

THE EUMENES, OR POTTER WASPS, OF FLORIDA

(HYMENOPTERA: EUMENIDAE)¹

E. E. GRISSELL

INTRODUCTION: CURRENTLY THERE ARE 8 SPECIES AND 10 SUBSPECIES OF EUMENES KNOWN IN AMERICA NORTH OF MEXICO. ONLY E. FRATERNUS SAY AND THE NOMINATE SUBSPECIES OF E. SMITHII SAUSSURE OCCUR IN FLORIDA. THESE WASPS MAKE THE FAMILIAR JUG-LIKE MUD NESTS (FIG. 2) FOUND ON BUILDINGS, WINDOW SILLS, SCREENS, AND SHRUBS AROUND THE HOME. MEMBERS OF THE FAMILY EUMENIDAE MAY BE IDENTIFIED TO GENUS WITH THE AID OF PARKER'S (1966) KEY. THE ONLY KEY FOR IDENTIFYING NORTH AMERICAN SPECIES OF EUMENES IS THAT OF ISLEY (1917) WHICH IS SOMEWHAT OUT OF DATE.

IDENTIFICATION: NESTS.--WHILE A NUMBER OF WASPS MAKE MUD NESTS, ONE IS NOT LIKELY TO CONFUSE THE JUG-LIKE POTS OF EUMENES (FIG. 2) WITH THOSE OF OTHER SPECIES. NESTS OF THIS TYPE, FOUND AROUND THE HOME, ARE ALMOST CERTAINLY MADE BY EUMENES. ACCORDING TO ISLEY (1917), THE NEST OF E. SMITHII MAY BE DISTINGUISHED FROM THAT OF E. FRATERNUS BY THE MORE GRANULAR AND ROUGHENED SURFACE DUE TO SMALL LUMPS OF EARTH. THIS OBSERVATION WAS BASED ON ONE NEST, HOWEVER, AND IS PROBABLY NOT A CONSISTENT DIFFERENCE. ADULTS.--EUMENES HAVE THE CHARACTERISTIC APPEARANCE SHOWN IN FIG. 1. THE FIRST ABDOMINAL SEGMENTS ARE RATHER ELONGATE (I.E. PETIOLATE), INCREASING GRADUALLY IN WIDTH POSTERIORLY FROM POINT OF ATTACHMENT AT THE THORAX. ONE OTHER GENUS OF EUMENID WASP (ZETHUS) COULD EASILY BE CONFUSED WITH EUMENES, BUT IT HAS THE SECOND ABDOMINAL SEGMENT MORE PETIOLATE (COMPARE FIGS. 3B AND 4B) AND THE POSTERIOR MARGIN OF THE SECOND SUBMARGINAL CELL TRUNCATE (FIG. 4A) WHEREAS EUMENES HAS THE CELL ACUTE (FIG. 3A). EUMENES FRATERNUS IS MOST READILY SEPARATED FROM E. SMITHII BY COLOR: E. FRATERNUS IS BLACK WITH A FEW PALE YELLOWISH WHITE MARKINGS, WHILE E. SMITHII IS BLACK WITH EXTENSIVE REDDISH ORANGE MARKINGS. ISLEY (1917) GAVE SEVERAL MORPHOLOGICAL DIFFERENCES WHICH ARE NOT AS OBVIOUS AS COLOR.

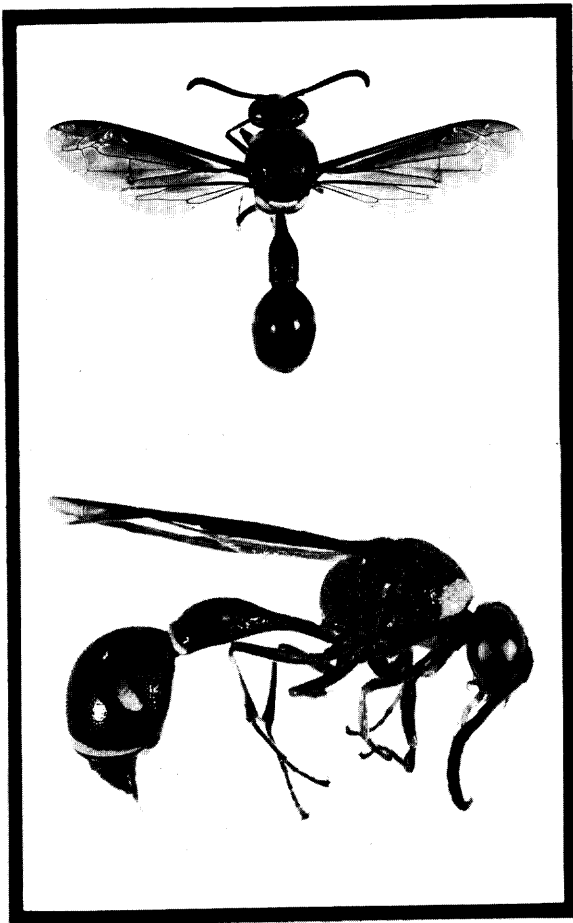


FIG. 1 EUMENES FRATERNUS SAY
(ABOVE, DORSAL VIEW; BELOW, SIDE VIEW)



FIG. 2 EUMENES NESTS

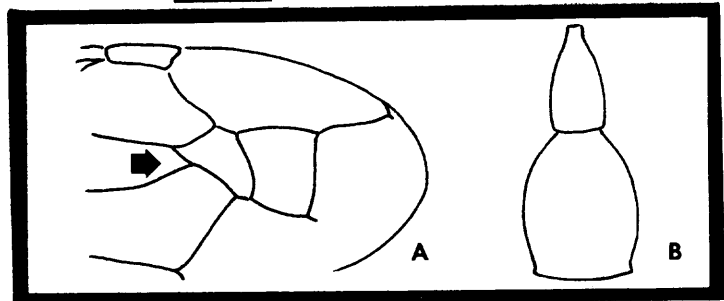


FIG. 3 EUMENES WING (A) AND ABDOMEN (B)

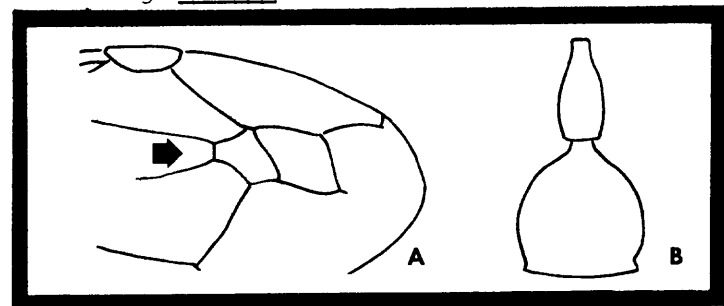


FIG. 4 ZETHUS WING (A) AND ABDOMEN (B)

¹ CONTRIBUTION No. 309, BUREAU OF ENTOMOLOGY, P. O. Box 1269, GAINESVILLE, FL. 32602

DISTRIBUTION: E. FRATERNUS OCCURS FROM ABOUT THE 100 MERIDIAN EASTWARD IN THE UNITED STATES AND CANADA. THE NOMINATE SUBSPECIES OF E. SMITHII IS FOUND IN THE SOUTHERN STATES FROM MISSISSIPPI EASTWARD AND NORTH CAROLINA SOUTHWARD. THE SUBSPECIES E. SMITHII BELFRAGEI CRESSON OCCURS FROM MEXICO NORTHWARD THROUGH EASTERN TEXAS, OKLAHOMA, KANSAS, AND EASTWARD TO MISSOURI AND ARKANSAS.

BIOLOGY: LITTLE DETAILED INFORMATION IS AVAILABLE ON THE BIOLOGY OF ANY NORTH AMERICAN SPECIES OF EUMENES. THE HABITS OF E. SMITHII ARE ESSENTIALLY UNKNOWN, WHEREAS E. FRATERNUS HAS HAD ONLY FRAGMENTARY CONSIDERATION. SAY (1824) NOTED THAT AN ADULT E. FRATERNUS EMERGED THROUGH THE SIDE OF ITS CLAY POT IN JULY. ISLEY (1914) REPORTED AND ILLUSTRATED 2 NESTS OF E. FRATERNUS FROM A DOGWOOD LIMB IN KANSAS. THE NESTS WERE FOUND IN MARCH AND ADULT WASPS EMERGED IN MAY. THE 2 EARTH POTS WERE ATTACHED TO EACH OTHER SO THAT ONE LATERAL WALL SERVED FOR BOTH. ISLEY (1917) LISTED SOME OF THE FRAGMENTARY REFERENCES TO THIS SPECIES. A GENERAL REVIEW OF LITERATURE PERTAINING TO EUMENES BIOLOGY WAS GIVEN BY IWATA (1953), WHO ALSO DESCRIBED THE BIOLOGY OF 5 JAPANESE SPECIES. HE FOUND THAT EUMENES DID NOT GATHER MUD FOR ITS NEST, BUT FIRST COLLECTED WATER, AND THEN MIXED IT WITH DRY SOIL. MUD PELLETS WERE TRANSPORTED IN THE WASP'S MANDIBLES WITH THE AID OF ITS FORELEGS. IWATA ESTIMATED SEVERAL HUNDRED TRIPS WERE REQUIRED TO BUILD A MUD POT, TAKING 1 TO 2 HOURS FOR THE ENTIRE BUILDING PROCESS. THE FEMALE THEN INSERTED HER ABDOMEN AND LAYED AN EGG SUSPENDED BY A FILAMENT FROM THE UPPER SURFACE OF THE MUD CELL. THE FEMALE NEXT GATHERED LEPIDOPTEROUS LARVAE WHICH SHE STUNG AND PLACED IN THE POT. ACCORDING TO IWATA, FEMALES OF SOME SPECIES PROVISIONED FOR AS LONG AS 9 DAYS, OFTEN TAKING MORE THAN AN HOUR TO CAPTURE EACH PREY. AFTER PROVISIONING, SHE PLUGGED THE MOUTH OF THE POT WITH MUD AND FLEW AWAY TO BEGIN ANOTHER NEST. LINSLEY (1962) BRIEFLY DISCUSSED THE NIGHTTIME, OR RESTING, ACTIVITY OF A FEW NORTH AMERICAN EUMENES. HE FOUND MALES RESTING ON PLANTS 1 TO 4 INCHES BELOW THE TIPS OF STEMS AND TWIGS. AGGREGATIONS OF 2 TO 10 INDIVIDUALS RESTED WITH THEIR BODIES VERTICAL TO THE GROUND, HEAD UPWARD, AND HOLDING ON BY MANDIBLES AND LEGS. IF THE GROUPS WERE ALL MALES, NONE WERE IN CONTACT. IF FEMALES WERE PRESENT, PAIRING OFF OF THE SEXES OCCURRED. ALTHOUGH THE GENERAL LIFE CYCLE IS PROBABLY SIMILAR FOR MOST EUMENES, MANY POINTS OF BEHAVIOR WILL UNDOUBTEDLY VARY ACCORDING TO THE SPECIES INVOLVED.

ECONOMIC IMPORTANCE: AS WITH MANY WASPS, DESTRUCTION OF INSECTS THAT ATTACK CULTIVATED AND ORNAMENTAL PLANTS FAR OUTWEIGHS THE FEW MUD POTS ONE MIGHT FIND ON ONE'S HOME OR IN ONE'S GARDEN. THE OCCASIONAL NESTS WHICH ARE FOUND MAY BE SCRAPED OFF WITH ANY BLADE-LIKE OBJECT. NO WASP WILL BUZZ OUT TO STING THE DESTRUCTOR.

LITERATURE CITED:

- ISLEY, D. 1914. THE BIOLOGY OF SOME KANSAS EUMENIDAE. KANSAS UNIV. SCI. BULL. 8(7):233-309, 4 PLATES.
- _____. 1917. A SYNOPSIS OF THE PETIOLATE WASPS OF THE FAMILY EUMENIDAE (HYMENOPTERA), FOUND IN AMERICA NORTH OF MEXICO. ANN. ENT. SOC. AMER. 10:345-366.
- IWATA, K. 1953. BIOLOGY OF EUMENES IN JAPAN. MUSHI 25:25-46, 1 PLATE.
- LINSLEY, E. G. 1962. SLEEPING AGGREGATIONS OF ACULEATE HYMENOPTERA.--II. ANN. ENT. SOC. AMER. 55:148-164.
- PARKER, F. D. 1966. A REVISION OF THE NORTH AMERICAN SPECIES IN THE GENUS LEPTOCHILUS (HYMENOPTERA: EUMENIDAE). MISC. PUB. ENT. SOC. AMER. 5:151-229.
- SAY, T. 1824. IN, KEATING'S NARRATIVE OF AN EXPEDITION TO THE SOURCE OF ST. PETER'S RIVER, LAKE WINNEPECK, LAKE OF THE WOODS, UNDER THE COMMAND OF MAJOR LONG 1823. PHILADELPHIA. APPENDIX 2. P. 268-378.