

Casuarina Spittlebug, Clastoptera undulata Uhler
(HOMOPTERA: CERCOPIDAE)¹
F. W. Mead² and F. D. Bennett³

INTRODUCTION: Clastoptera is a New World genus: Metcalf (1962) listed 83 species, of which 32 were Neotropical, 27 Nearctic, 20 Caribbean, and 4 from 2 or more regions; more species since described. Clastoptera as crop pests: C. theobromae Williams on cocoa in Panama and Costa Rica (Williams 1923); C. sp. near dimidiata Fowler on coffee in Puerto Rico (Bennett & Hughes 1963). Several species attack Australian pine, Casuarina equisetifolia L., e.g. Clastoptera sp. in Trinidad; C. sp. near dimidiata in Puerto Rico; C. undulata in Cuba, Bermuda, and Florida; C. flavidorsa Metcalf & Bruner in Jamaica and Puerto Rico. Since C. equisetifolia is an exotic tree introduced into the Neotropics from Australia, the various species of Clastoptera which attack it have transferred from other plants. First report on C. undulata in U.S. was based on specimens from Fisher Island, Miami Beach, Florida in 1953-54; damage to host plants was negligible but adults caused a nuisance by crawling on people and invading offices, homes and automobiles (Porter 1955).

DESCRIPTION AND IDENTIFICATION: ADULT: length 2.6-3.7 mm based on specimens in Florida State Collection of Arthropods (FSCA), but Cuban specimens 3.25-4.60 mm (Metcalf & Bruner 1944). Color usually tannish brown, sometimes darker brown, mottled with white and dark brown marks or bands, highly variable. Pronotum usually with an interrupted brown arc across the middle (Fig. 1), occasionally the arc subdivided so as to appear as 4 dashes. Most of the other Clastoptera spp. in Florida are distinctly larger and/or differently colored or rare enough that they should not be confused with C. undulata. The species in Florida most similar to undulata is the alder spittlebug, C. obtusa (Say). The interrupted transverse arc of undulata forms a solid brown band in obtusa and is slightly more anterad. The pronotal anterior margin of obtusa has a continuous brown band, not spots as in undulata. The vertex of obtusa is marked anteriorly by a solid brown band, but in undulata there is a series of brownish spots. C. obtusa is larger, 3.6-5.1 mm long, but there can be a slight size overlap. C. obtusa is relatively uncommon in Florida, most records being in the northern half of the state, on wild grape, Vitis sp., or alder, Alnus serrulata (Ait.) Willd. Moore (1955) produced an illustrated cercopid generic key to nymphs as well as adults. Descriptions, keys, and illustrations of all Clastoptera spp. in Florida except undulata are available in Doering (1929). C. undulata was described by Uhler (1864), additional descriptions were given by Metcalf and Bruner (1925, 1944), and by Dustan (1960).

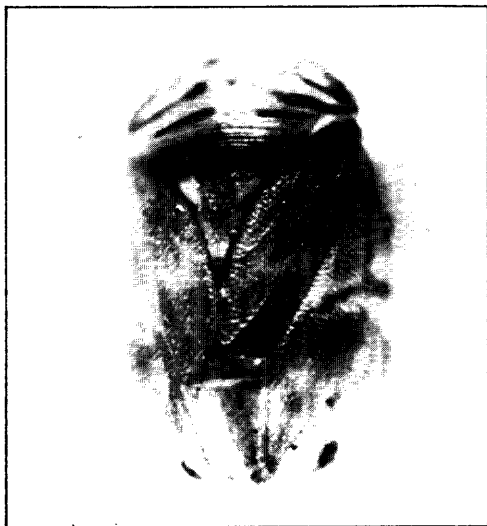


Fig. 1. Adult of Clastoptera undulata Uhler. Approx. 12X. (DPI Neg. # 860030).

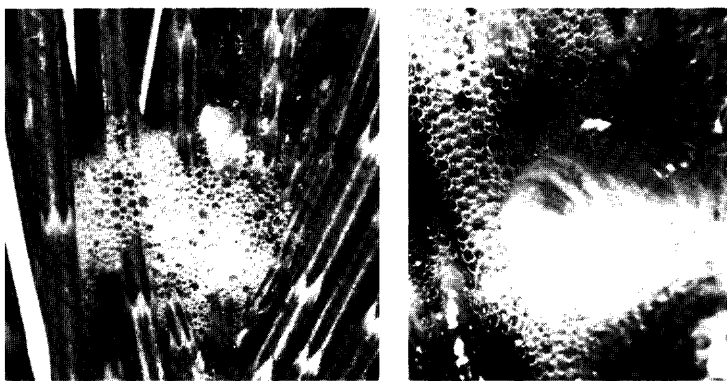


Fig. 2. Nymphs of Clastoptera undulata in spittle on Casuarina equisetifolia L. (considerably magnified). (DPI Neg. #860038-A-6, & A-9).

1/Contribution No. 653, Bureau of Entomology.

2/Taxonomic Entomologist, FDACS, Division of Plant Industry, P.O. Box 1269, Gainesville, FL 32602.

3/Graduate Research Professor, Dept. of Entomology and Nematology, IFAS, Univ. of Florida, Gainesville, FL 32611.

DISTRIBUTION: In Florida the FSCA has records of C. undulata from 16 counties that extend continuously from Volusia County on the Atlantic southward to the Florida Keys and northward on the Gulf Coast to Pinellas and Hillsborough counties. Elsewhere Puerto Rico and Mexico (Quintana Roo) can be added to Cuba and Bermuda based on specimens in the USNMNH collection (Dr. J. P. Kramer, pers. comm. 2-IV-87).

LIFE HISTORY: Both nymphs and adults occur in Florida throughout the year, with peak activity coming in the spring. Porter (1955) reported heavy infestations during December and first half of January, and another peak in May. Dustan (1960) and Bennett & Hughes (1963) reported 3 broods per year in Bermuda, where C. undulata was introduced accidentally about 1959, and spread rapidly throughout the island. In the absence of natural enemies, heavy populations caused injury to Casuarina equisetifolia. This tree had been planted extensively as a substitute for the Bermuda cedar Juniperus bermudiana L., which had been virtually annihilated by the cedar scale Carulaspis minima (Targioni-Tozzetti). A biological control program was initiated and Carabunia waterstoni Subba Rao, an encyrtid parasite of the nymphs, and Uscanoidea nigriventris Girault, an egg parasite of Clasoptera flavidorsa Metcalf & Bruner, were introduced from Jamaica during 1959-1964. Both species were recovered but may not have survived at adequate levels during the colder winter months to provide any significant level of control. Although detailed studies of natural enemies have not been made in Florida, Carabunia myersi Waterston has been reared regularly from collections of the nymphs of C. undulata in the Miami area over the past 14 months (F. D. Bennett, unpublished data). This suggests that the casuarina spittlebug is under good biological control. EGGS: 1-4 per slit are laid diagonally in "needles" or tender twigs of Casuarina. At 80 F. hatch occurs in 5-7 days, but incubation of 26 days or so is required at 65-70 F. NYMPHS: Averaged 42 days to complete the 5 instars in the Bermuda studies, with the extremes being 38-75 days for combined egg-nymphal development. Nymphs often settle in the nearest spit ball after hatching, resulting in a "communal" spit ball that enlarges as more nymphs move in.

HOST PLANTS: In Florida Casuarina equisetifolia L. is a host much preferred over C. cunninghamiana Miq. and C. glauca Sieber. In Bermuda Dustan (1960) reported that C. equisetifolia was next to C. stricta Ait. as a preferred host. Dustan also reported nymphs on Hibiscus spp., Tamarix gallica L., Conocarpus erectus L., and Brunfelsia americana L. Bennett & Hughes (1963) added Schinus molle L., and Coccoloba uvifera (L.) L. Metcalf and Bruner (1944) mentioned Anacardium occidentale L. and Casearia hirsuta Sw. as hosts in Cuba.

SURVEY AND DETECTION: Look for the tell-tale frothy white masses or spit balls. Where infestations are unusually heavy, there may be a thinning and yellowing of Casuarina "needles" (needle drop) and a small amount of yellowing about 2" below where the nymphs are feeding.

CONTROL: Normally, application of insecticides is not needed nor recommended. If a local population develops to annoying levels, a spray of diazinon or malathion may be used. Due to the relatively long incubation period of the eggs 3 applications should be made 3-4 weeks apart. Follow the dosage level and precautions on the label of the insecticide container. Biological control has been discussed under Life History.

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