYNCHINAE BY KISSINGER (1964).

G. HUBBARDI IS THE TYPE SPECIES OF PIERCE'S SUBGENUS OPUNTIAPHILA, AND G. FASCIATA IS PLACED IN THE SUBGENUS PHILOPUNTIA. G. DILATATA CASEY WAS LISTED AS A "...SCULPTURAL VARIANT OF HUBBARDI, WHICH IS QUITE VARIABLE IN THE DEVELOPMENT OF ITS HUMERAL TUBERCLES.

DISTRIBUTION: THE GENUS IS KNOWN FROM CUBA, GUADELOUPE, GUATEMALA, HAITI, MEXICO, AND IN THE U.S. FROM ALABAMA, ARIZONA, COLORADO, FLORIDA, NEBRASKA, TEXAS, AND WYOMING (ARNETT, 1962; KISSINGER, 1964).

G. HUBBARDI HAS BEEN RECORDED FROM SELMA, ALA., AND CRESCENT CITY AND LAKE WORTH, FLA. (PIERCE, 1912). DIVISION OF PLANT INDUSTRY RECORDS INCLUDE THE FOLLOWING: ALACHUA CO. (GAINESVILLE), BRADFORD CO., (CAMP CRYSTAL), HERNANDO CO. (8 MI. W. BROOKSVILLE), HIGHLANDS CO., (SEBRING, HIGHLANDS HAMMOCK ST. PK., ARCHBOLD BIOL. STA.), LAKE CO. (CLERMONT, YALAHA), ORANGE CO. (CLARCONA), AND VOLUSIA CO. (ORANGE CITY). IT PROBABLY OCCURS THROUGHOUT PENINSULA FLORIDA.

G. FASCIATA WAS ORIGINALLY DESCRIBED FROM BUCK KEY, FLA. DIVISION OF PLANT INDUSTRY RECORDS INCLUDE JOHN PENNEKAMP ST. PK. ON KEY LARGO, FLA., AND MIDDLE CAPE SABLE IN THE EVERGLADES NAT. PK. ALL KNOWN LOCALITIES ARE IN MONROE COUNTY, AND THE SPECIES MAY BE CONFINED TO THE FLORIDA KEYS, ASSOCIATED WITH ONE OF THE SOUTHERN SPECIES OF OPUNTIA.

CONTROL: SINCE MOST MEMBERS OF THE GENUS OPUNTIA ARE CONSIDERED WEEDS OR UNDESIRABLE PLANTS, THESE WEEVILS ARE THEREFORE BENEFICIAL. HOWEVER, THEIR DAMAGE HAS NOT BEEN NOTED SEVERE ENOUGH TO SUGGEST THEIR USEFULNESS IN BIOLOGICAL CONTROL. ADDITIONAL LIFE HISTORY STUDIES MAY SUGGEST THEIR VALUE IN COMBINATION WITH OTHER CACTUS FEEDING INSECTS. IN CASE AN INFESTATION IS FOUND IN ORNAMENTAL CACTUS PLANTINGS, DDT WOULD PROBABLY PROVIDE ADEQUATE CONTROL.

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