

EUPTERYX LEAFHOPPER DAMAGE TO LEATHERLEAF FERN <sup>1/</sup>  
(HOMOPTERA: CICADELLOIDEA)

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**INTRODUCTION:** THE LEATHERLEAF FERN, POLYSTICHUM ADIANTIFORME J. SMITH, IS GROWN IN FLORIDA FERNERIES FROM WHERE THE FOLIAGE IS SHIPPED THROUGHOUT THE UNITED STATES, CANADA, AND TRANSOCEANIC MARKETS FOR USE AS GREENERY BY FLORISTS. FERN FRONDS, ESPECIALLY FROM FERNERIES NOT USING INSECTICIDES, MAY BE UNFIT FOR SALE BECAUSE OF FEEDING BY EUPTERYX LEAFHOPPERS. THIS PROBLEM FIRST RECEIVED ATTENTION MORE THAN 40 YEARS AGO WHEN MCBRIDE (1926) REPORTED THAT A GROWER LOST MORE THAN \$2000 IN EIGHT MONTHS BECAUSE OF UNMARKETABLE FRONDS INJURED BY LEAFHOPPERS.

**SYMPTOMS:** AFFLICTED FRONDS HAVE NUMEROUS SMALL, WHITE, NECROTIC SPOTS WHICH ARE LOCATED AT EACH PLACE THAT A EUPTERYX LEAFHOPPER HAS INSERTED ITS BEAK TO SUCK PLANT JUICES (FIG. 1). THE SPOTS TEND TO OCCUR IN CLUMPS.

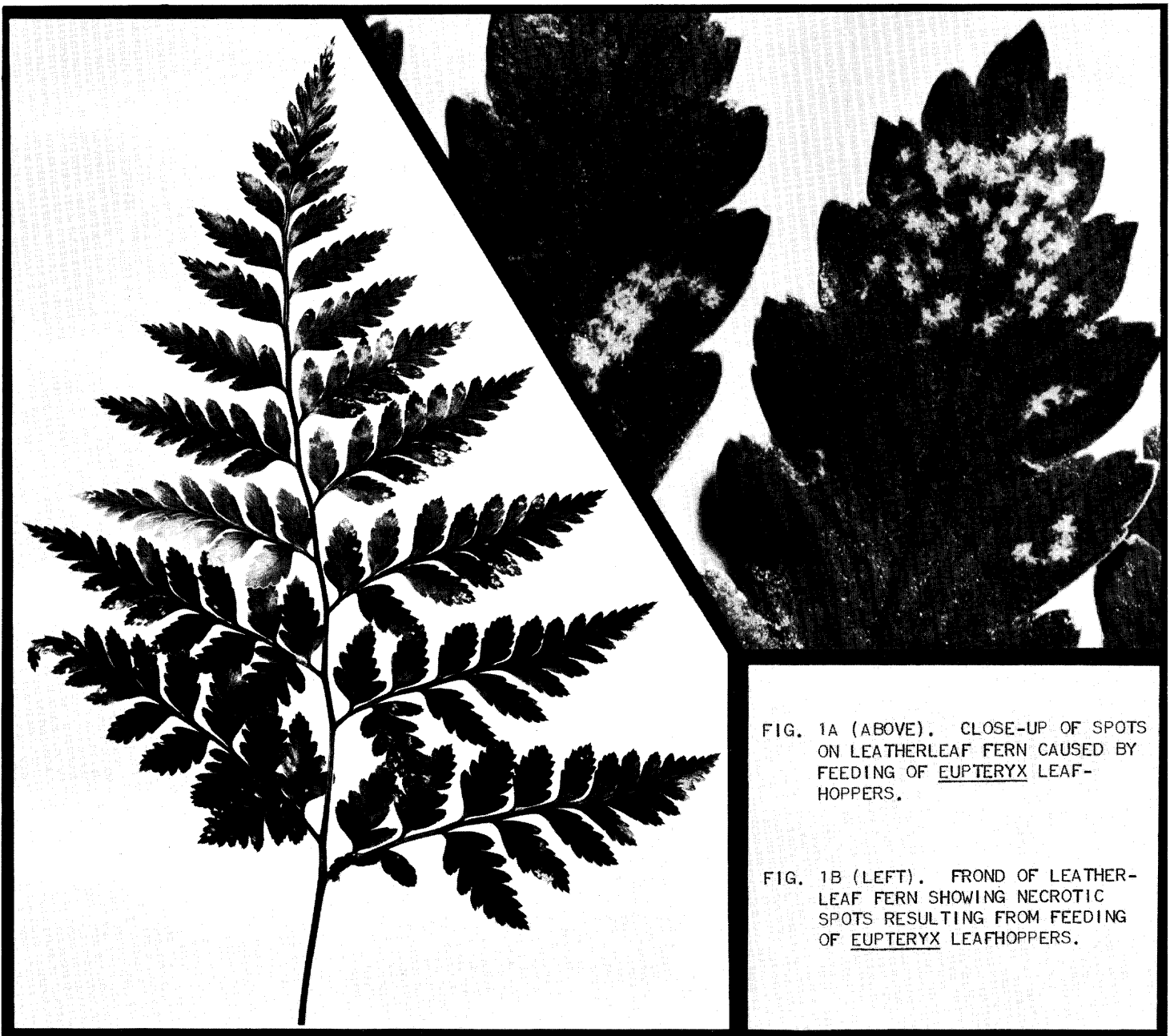


FIG. 1A (ABOVE). CLOSE-UP OF SPOTS ON LEATHERLEAF FERN CAUSED BY FEEDING OF EUPTERYX LEAFHOPPERS.

FIG. 1B (LEFT). FROND OF LEATHERLEAF FERN SHOWING NECROTIC SPOTS RESULTING FROM FEEDING OF EUPTERYX LEAFHOPPERS.

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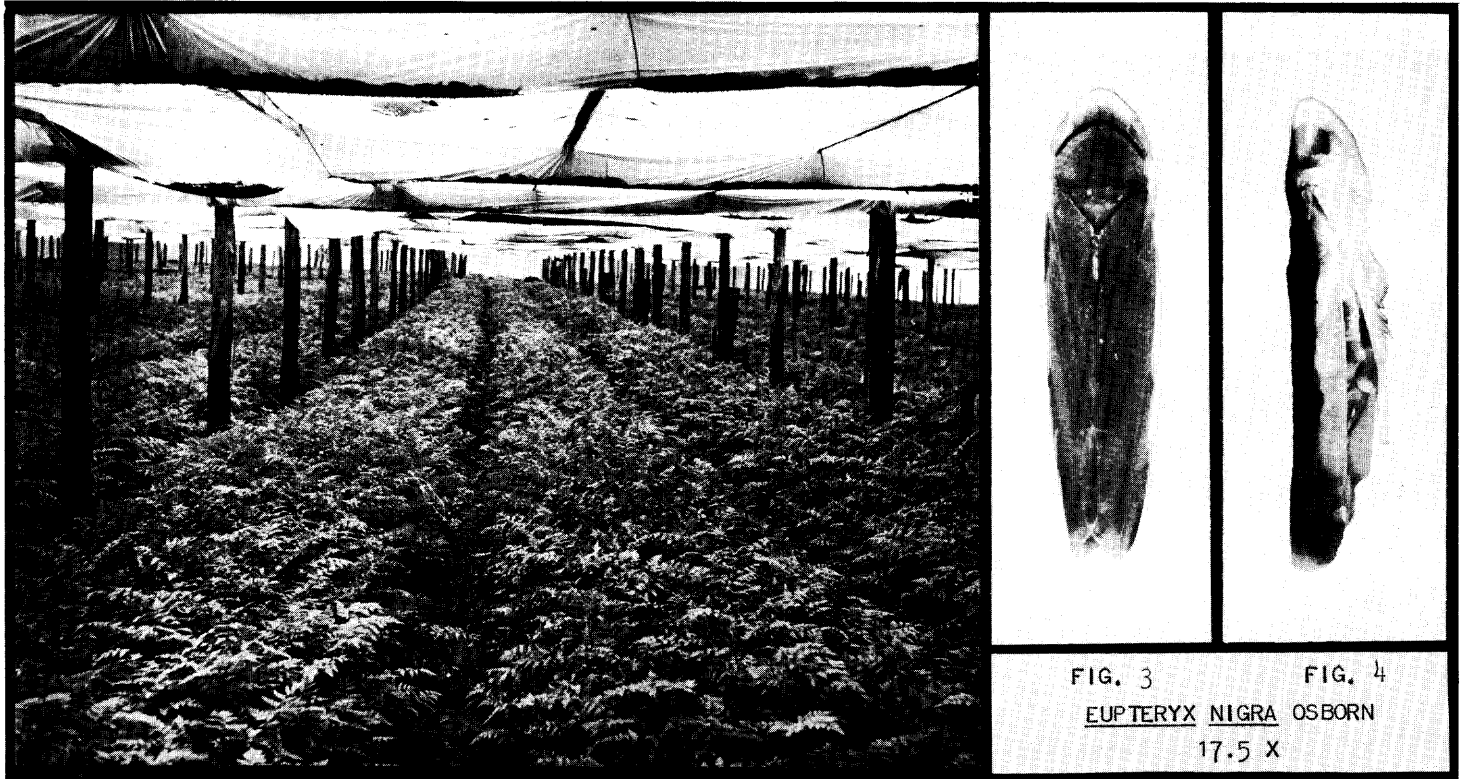


FIG. 2. A COMMERCIAL LEATHERLEAF FERNERY IN FLORIDA

**IDENTIFICATION OF THE LEAFHOPPERS:** Two species of EUPTERYX were reared from leatherleaf ferns: E. NIGRA OSBORN and E. OMANI CHRISTIAN (DETERMINED BY DR. P. J. CHRISTIAN, DEPT. OF BIOLOGY, BETHEL COLLEGE, ST. PAUL MINNESOTA 55101). THE SPECIES ARE SIMILAR IN APPEARANCE EXCEPT FOR MALE GENITALIA. DORSALLY (FIG. 3) THE ADULTS ARE DARK BROWN EXCEPT FOR THE PALE FRONT OF THE HEAD; VENTRALLY THEY ARE PALE-YELLOW; LAT- ERALLY (FIG. 4), WITH WINGS AT REST, A PALE-YELLOW BAND IS PROMINENT ALONG MOST OF THE LEADING EDGE OF THE FOREWING. E. NIGRA IS SLIGHTLY LARGER, USUALLY 3.7-4.0 MM LONG, WHILE E. OMANI USUALLY IS ONLY 3.0- 3.3 MM IN LENGTH. A MUCH LARGER LEAFHOPPER, SIBOVIA OCCATORIA (SAY), COMMONLY ASSOCIATED WITH FERNS, DID NOT CAUSE LEAFSPOTS WHEN CAGED ON FERNS.

**DISTRIBUTION:** EUPTERYX NIGRA OCCURS FROM CANADA TO FLORIDA AND WESTWARD TO ILLINOIS, WHILE E. OMANI IS KNOWN ONLY FROM FLORIDA. THEIR EXACT DISTRIBUTION IN FLORIDA IS NOT KNOWN BUT OMANI OCCURS IN THE PRIN- CIPAL FERN GROWING AREAS OF THE STATE. FURTHER SURVEYS ARE NEEDED TO DETERMINE IF E. NIGRA ALSO OCCURS IN THESE AREAS.

**BIONOMICS:** IN ADDITION TO LEATHERLEAF FERN, BOTH EUPTERYX OMANI AND E. NIGRA PROBABLY OCCUR ON WILD FERNS. E. OMANI HAS BEEN COLLECTED BY THE SENIOR AUTHOR FROM A SHIELD FERN, DRYOPTERIS LUDOVICIANA (KUNZE) (DETERMINED BY THE LATE PROF. ERDMAN WEST) AT GOLD HEAD BRANCH STATE PARK IN CLAY COUNTY, FLOR- IDA. SEASONAL DISTRIBUTION DATA IN FLORIDA ARE MEAGER, BUT E. OMANI HAS BEEN COLLECTED IN JUNE, JULY, NOVEMBER, DECEMBER, AND JANUARY. E. NIGRA HAS BEEN COLLECTED IN NOVEMBER. MCBRIDE (1926) MADE CONTROL STUDIES AT A LEATHERLEAF FERNERY, PRESUMABLY IN CENTRAL FLORIDA, DURING MARCH AND APRIL. DURING THESE MONTHS HE FOUND EUPTERYX LEAFHOPPERS IN ALL STAGES; THE EGGS WERE LAID IN THE MIDRIBS OF THE FRONDS.

**CONTROL:** APPLICATIONS OF ENDOSULFAN (THIODAN 2E) AT THE RATE OF 1 QUART PER 100 GALLONS OF WATER SHOULD CONTROL THIS LEAFHOPPER. LEATHERLEAF FERNS ARE QUITE SUSCEPTIBLE TO INJURY BY INSECTICIDES. DDT WHICH HAS BEEN RECOMMENDED FOR LEAFHOPPER CONTROL MAY CAUSE YELLOWING OF THE FRONDS. MALATHION WILL CONTROL LEAFHOPPERS BUT FREQUENT USE MAY CAUSE "s-SHAPED" FRONDS. INSECTICIDE TREATMENT OR REMOVAL OF WILD FERNS NEAR NURSERIES MAY BE OF SOME VALUE SINCE THE LEAFHOPPERS APPARENTLY FEED OR REPRODUCE ONLY ON FERNS.

**LITERATURE CITED:**

CHRISTIAN, P. J. 1956. NORTH AMERICAN SPECIES OF THE GENUS EUPTERYX (HOMOPTERA: CICADELLIDAE). TRANS. KENTUCKY ACAD. SCI. 7(1):42-54.  
 MCBRIDE, O. C. 1926. A LEAFHOPPER (EUPTERYX FLAVOSCUTA, VAR. NIGRA OSB.) ATTACKING LEATHERLEAF FERN (POLYSTICHUM CAPENSE J. SMITH). PROC. FLORIDA STATE HORT. SOC. 39:224-227.