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FULLER'S ROSE WEEVIL Pantomorus cervinus (BOHEMAN), IN FLORIDA (COLEOPTERA: CURCULIONIDAE)[1]

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INTRODUCTION: Fuller's rose weevil is a widely distributed economic pest of a broad range of host plants. Several changes of generic assignment and species name changes have contributed to much nomenclatural confusion. Previous Entomology Circulars provided keys to distinguish this weevil from other citrus weevil adults (Woodruff, 1962, 1979) and larvae (Beavers and Woodruff, 1971). This circular is intended to summarize existing information on this species.

DESCRIPTION: Space permits only a brief description, but fig. 1-2 should aid in recognition. The color is brownish to gray with intermixed whitish scales which form a diagonal mark (fig. 2a) on the lateral area of each elytron and a bar at the lateral base of the pronotum (fig. 2b). The eyes are lateral, the prementum is nonsetose, the fore tibiae are denticulate or spinose on the lower edge, the rostrum is markedly concave between the distinct latero-marginal carinae. Elytra are fused, and there are no wings beneath. Length 6-8.5 mm.

The larvae have been described and illustrated in detail by Kieffer (1932), Ting (1936), and Beavers and Woodruff (1971).

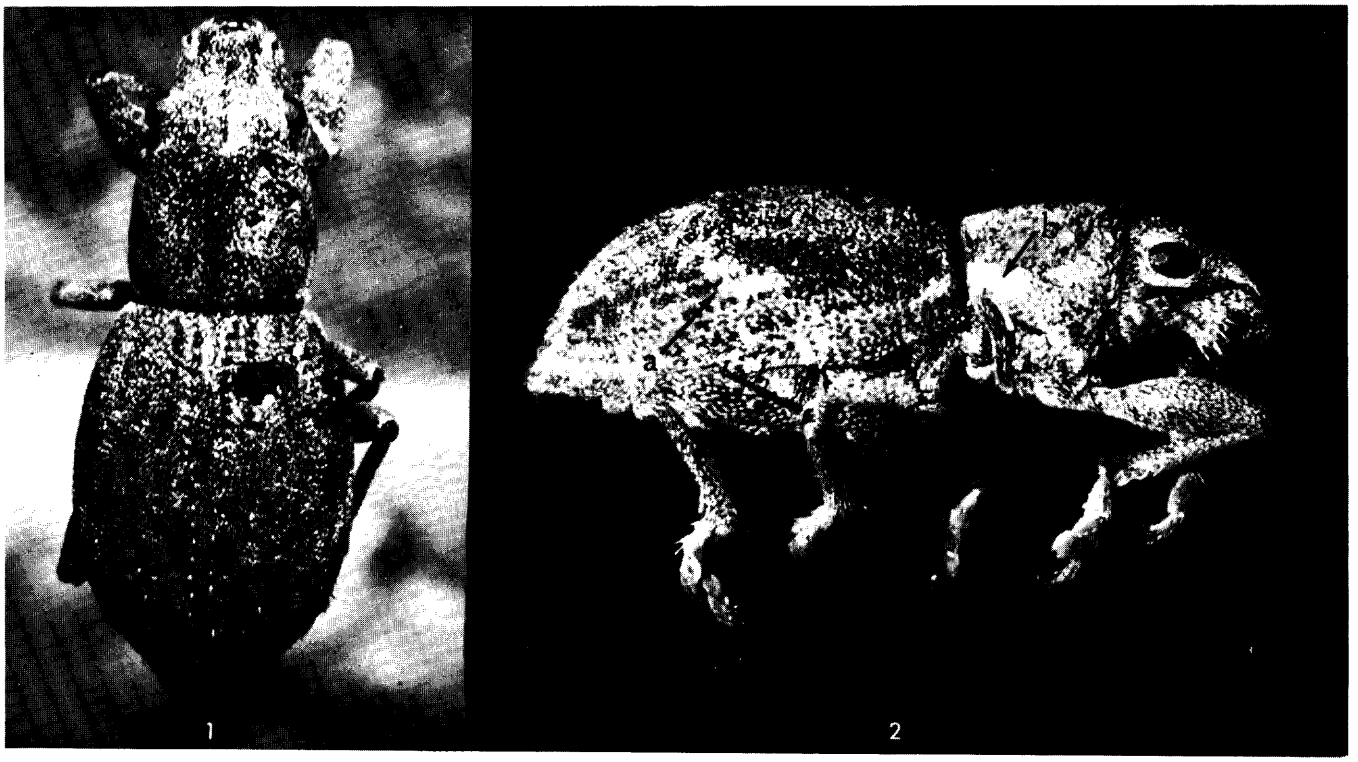

Fig. 1-2. Pantomorus cervinus (Boh.), adult female: 1)dorsal, 2)lateral.

TAXONOMY: The name changes that have occurred to this weevil are partly the result of its appearance in many distant locations. The complete synonymy and references

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would occupy several pages. The abbreviated synonymy listed below (with type localities in parentheses) is extracted from the nearly 100 references cited by Chadwick (1956b).

Naupactus cervinus Boheman 1840:17 (Brazil)
Asynonychus godmanni Crotch 1867:389 (Azores)
Aramigus fulleri Horn 1876:94 (Montana)
Naupactus simplex Pascoe 1881:39 (Brazil)
Pantomorus olindae Perkins 1900:130 (Hawaii)
Asynonychus cervinus (Boheman), Hustache 1947:138-139
Pantomorus cervinus (Boheman), Kuschel 1949:15-16

The common name is given as both Fuller's rose beetle and weevil, although the specific name fulleri has long been synonymized. The specific name P. godmani was used in most North American literature from 1900 to 1959, including the 1965 version of the "common names of insects" approved by the Entomological Society of America.

BIOLOGY: The legless grub is whitish, except for the yellowish head capsule which has contrasting black mandibles. It is a typically robust weevil larva, the last instar of which is about 10-12 mm long. In Florida adults have been collected nearly throughout the year. King (1959) reported 2 generations per year at Ft.Pierce, where peak adult populations occurred in late May to early June and again in late August to early September. Dickson (1950) recorded adult populations as high as 65,000 per acre in California citrus groves.

A typical life history is as follows. The yellow, cylindrical eggs are deposited in masses of 5 to 40 and covered with a white sticky material. They are placed in cracks in the bark, between leaves, and under the fruit calyx. These masses are laid over a 3-5 month period, often resulting in over 200 eggs per female.

The newly hatched larvae fall to the ground and burrow into the soil where they attack roots, eventually migrating as deep as 2 feet (61 cm). The lateral roots are sometimes completely girdled. Damage is similar to that caused by other citrus weevils in Florida (e.g., Diaprepes abbreviatus (L.) and Pachnaeus spp.). The terminal 3rd instar larvae move near the soil surface where they pupate in an earthen cell.

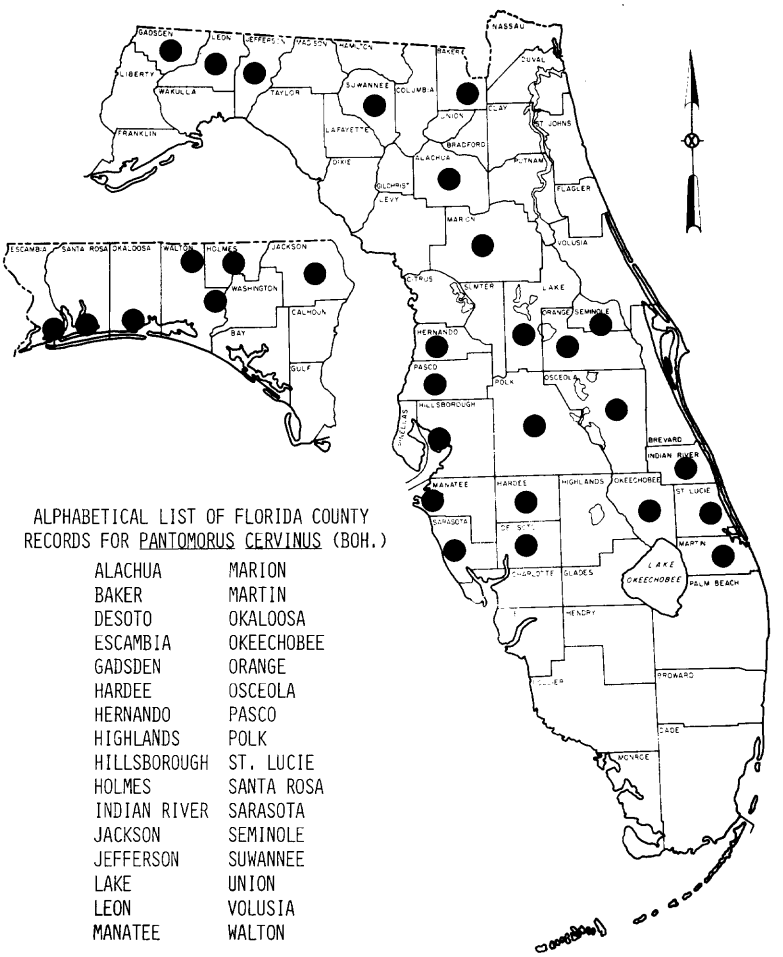
Emerging adults must then crawl to their host plants because they are flightless. Their feeding is usually typical leaf notching, but heavy populations occasionally consume the entire leaf except for the midrib. Although often present on host plants during the day, their nocturnal nature causes them to seek shelter and become inactive. They can be collected by shaking the trees vigorously, but they are much easier to find on the foliage at night.

HOSTS: The list of food plants for these weevils is so extensive that it is almost meaningless to list them. Certain preferences are reported, but they are dominated by roses and citrus.

ECONOMIC IMPORTANCE: Although an occasional pest of many ornamental plants (e.g., roses, dracaenas, azaleas, camellias, cannas, begonias, etc.), its greatest importance in Florida and California is on citrus. King (1959) stated that in Indian River and St. Lucie Counties it was "probably the most serious insect pest known on citrus, and is second only to water injury as the cause of tree decline".

DISTRIBUTION: Chadwick (1965b) recorded it from Argentina, Brazil, Chile, Paraguay, Uruguay, Mexico, Canada, Atlantic Islands (Azores, Canaries, Madeira, etc.), France, Spain, Portugal, Italy, Morocco, Ethiopia, South Africa, Pacific Islands, (Hawaii, Easter), Australia. Valentine (1957) recorded it from Haiti. A map was provided for the world distribution by The Commonwealth Institute of Entomology (Anonymous, 1966).

In the United States, Buchanan (1939) listed it as "general, but chiefly in the South Atlantic States and in California". Chadwick (1965a), listing records supplied by R. E. Warner, recorded it from Alabama, Arizona, California, Connecticut, District



ALPHABETICAL LIST OF FLORIDA COUNTY RECORDS FOR PANTOMORUS CERVINUS (BOH.)

ALACHUA	MARION
BAKER	MARTIN
DESOTO	OKALOOSA
ESCAMBIA	OKEECHOBEE
GADSDEN	ORANGE
HARDEE	OSCEOLA
HERNANDO	PASCO
HIGHLANDS	POLK
HILLSBOROUGH	ST. LUCIE
HOLMES	SANTA ROSA
INDIAN RIVER	SARASOTA
JACKSON	SEMINOLE
JEFFERSON	SUWANNEE
LAKE	UNION
LEON	VOLUSIA
MANATEE	WALTON

of Columbia, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Louisiana, Maryland, Massachesetts, Michigan, Mississippi, Missouri, Montana, Nebraska, New Jersey, New York, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, and Wisconsin. The earliest record for North America was listed as 1874 from Albany, New York, and also from greenhouses in the northeastern United States. It was first recorded from California in 1879.

In Florida, Blatchley and Leng (1916) recorded it for the first time. Division of Plant Industry records are listed alphabetically by county and shown in fig. 3. It is surprising that it has not been collected in the southern tier of 9 counties.

SURVEY AND DETECTION: This weevil is primarily nocturnal and should be searched for at night on suspected hosts where leaf notching has been noticed. It is not attracted to ultraviolet light. Since it is flightless, it is easily collected when observed. Adults drop to the ground when distrubed, so tree-shaking is sometimes effective. No special traps have been devised for it, but sticky materials, such as those used in a Jackson trap, often catch adult weevils. Larvae can be found only by digging up the host plants and carefully examining soil near the roots.

CONTROL: Chadwick (1965a) reviewed various control methods, concluding with the New South Wales Department of Agriculture recommendation of spraying with 0.05% dieldrin. Elmer (1960) suggested that populations had declined over a period of years due to continued general applications of dieldrin. Dickson (1950) indicated that sticky bands around trunks of newly planted trees would keep the flightless weevils from reaching the foliage, and he also listed 50% Cryolite dust for control. Bullock (1965) concluded that a single foliar spray of the following chemicals was ineffective against the

adults: Guthion, malathion, carbophenothion, and parathion. Current restrictions on many insecticides suggest a re-evaluation of cultural and mechanical control methods. Nicotine dust was once recommended. Clean cultivation and weed control are also thought to reduce populations. Currently EPA regulations are such that only heptachlor (granules) can be recommended at the rate of 2.25 kg (5 lbs) actual ingredient per 0.4 ha (acre).

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