

Mylocerus undecimpustulatus undatus Marshall
(Coleoptera: Curculionidae),
a Recently Discovered Pest Weevil from the Indian Subcontinent¹

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INTRODUCTION: The first Florida specimens of an exotic species of *Mylocerus* 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 *Mylocerus undecimpustulatus* Faust, a species native to southern India; and shortly thereafter, as *Mylocerus 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 *Mylocerus*. 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: *Mylocerus 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 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.*



Figs. 1-4. Subspecies of *Mylocerus 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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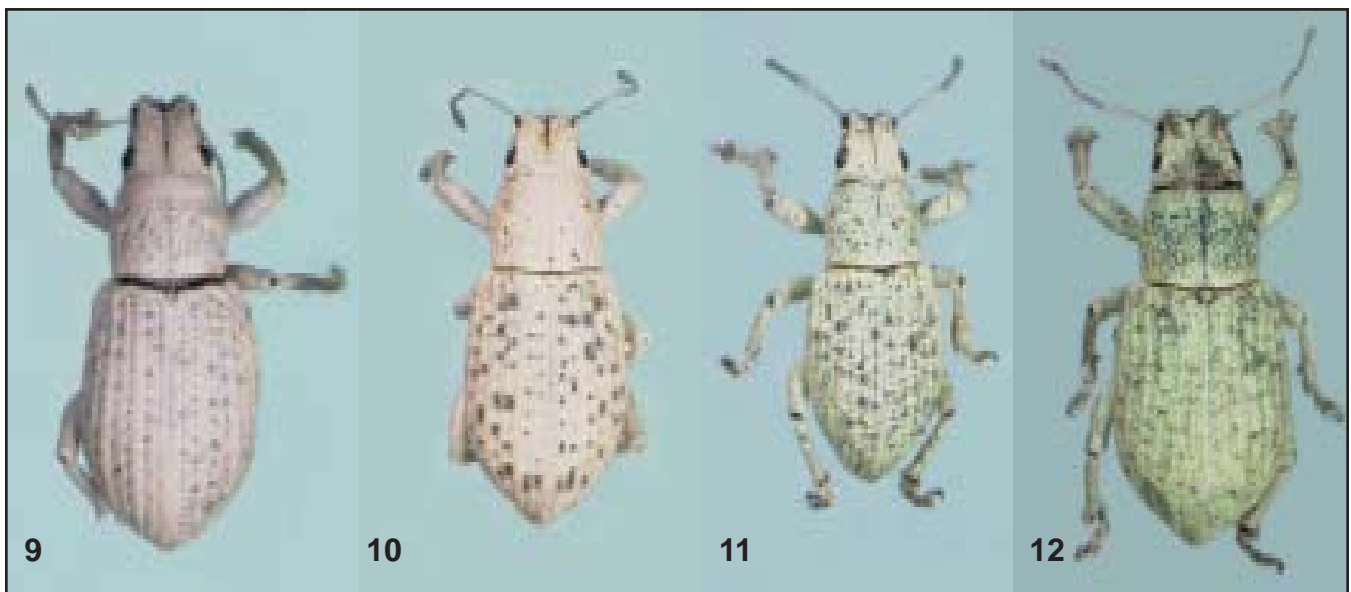
Figs. 5-8. *Myllocerus undecimpustulatus undatus* Marshall (Florida populations).

undecimpustulatus undatus on tropical almond leaf is shown in Fig. 15.

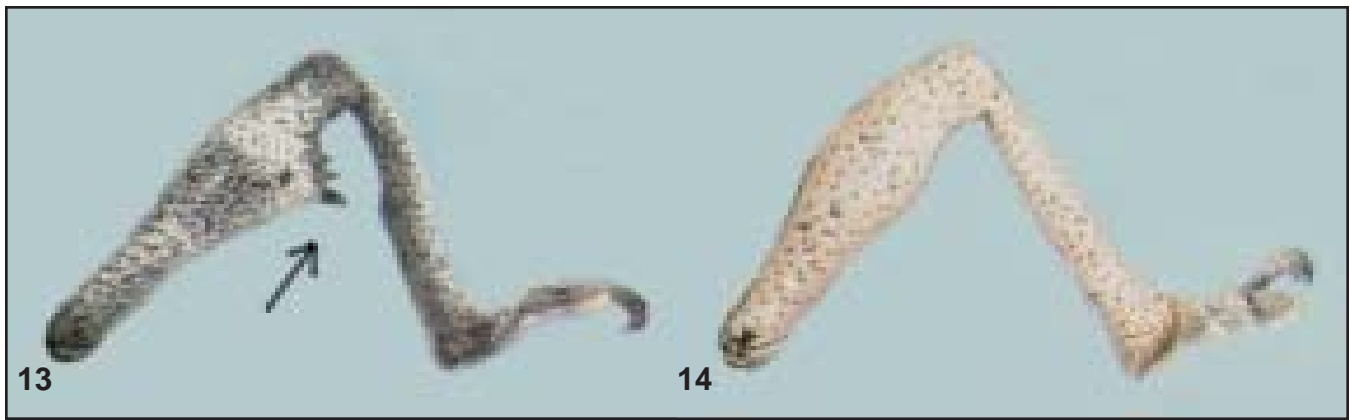
LIFE HISTORY: The life cycle of this species currently is under study in a laboratory in Homestead FL (Jorge Peña, pers. comm.). The adults do not glue the eggs together in a mass on the host plants leaves, but insert them singly in soft organic matter on the ground. The larvae burrow through the soil 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 eastern Broward, Miami-Dade and Palm Beach counties from the following localities: **Broward Co.** Coconut Creek, Coral Springs, Davie, Ft. Lauderdale, Hallandale, Hollywood, Lauderhill, Margate, Oakland Park, Pompano Beach, and Sunrise. **Miami-Dade Co.** Hialeah, Homestead, Miami, Miami Beach, Miami Lakes, Miami Springs, and Opa-Locka. **Palm Beach Co.** Boca Raton, Delray Beach, Lake Park, and West Palm Beach.

In addition, it was collected recently in Orange County in a nursery on citrus in Apopka. The first infestation known from the west coast of Florida was collected October 22, 2003 in Pinellas County, Largo, with a severe infestation on longan and a



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).

slight infestation on pomelo. Another West Coast infestation was discovered on July 15, 2004 in Collier County, Naples.

HOSTS: Preliminary surveys carried out during 2001-2003 in South Florida by DPI have confirmed occurrence of this pest and its infestation on 65 different plants species including: akee, *Blighia sapida* K. Koenig; areca palm, Madagascar palm, butterfly palm, golden cane palm, *Dypsis lutescens* (H. Wendl.) Beentje & J. Dransf.; Australian brush-cherry, *Syzygium paniculatum* Gaertn.; beeftree, *Guapira discolor* (Spreng.) Little; black-olive, gregory wood, *Bucida buceras* L.; bottlebrush, *Callistemon* sp.; Burmese fishtail palm, clustered fishtail, *Caryota mitis* Lour.; buttonwood, button mangrove, *Conocarpus erectus* L.; cala-mondin, *Xcitrafortunella microcarpa*; carrotwood, *Cupaniopsis anacardiodes* (A. Rich.) Radlk.; cashew, maranon, *Anacardium occidentale* L.; citrus, *Citrus* sp.; cocoplum, icaco, *Chrysobalanus icaco* L.; crepe myrtle, *Lagerstroemia indica* L.; dahoon holly, *Ilex cassine* L.; earleaf acacia, *Acacia auriculiformis* A. Cunn ex Benth.; erythrina, *Erythrina* sp.; ficus, *Ficus* sp.; Florida tremma, nettletree, *Trema micranthum* (L.) Blume; glossy shower, *Senna surattensis* (Burm. f.) Irwin & Barneby; golden dewdrops, *Duranta erecta* L.; grapefruit, *Citrus x paradisi* Macfad.; Guinea chestnut, water chestnut, *Pachira aquatica* Aubl.; hibiscus, *Hibiscus rosa-sinensis* L.; Hong Kong orchid tree, Blake's bauhinia, *Bauhinia x blakeana* S.T. Dunn; jaboticaba, *Myrciaria cauliflora* (DC.) O. Berg; jambolan plum, Java plum, black plum, *Syzygium cuminii* (L.) Skeels; karum tree, poonga oil-tree, lantana, shrub verbena, *Lantana camara* L.; pongam, *Pongamia pinnata* (L.) Pierre; laurel oak, *Quercus laurifolia* Michx.; live oak, *Quercus virginiana* L.; loquat, *Eriobotrya japonica* Lindl.; longan, *Dimocarpus longan* Lour.; lychee, *Litchi sinensis* Sonn.; mahoe, seaside hibiscus, *Hibiscus tiliaceus* L.; mahogany, *Swietenia mahagoni* (L.) Jacq.; mamey sapote, *Pouteria sapota* (Jacq.)



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

H. E. Moore & Stearn; mango, *Mangifera indica* L.; muscadine, *Vitis rotundifolia* Michx.; orange jasmine, *Murraya paniculata* (L.) Jack; orchid tree, *Bauhinia* sp.; a palm, *Veitchia* sp.; passionflower, *Passiflora* sp.; peach, *Prunus persica* (L.) Ratsch.; pigeon plum, tietongue, *Coccoloba diversifolia* Jacq.; plumbago, cape leadwort, *Plumbago auriculata* Lam.; powderpuff, *Calliandra haematocephala* Hassk.; pygmy date palm, *Phoenix roebelenii* O'Brien; red maple, *Acer rubrum* L.; red silk-cotton tree, *Bombax ceiba* L.; rouge plant, *Rivina humilis* L.; salt bush, groundsel bush, *Baccharis halimifolia* L.; seagrape, *Coccoloba uvifera* (L.) L.; shrubby false buttonweed, *Spermacoce verticillata* L.; Spanish lime, canepas, guayas, *Melicoccus bijugatus* Jacq.; spinach, *Spinacia oleracea* L.; strangler fig, *Ficus aurea* L.; Surinam cherry, *Eugenia uniflora* L.; tropical almond, *Terminalia catappa* L.; Turk's cap, *Malvaviscus penduliflorus* DC.; upland cotton, *Gossypium hirsutum* L.; white mulberry, *Morus alba* L.; wild tamarind, false tamarind, *Lysiloma latisiliquum* Benth.; woman's tongue, *Albizia lebbek* (L.) Benth.; no common name, *Tetrastigma* sp.

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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