

## *Myllocerus undecimpustulatus undatus* Marshall (Coleoptera: Curculionidae), a Recently Discovered Pest Weevil from the Indian Subcontinent<sup>1</sup>

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**INTRODUCTION:** The first Florida specimens of an exotic species of *Myllocerus* were collected in Davie, Broward County on 25 September 2000 by D. McLean. Three specimens were sent to the Division of Plant Industry (DPI) and were then forwarded to the senior author (C.W. O'Brien) for identification. Two days later they were identified as *Myllocerus undecimpustulatus* Faust, a species native to southern India; and shortly thereafter, as *Myllocerus undatus* Marshall from Sri Lanka. There are 336 species recognized as valid in this genus, from Southeast Asia, the Indian subcontinent, Africa, Asia (including China and Japan), the Palearctic, Indonesia and Australia. None was known from the New World prior to the introduction of the present potentially important species, except for *Oedophrys hilleri* (Faust), introduced into the eastern U.S., and incorrectly assigned to the genus *Myllocerus*. There are 73 species recognized as valid for the Indian subcontinent and the excellent revision of the species by Ramamurthy and Ghai (1988), and the superb study by Marshall (1916) in the Fauna of British India series, were used to identify our introduced species. The subspecies of *M. undecimpustulatus* (e.g. Figs. 1-4) are among the most serious pest species of weevils in India and Pakistan, where they attack more than 20 crops. The nominate subspecies and *M. u. maculosus* Desbrochers des Loges are major pests of cotton in India and Pakistan.

**DIAGNOSIS:** *Myllocerus undecimpustulatus undatus* Marshall can be confused easily with the "little leaf notcher" *Artipus floridanus* Horn (Figs. 9-12) by non-specialists, due to their general similarity. However, *M. undecimpustulatus undatus* has a dull, white and black, maculate, scale covering (often with yellowish scales on the rostrum and head). Also it has the front and middle femora bidentate and the hind femora distinctly tridentate (Fig. 13). The humeri (or shoulders) of the front wings are strongly angled and much broader than the prothorax.

On the other hand, *A. floridanus* (Figs. 9-12) has a dense covering of grayish to white, somewhat shining scales with black cuticular marks, usually smaller and formed by the punctures on the wings. Often there is a metallic silver to rosaceous purple sheen to the scales. There is a rarely collected metallic green form which according to Blatchley and Leng (1916) is associated with



**Figs. 1-4.** Subspecies of *Myllocerus undecimpustulatus* Faust (India, Pakistan, and Sri Lanka), 1. *maculosus* Desbrochers des Loges, 2. *undecimpustulatus*, 3. *marmoratus* Faust, and 4. *undatus* Marshall.

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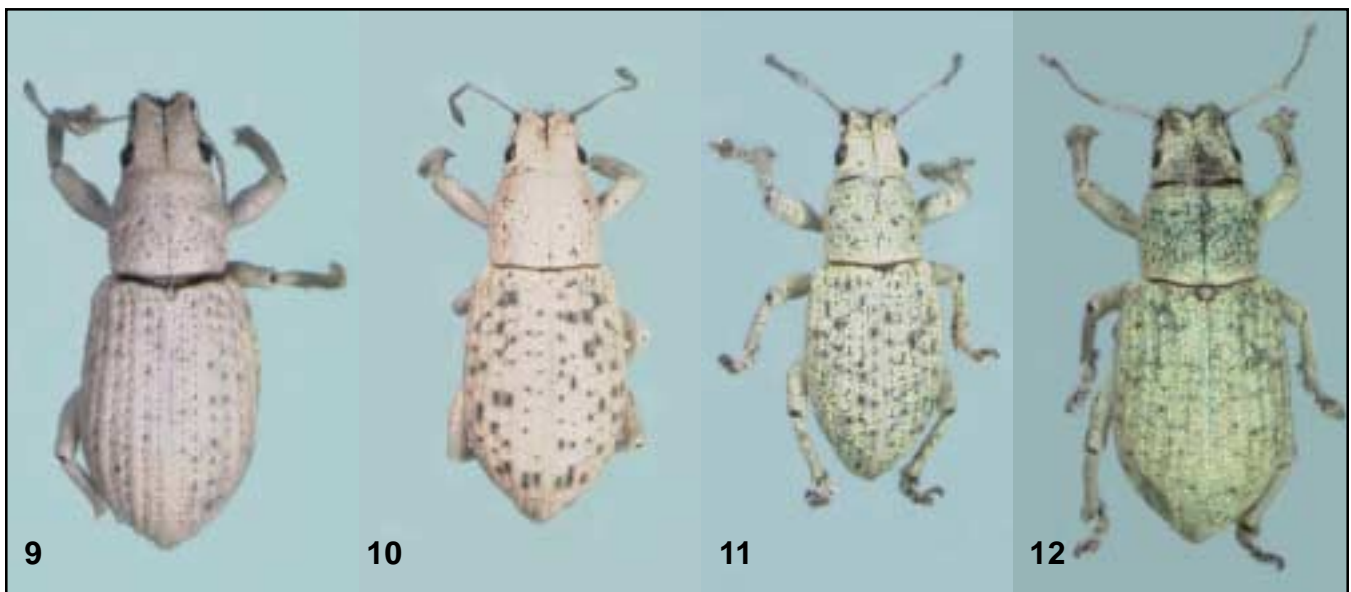


**Figs. 5-8.** *Myllocerus undecimpustulatus undatus* Marshall (Florida populations).

live oak. It has much smaller eyes and the humeri are weakly developed, very weakly angled and scarcely wider than the prothorax. In addition, the species has no denticles on any femora (Fig. 14). The unusual but characteristic feeding by *M. undecimpustulatus undatus* on tropical almond leaf is shown in Fig. 15.

**LIFE HISTORY:** The life cycle of this species currently is under study in a laboratory in Homestead FL (Jorge Peña, pers. comm.). The adults do not glue the eggs together in a mass on the host plants leaves, but insert them singly in soft organic matter on the ground. The larvae burrow through the soil feeding on the roots of their host plants, and pupate in the soil. The adults emerge from the soil to feed on a wide variety of host plants. Bose (1943) described the bionomics and life history of an allied species i.e., *Myllocerus laetivirens* Marshall originally described from Lahore, Pakistan.

**DISTRIBUTION:** Currently, the species is known in Florida throughout most of the southeastern and southwestern coasts, plus scattered locations inland, from the following specific localities: **Broward:** Coconut Creek, Coral Springs, Davie, Ft. Lauderdale, Hallandale, Hollywood, Lauderhill, Margate, Oakland Park, Pompano Beach, and Sunrise; **Charlotte:** Punta Gorda; **Collier:**



**Figs. 9-12.** *Artipus floridanus* Horn color forms (South Florida).



**Figs. 13-14.** Hind legs, 13. *Myllocerus undecimpustulatus undatus* (arrow indicating three distinct femoral spines), 14. *Artipus floridanus* (without femoral spines).

Immokalee and Naples; **Hendry:** Clewiston; **Lee:** Bonita Springs and Cape Coral; **Miami-Dade:** Hialeah, Homestead, Miami, Miami Beach, Miami Lakes, Miami Springs, and Opa-Locka; **Orange:** Apopka; **Palm Beach:** Boca Raton, Delray Beach, Lake Park, Lantana, and West Palm Beach; **Polk:** Polk City; **Sarasota:** Sarasota.

**HOSTS:** Ongoing surveys carried out in south Florida by DPI inspectors have confirmed the occurrence of this pest and its infestation on at least 81 different plant species including: earleaf acacia, *Acacia auriculiformis* A. Cunn ex Benth. (Leguminosae); copper leaf plant, *Acalypha wilkesiana* (Euphorbiaceae); red maple, *Acer rubrum* L. (Aceraceae); woman's tongue, *Albizia lebbek* (L.) Benth. (Leguminosae); cashew, *Anacardium occidentale* L. (Anacardiaceae); carambola, *Averrhoa carambola* L. (Oxalidaceae); salt bush, *Baccharis halimifolia* L. (Compositae); orchid tree, *Bauhinia* sp. (Leguminosae); Hong Kong orchid tree, *Bauhinia x blakeana* S.T. Dunn (Leguminosae); akee, *Blighia sapida* K. Koenig (Sapindaceae); red silk-cotton tree, *Bombax ceiba* L. (Bombacaceae); black-olive, *Bucida buceras* L. (Combretaceae); powderpuff, *Calliandra emarginata* (Leguminosae); powderpuff, *Calliandra haematocephala* Hassk. (Leguminosae); bottlebrush, *Callistemon* sp. (Myrtaceae); a pepper, *Capsicum* sp. (Solanaceae); Burmese fishtail palm, *Caryota mitis* Lour. (Palmae); hackberry, *Celtis laevigata* Willd. (Ulmaceae); cocoplum, *Chrysobalanus icaco* L. (Chrysobalanaceae); satin leaf, *Chrysophyllum oliviforme* L. (Sapotaceae); citrus, *Citrus* sp. (Rutaceae); grapefruit, *Citrus x paradisi* Macfad. (Rutaceae); pigeon plum, *Coccoloba diversifolia* Jacq. (Polygonaceae); seagrape, *Coccoloba uvifera* (L.) L. (Polygonaceae); buttonwood, *Conocarpus erectus* L. (Combretaceae);



**Fig. 15.** *Myllocerus u. undatus* Marshall feeding on tropical almond leaf in south Florida. DPI Photo by Susan Halbert.

carrotwood, *Cupaniopsis anacardiodes* (A. Rich.) Radlk. (Anacardiaceae); longan, *Dimocarpus longan* Lour. (Sapindaceae); golden dewdrops, *Duranta erecta* L. (Verbenaceae); areca palm, *Dyopsis lutescens* (H. Wendl.) Beentje & J. Dransf. (Palmae); loquat, *Eriobotrya japonica* Lindl. (Rosaceae); erythrina, *Erythrina* sp. (Leguminosae); Surinam cherry, *Eugenia uniflora* L. (Myrtaceae); strangler fig, *Ficus aurea* L. (Moraceae); fig, *Ficus carica* (Moraceae); ficus, *Ficus* sp. (Moraceae); upland cotton, *Gossypium hirsutum* L. (Malvaceae); beeftree, *Guapira discolor* (Spreng.) Little (Nyctaginaceae); hibiscus, *Hibiscus rosa-sinensis* L. (Malvaceae); mahoe, *Hibiscus tiliaceus* L. (Malvaceae); dahoon holly, *Ilex cassine* L. (Aquifoliaceae); ixora, *Ixora* sp. (Rubiaceae); black ironwood, *Kragiodendron ferreum* (Vahl) Urban (Rhamnaceae); crepe myrtle, *Lagerstroemia indica* L. (Lythraceae); lantana, *Lantana camara* L. (Verbenaceae); lychee, *Litchi sinensis* Sonn. (Sapindaceae); wild tamarind, *Lysiloma latisiliquum* Benth. (Leguminosae); Turk's cap, *Malvaviscus penduliflorus* DC. (Malvaceae); mango, *Mangifera indica* L. (Anacardiaceae); Spanish lime, *Melicoccus bijugatus* Jacq. (Sapindaceae); white mulberry, *Morus alba* L. (Moraceae); orange jasmine, *Murraya paniculata* (L.) Jack (Rutaceae); jaboticaba, *Myrciaria cauliflora* (DC.) O. Berg (Myrtaceae); water chestnut, *Pachira aquatica* Aubl. (Bombacaceae); Virginia creeper, *Parthenocissus quinquefolia* (L.) Planch. (Vitaceae); passionflower, *Passiflora* sp. (Passifloraceae); pygmy date palm, *Phoenix roebelenii* O'Brien (Palmae); oriental arborvitae, *Platycladus orientalis* (Cupressaceae); plumbago, *Plumbago auriculata* Lam. (Plumbaginaceae); pongam, *Pongamia pinnata* (L.) Pierre (Leguminosae); mamey sapote, *Pouteria sapota* (Jacq.) H. E. Moore & Stearn (Sapotaceae); peach, *Prunus persica* (L.) Ratsch. (Rosaceae); laurel oak, *Quercus laurifolia* Michx. (Fagaceae); live oak, *Quercus virginiana* L. (Fagaceae); rouge plant, *Rivina humilis* L. (Phytolaccaceae); Brazilian pepper, *Schinus terebinthifolius* Raddi (Anacardiaceae); glossy shower, *Senna surattensis* (Burm. f.) Irwin & Barneby (Leguminosae); shrubby false buttonweed, *Spermacoce verticillata* L. (Rubiaceae); spinach, *Spinacia oleracea* L. (Chenopodiaceae); mahogany, *Swietenia mahagoni* (L.) Jacq. (Meliaceae); jambolan plum, *Syzygium cuminii* (L.) Skeels (Myrtaceae); Australian brush-cherry, *Syzygium paniculatum* Gaertn. (Myrtaceae); tropical almond, *Terminalia catappa* L. (Myrtaceae); no common name, *Tetrastigma* sp. (Vitaceae); Florida trema, *Trema micranthum* (L.) Blume (Ulmaceae); a palm, *Veitchia* sp. (Palmae); muscadine, *Vitis rotundifolia* Michx. (Vitaceae); calamondin, *Xcitrafortunella microcarpa* (Rutaceae); velvetbean, *Mucuna pruriens* (L.) DC. (Fabaceae); catclaw blackbead, *Pithecellobium unguis-cati* (L.) Mart. (Fabaceae); dog fennel, *Ambrosia artemisiifolia* L. (Asteraceae); strawberry tree, *Muntingia calabura* L. (Elaeocarpaceae).

**Summary:** The vast number of host plants fed on by the adults of this weevil found in Florida, including citrus, make it clear that there is great potential for the species to be spread through shipment of a wide range of nursery stock, and to develop as a serious pest of many ornamental plants and crops, including various varieties of citrus. The larvae of this weevil burrow in the soil, feeding on the roots of their host plants. The range of larval hosts is not known yet, but can be presumed to be extensive based on the rapid spread of the species in urban residential neighborhoods, where the availability of monocultures for larval development are rare. Also the larvae are being reared in the laboratory on sweet potatoes (Jorge Peña, pers. comm.), a host not common in much of the range of the species in the U.S., India, or Pakistan. Because the larvae are hidden in the soil, they are difficult to find in nature, as well as in potted or bald nursery rootstock being shipped after sale. Movement of trees and shrubs surely would spread these weevils, and the adults can fly as well.

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