

AMBROSIA BEETLES (SCOLYTIDAE) IN ORNAMENTAL  
DRACAENAS IN FLORIDA<sup>1</sup>

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**INTRODUCTION:** FOR SEVERAL YEARS ORNAMENTAL PLANTS OF THE GENUS DRACAENA HAVE BEEN INTRODUCED INTO FLORIDA FROM PUERTO RICO AND SEVERAL CENTRAL AMERICAN COUNTRIES. ONE OF THE LARGEST FORMS, AND ONE WHICH HAS BEEN IMPORTED IN TREMENDOUS QUANTITIES, IS D. FRAGRANS 'MASSANGEANA'. WITHIN THE PAST FEW MONTHS SEVERE INFESTATIONS OF THIS HOST BY AMBROSIA BEETLES (XYLEBORUS AFFINIS EICHH. AND X. FERRUGINEUS (FAB.)) HAVE BEEN FOUND IN NURSERIES IN THE MIAMI AND APOPKA AREAS. ALTHOUGH THE ORIGIN OF THESE INFESTATIONS IS UNKNOWN AND INVESTIGATIONS ARE INCOMPLETE, THIS PRELIMINARY REPORT IS PRESENTED TO ELUCIDATE THE PROBLEM AND TO FACILITATE DETECTION IN OTHER AREAS.

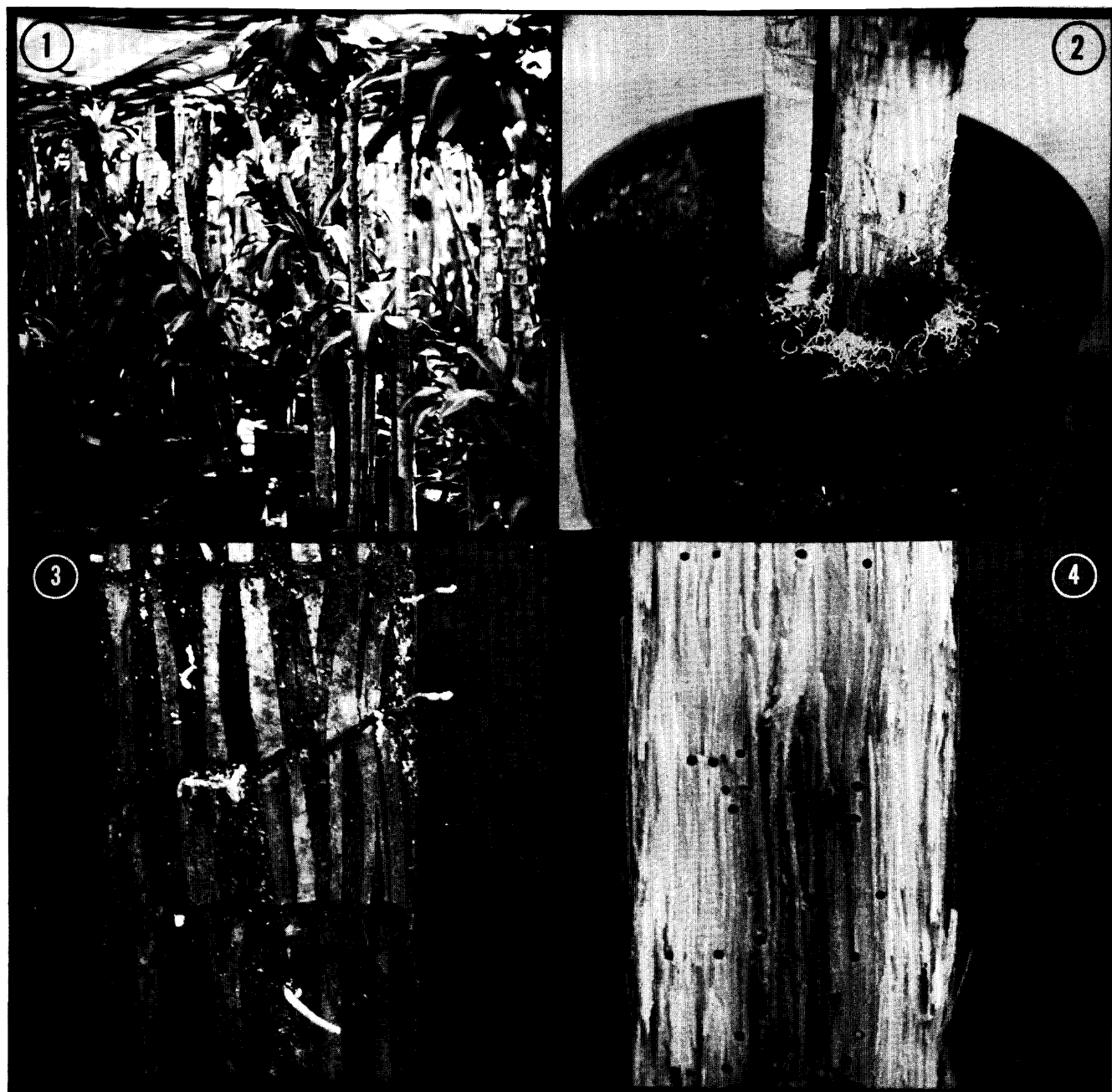


FIG. 1-4: DRACAENA FRAGRANS 'MASSANGEANA' AND DAMAGE BY AMBROSIA BEETLES; 1) TYPICAL CONTAINER GROWN CANES IN A NURSERY; 2) PILES OF FRASS AT BASE OF INFESTED CANE; 3) TENDRILS OF FRASS EXTENDING FROM SIDES OF INFESTED CANES; 4) LONGITUDINAL SECTION OF CANE WITH AMBROSIA BEETLE TUNNELS.

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DESCRIPTION: THESE AMBROSIA BEETLES ARE SMALL (1.7 TO 3MM), BROWN, CYLINDRICAL, AND TYPICAL OF THE FAMILY SCOLYTIDAE. THE 2 SPECIES MENTIONED HERE ARE INDISTINGUISHABLE TO THE UNAIDED EYE. THEY CAN BE SEPARATED MOST EASILY BY THE DIFFERENCES IN SPINES AND CONFIGURATION OF THE ELYTRAL DECIVITY. SINCE THERE ARE MANY SIMILAR SPECIES, FIELD IDENTIFICATION IS IMPRACTICAL. S. L. WOOD (IN LITT.) HAS INDICATED THAT OTHER SPECIES OF XYLEBORUS ARE KNOWN TO INFEST DRACAENA IN CENTRAL AMERICA, BUT THEY HAVE NOT BEEN REPORTED FOR THE UNITED STATES. EARLY DETECTION OF FOREIGN SPECIES IS IMPORTANT IN ANY CONTROL PROGRAM; SUSPECT SPECIMENS SHOULD BE SENT TO THE SENIOR AUTHOR OR TO A SPECIALIST FOR CONFIRMATION.

DISTRIBUTION: BRIGHT (1968) REPORTED X. FERRUGINEUS FROM MOST OF THE EASTERN UNITED STATES AND "...ALMOST ALL TROPICAL AND SUBTROPICAL AREAS OF THE WORLD." SCHEDL (1962) REPORTED IT FROM MANY OTHER AREAS OF THE WORLD.

BRIGHT (1968) REPORTED X. AFFINIS FROM ABOUT THE SAME AREA OF THE UNITED STATES AS X. FERRUGINEUS, AS WELL AS FROM MOST TROPICAL AND SUBTROPICAL AREAS OF THE WORLD. UNDER THE NAME X. MASCARENSIS, SCHEDL (1962) REPORTED IT FROM MANY AREAS OF THE OLD AND NEW WORLD.

TAXONOMY: BOTH SPECIES (X. AFFINIS AND X. FERRUGINEUS) ARE EXTREMELY VARIABLE, RESULTING IN CONSIDERABLE TAXONOMIC CONFUSION AND SYNONYMY. SCHEDL (1960) LISTED MANY SYNONYMS. BRIGHT (1968) PROVIDED A KEY TO THE NORTH AMERICAN SPECIES OF THE TRIBE XYLEBORINI AND LISTED THE SYNONYMS.

HOSTS & BIOLOGY: ALTHOUGH SOME SCOLYTIDAE APPEAR TO BE HOST SPECIFIC, BOTH SPECIES REPORTED HERE HAVE A WIDE HOST RANGE. SCHEDL (1962) PROVIDED AN EXTENSIVE HOST LIST REPRESENTING 30 PLANT FAMILIES, AS WELL AS DETAILED BIOLOGICAL INFORMATION. BRIGHT (1968) REPORTED THE FOLLOWING HOSTS OF X. AFFINIS FOR THE UNITED STATES: BETULA, CARYA, CASTANEA, CELTIS, DIOSPYROS, LIQUIDAMBAR, MIMOSA, QUERCUS, AND ROBINIA; AND FOR X. FERRUGINEUS: CASTANEA, FRAXINUS, QUERCUS, AND TAXODIUM. CHAMBERLIN (1939) ALSO RECORDED JUGLANS, NYSSA, AND PINUS; BEAL AND MASSEY (1945) LISTED FAGUS AND LIQUIDAMBAR. SAUNDERS (1965) HAS INDICATED THAT X. FERRUGINEUS IS ONE OF THE FEW SCOLYTIDAE WHICH ATTACK HEALTHY CACAO TREES, WHEREAS MOST SPECIES ARE DEFINITELY SECONDARY.

THE BIOLOGY OF AMBROSIA BEETLES IS COMPLICATED AND HAS ONLY RECENTLY COME UNDER MORE DETAILED STUDY. FUNGI, NOT NECESSARILY SPECIFIC TO THE BEETLES, ARE CARRIED IN A SPECIAL STRUCTURE (ORAL MYCANGIUM). THE FUNGI PROVIDE CERTAIN NUTRITIONAL REQUIREMENTS OF THE BEETLES WHICH ARE NOT OTHERWISE PRESENT IN THE WOOD. DETAILS ARE TOO EXTENSIVE TO LIST HERE, BUT THE FOLLOWING PAPERS PROVIDE A THOROUGH REVIEW: BAKER & NORRIS (1968), KOK & NORRIS (1972), NORRIS & BAKER (1967), SAUNDERS (1965), SAUNDERS & KNOKE (1968), SAUNDERS, NORRIS, & KNOKE (1967).

IN FLORIDA ORNAMENTAL NURSERIES, DRACAENA FRAGRANS 'MASSANGEANA' IS AN IMPORTANT PLANT, AND PLANE-LOAD SHIPMENTS ARE REGULARLY IMPORTED FROM PUERTO RICO AND CENTRAL AMERICA. TYPICAL DAMAGE FROM THESE AMBROSIA BEETLES IS SHOWN IN FIG. 4. INFESTED CANES SHOW EXTERNAL SIGNS OF BEETLE ACTIVITY IN THE FORM OF FRASS PILES IN THE CONTAINERS (FIG. 2) AND LONG, CURVED TENDRILS OF FRASS EXTENDING FROM THE BORING SITES (FIG. 3). THESE ARE MOST FREQUENTLY SEEN ON CANES WHICH HAVE NOT SPROUTED.

CONTROL: ALL CANES FOR PROPAGATION SHOULD BE TREATED PRIOR TO PLANTING, BECAUSE SMALL INFESTATIONS ARE DIFFICULT TO DETECT. THE FOLLOWING RECOMMENDATIONS ARE MADE AS A RESULT OF EXPERIMENTAL WORK BY DR. HAMLEN. IMMERSE UNSPROUTED CANES IN CONSTANTLY AGITATED 0.5% ACTIVE SOLUTION OF LINDANE 25% WETTABLE POWDER (WP) (16 LB/100 GAL. WATER) OR CHLORDANE 72% WP AT 2 QT/100 GAL. WATER FOR 15 MINUTES. ALTHOUGH NOT AS EFFECTIVE, HOT WATER (115° F.) TREATMENT FOR 30 MINUTES WILL REDUCE THE INFESTATION. INFESTATIONS IN NURSERY PRODUCTION AREAS ARE BEST CONTROLLED BY REMOVAL AND BURNING OF INFESTED CANES, FOLLOWED BY A 0.5% CHLORDANE SOIL DRENCH AND SPRAY OF THE REMAINING CANES. PARTICULAR ATTENTION SHOULD BE DIRECTED TO THE SOIL LINE WHICH APPEARS TO BE A PRIMARY SITE OF ATTACK. GOOD SANITATION PRACTICES (E.G., CONSTANT REMOVAL AND DESTRUCTION OF OLD, DISCARDED, DECAYED OR UNSPROUTED CANES) ARE IMPORTANT IN PREVENTING BUILDUP OF AMBROSIA BEETLE POPULATIONS.

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