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Authors: Dutta, Ram, Thakur, Narain Singh Azad, Bag, Tusar Kanti, Anita, Ngashepam, Chandra, Satish, et al.

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NEW RECORD OF RED PALM WEEVIL, *RHYNCHOPHORUS FERRUGINEUS* (COLEOPTERA: CURCULIONIDAE) ON ARECANUT (*ARECA CATECHU*) FROM MEGHALAYA, INDIA

RAM DUTTA¹, NARAIN SINGH AZAD THAKUR², TUSAR KANTI BAG, NGASHEPAM ANITA, SATISH CHANDRA AND SHISHOMVNAO NGACHAN

Division of Plant Pathology, ICAR Research Complex for NEH Region, Umiam-793103, Meghalaya, India

²Division of Agricultural Entomology, ICAR Research Complex for NEH Region, Umiam 793103, Meghalaya, India

¹Corresponding author; E-mail: rdutta.iari@gmail.com

The Red Palm Weevil (RPW), *Rhynchophorus ferrugineus* (Oliver) (Coleoptera: Curculionidae), locally called Asian Palm Weevil, is a native of Southern Asia and Melanesia (Malumphy & Moran 2007). The RPW is a devastating pest of palms having a wide geographical distribution in Europe and Asia (Wattanapongsiri 1966; Zhang et al. 2003; Al-Ayedh 2008). It attacks various palm species such as *Phoenix sylvestris*, *Cocos nucifera*, and *Metroxylon sago* in India, Pakistan, Sri Lanka, Myanmar, Indonesia, The Philippines, and the Gulf states (Rahalkar et al. 1985; Murphy

& Biscoe 1999). In India it is one of the most-destructive pests of coconut causing infestation of as many as 12% of 5-10-years-old coconut palms (Sekhar 2000). RPW has been reported as the most-destructive pest of coconut (*Cocos nucifera*) from major Indian coconut growing states including Karnataka, Kerala, Goa (Venkitasubban 1936; Lever 1979; Faleiro et al. 2003; Prabhu & Patil 2009). It is a serious pest of date palm (*Phoenix dactylifera*) in Punjab state of India (Lal 1917) causing considerable damage to the crop during 1916-17 (Meckanna 1918) and a pest on sugar-

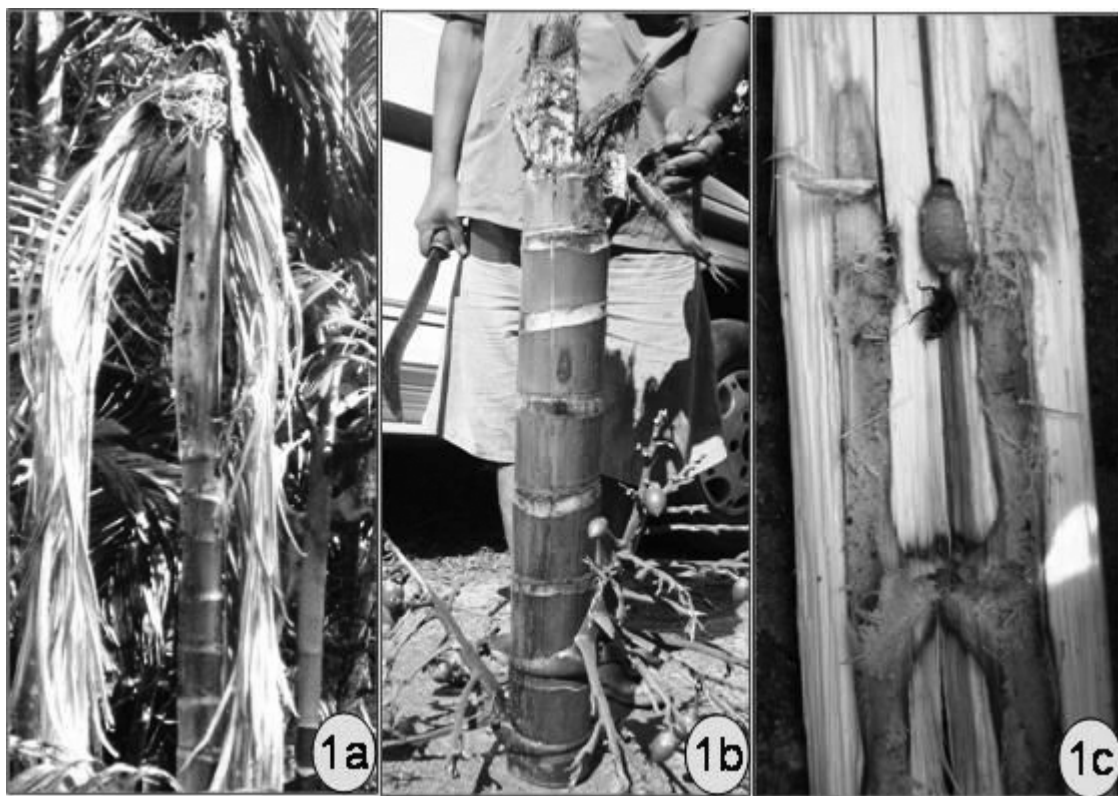


Fig. 1. Nature of damage caused by red palm weevil on Arecanut stem, (a) Completely damaged plant with several bore holes on the top and drooping of dried leaves, (b) A top of severely damaged plant showing only few fruits, and (c) Wavy tunnel in the pith of stem with larva and adult.

cane (Rahalkar et al. 1972). RPW has not been reported previously on Arecanut (*Areca catechu*) in India. Herein, we report new records of RPW on a new host, Arecanut, from Meghalaya state (20.1°-26.5°N and 85.49°-92.52°E) in the North Eastern Hill Region of India.

In May 2008, severely infested Arecanut plants were observed in Arphewmer village of Umling block under Ri-Bhoi (90°55'15"-91°16'N and 25°40' to 25°21'E) district of Meghalaya, but no larvae or adults were found in the infested plants. In Nov 2009, adults and larvae of RPW were first found in nearly wilted and dead Arecanut plants in Tura Municipality areas (25°30'N, 90°16'E) under West Garo hills district of Meghalaya province located near the north eastern border of Bangladesh in the north eastern part of India. RPW adults and larvae were collected after splitting the symptomatic stems/shoots from severely infested plants and the specimens were identified following the taxonomic key of Wattanapongsiri (1966) and Zhang et al. (2003). The infestation of RPW ranged between 1-3% of the plants ($n = 511$) in the rural and semi urban areas of Tura sub-division of Meghalaya.

In Dec 2009, the survey was extended to Sarin, Mawpud, Assainguitin village, and State Government Horticultural Farm at Phudkhylla village under Ranikor block of the West Khasi Hills (25°10'-

25°51'N, 90°44'-91°49'E) district of Meghalaya, where we found infested Arecanut plants showing entry holes and wavy tunnels without larvae/adults in all the locations, except in Assainguitin village. Altogether, the RPW infestation in these areas was 1.5% considering all the locations.

At the end of Dec 2009 and first week of Jan 2010, again intensive survey was conducted in bordering (India-Bangladesh) areas, and RPW was collected from Arecanut plants in Pyrdwah and Lynkhat villages and State Government Horticultural Farm at Pomshutia village under East Khasi Hills (25°07'-25°41'N, 91°21'-92°09'E) district of Meghalaya. In these locations, the RPW infestation ranged from 2.5 to 10%. In the second week of Jan 2010, similar survey was conducted in Umdoh, Umlympiang, Muktapur and Umtyrn-gai villages of Jaintia Hills (20°58'-26°03'N, 91°59'-92°51'E) district of the state but no infested Arecanut plants were observed.

The infested plants showed signs of wilting, drooping of dried leaves (Fig. 1a), and dropping of leaves. The topless stem remained standing, showing symptoms similar to *Phytophthora* rot of Arecanut. About 1 ft. below the defoliated top, black sunken holes (Fig. 1b) could be seen, occasionally with dried frass. When the stem was split from the top, wavy tunnel could be seen with full of frass and insect larvae (Figs. 1c and 2A). Adults

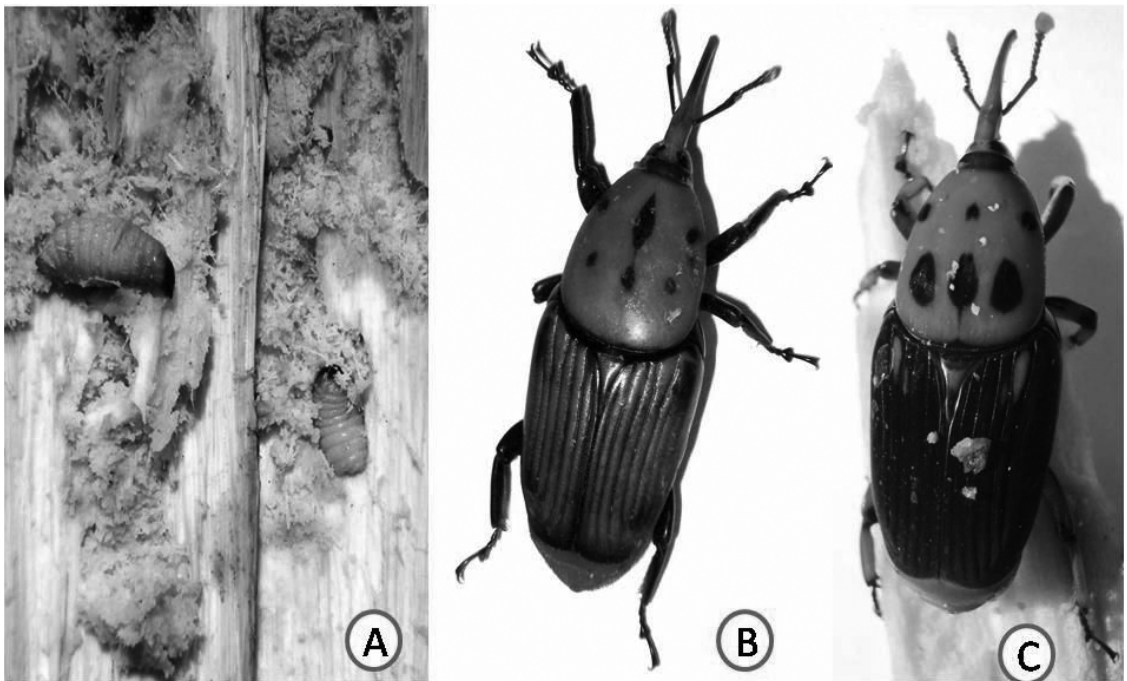


Fig. 2. Larvae and adults of red palm weevil *Rhynchophorus ferrugineus*, (A) Creamy white larvae embedded with chewed frass inside the stem pith of Arecanut, (B) Reddish brown adult (female) with 6 black spots of variable size on pronotum, (C) Shiny black adult female showing variation in size of six black spots on reddish brown pronotum.

(Figs. 2B and 2C) were recovered sporadically depending on the time of survey/ location, and severity of infestation. The larvae collected from the infested Arecanut plants were reared in the laboratory artificially on finely ground Arecanut frass.

Adults measured 33.2-34.05 mm (average 33.62 mm) in length, 11.9-13.1 mm (average 12.5 mm) in width, and weighed 0.99-1.28 g (average 1.13 g). Adults are reddish brown to black with 6 black spots of variable size on the pronotum. The snout in males appeared smooth and slender with a hairy pad at the apex; in females the snout was slightly longer and shiny black without a hairy pad. Larvae are creamy white with a dark head.

Vidyasagar (2007) has indicated that coconut, date palm, sago palm, and wild date or toddy palm (*Phoenix sylvestris*), palmyrah (*Borassus flabellifer*), oil palm (*Elaeis guineensis*), the talipot palm (*Corypha umbraculifer*), the sugar palm (*Arenga saccharifera*, and the sedang palm (*Livistonia cochinchinensis*) are potential hosts of RPW in India. RPW was not previously reported on palms including coconut in this state and this is the first record of RPW in Meghalaya state on Arecanut, and the first report of RPW on Arecanut from India. An early action is needed to prevent further spread of the pest in other states of the region and to protect the Arecanut industry in the state of Meghalaya and India.

SUMMARY

The red palm weevil (RPW) *Rhynchophorus ferrugineus* was newly recorded in 2008-2010, from 5 districts of Meghalaya, India and from a total of 7 districts surveyed in all bordering (India-Bangladesh) areas. There are isolated distributions of RPW indicating rapid spread in the state. The pest may migrate to other Indian states in the near future causing threat to Arecanut plantations. Our finding appears to be the first published report of RPW on Arecanut in this country. The programme was funded by ICAR (Indian Council of Agricultural Research) Research Complex for Northeastern Hill Region, Barapani, Meghalaya.

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