New Record of Red Palm Weevil, Rhynchophorus ferrugineus (Coleoptera: Curculionidae) on Areca nut (Areca catechu) from Meghalaya, India

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

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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-
cane (Rahalkar et al. 1972). RPW has not been re-
ported previously on Areca nut (Areca catechu) in
India. Herein, we report new records of RPW on a
new host, Areca nut, 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 Areca nut plants
were observed in Arphewmer village of Um-
lung 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 Areca-
ut plants in Tura Municipality areas (25°30’N,
90°16’E) under West Garo hills district of Megha-
laya province located near the north eastern bor-
der of Bangladesh in the north eastern part of In-
dia. RPW adults and larvae were collected after
splitting the symptomatic stems/shoots from se-
verely infested plants and the specimens were
identified following the taxonomic key of Wat-
apongsi (1966) and Zhang et al. (2003). The in-
festation 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 Govern-
ment Horticultural Farm at Phudkhylia village un-
der Ranikor block of the West Khasi Hills (25°10’-
25°51’N, 90°44’-91°49’E) district of Meghalaya,
where we found infested Areca nut 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 Areca nut plants in Pyrdwah
and Lynkhat villages and State Government Hor-
ticultural Farm at Pomshutia village under East
Khasi Hills (25°07’-25°41’N, 91°21’-92°09’E) dis-
trict 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
Areca nut plants were observed.

The infested plants showed signs of wilting,
dropping of dried leaves (Fig. 1a), and dropping of
leaves. The topless stem remained standing,
showing symptoms similar to Phytophthora rot of
Areca nut. About 1 ft. below the defoliated top,
black sunken holes (Fig. 1b) could be seen, occa-
sionally 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 Areca nut, (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.](https://bioone.org/journals/Florida-Entomologist on 12 Nov 2021) Terms of Use: https://bioone.org/terms-of-use
(Figs. 2B and 2C) were recovered sporadically depending on the time of survey/location, and severity of infestation. The larvae collected from the infested Areca nut plants were reared in the laboratory artificially on finely ground Areca nut 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), palmryrah (Borassus flabellifer), oil palm (Elaeis guineensis), the talipot palm (Corypha umbraculifera), the sugar palm (Arenga sarcharifera), 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 Areca nut, and the first report of RPW on Areca nut from India. An early action is needed to prevent further spread of the pest in other states of the region and to protect the Areca nut 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 Areca nut plantations. Our finding appears to be the first published report of RPW on Areca nut 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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