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UDONGA MONTANA (DISTANT) (HEMIPTERA: PENTATOMIDAE), AND IT'S SWARMING ON FOREST PLANTS IN SHIVAMOGGA DISTRICT

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ABSTRACT

Occurrence and morphometrics of bamboo sap sucker, *Udonga montana* was studied from different locations of Sagar taluka, Shivamogga district, Karnataka. The variation in size and the horns on either side of the pronotum were evaluated. The survey was done at fortnightly intervals starting from July- September 2014 in three clusters of Ananadapura, Kasaba and Awinahalli. Of the 200 bugs observed, 80.75% adults had no spines or horns, and 7.33% were with horns on both sides of pronotum. Also, there were few adults with horn only either on left or right side of their pronotum (5.92 and 6.00%, respectively). Variation in terms of body length, width and antennal length of horned and hornless were insignificant. Critical observations indicated that bugs were not feeding on any horticulture or agriculture crops.

Key words: *Udonga montana*, occurrence, population variation, morphometrics, body size, spines/ horns on pronotum, pygophore, female terminalia

The occurrence of bamboo sap sucker, *Udonga montana* (Distant) in Shivamogga District, Karnataka was first noticed during July 2014 in three clusters of Ananadapura, Kasaba and Awinahalli of Sagar taluka of Shivamogga district. It was earlier described by Distant (1900) as *Ochrophara montana*, with a comment that "this species is slightly aberrant from the usual form of the genus, by its elongate body, the central lobe about reaching the apex of head, and the more slender scutellum". The genus *Udonga* was erected by Distant (1921) with *Udonga spinidens* Distant as its type species. It is an interesting bug because Distant (1900; 1902) observed variations in the presence of anteriorly directed spine or horn on humeral angles of pronotum; some individuals were with spines either on one (left or right) or both angles while a majority were lacking in this. This interesting observation prompted us to study its occurrence and morphometrics.

MATERIALS AND METHODS

Adults of *U. montana* from three locations were evaluated for their occurrence and variation in size and presence/absence of horns on the pronotum. Survey was carried out at fortnightly intervals from I fortnight of July to II fortnight of September, 2014 in three clusters of Ananadapura, Kasaba and Awinahalli which include villages *viz.*, Kuntagodu, Hosuru, Hosagunda, Ikkeri, Jembegoppa and Waradamula villages. The adults were collected randomly from forest /crop / horticultural plants using insect net in polythene bags, brought to the laboratory, killed with ether and preserved in boxes. From these samples of 200 each were observed randomly to record the horns on pronotum.

RESULTS AND DISCUSSION

Udonga montana is of moderate size, 13 mm long, with colour variable from yellowish brown, darker at places, especially posterior part of pronotum, corium and scutellum; head and anterior sloping part of pronotum slightly paler, antennae slender and pale brown with 4th and 5th antennomeres darker; underneath pale cream, especially underside of head; thoracic sterna darker than abdominal; abdomen with a pair of greyish brown broad band laterally and a very pale median band; spiracles dark brown; in some cases, abdominal sterna with dark patches; and legs pale brown, spotted with black and sparsely setose (Figs. 1, 2).

Head slightly broader than long, coarsely and densely punctuate in the anterior 4/5th, area between ocelli and eyes sparsely punctuate, all punctures dark brown. Eyes black, large, flattish posteriorly; ocelli red, closer to eyes than to each other; mandibular plates broad, obliquely truncate in anterior part, slightly longer

Fig. 1. Abdominal sterna with dark patches

Fig. 3. Truncate in anterior part, slightly longer than clypeus

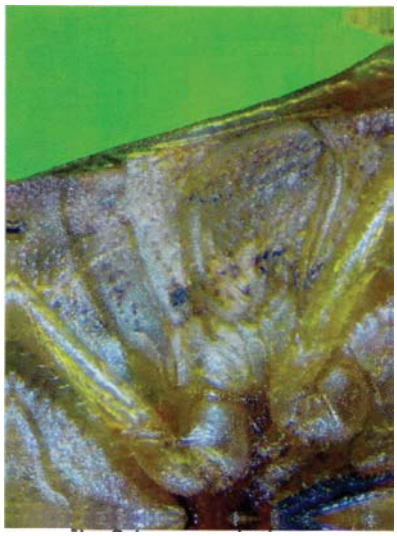

Fig. 2. Legs pale brown, spotted with black and sparsely setose

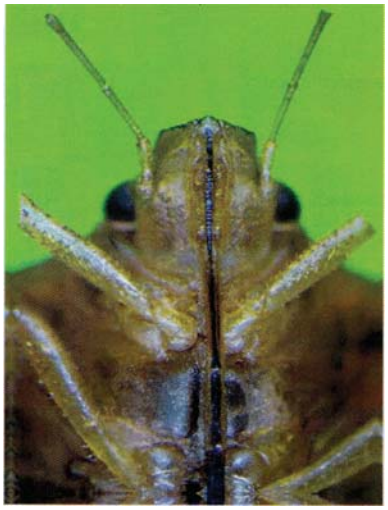

Fig. 4. Bucculae prominent but not reaching the base of head

than clypeus (Fig. 3). Ventral part of head paler, sparsely punctuate; bucculae prominent but not reaching the base of head (Fig. 4). Antennae slender, first joint slightly thick and short, not reaching apex of head, second shorter than third which is longest, fourth and fifth subequal. All antennomeres with fine, short and sparse setae. Labium long, reaching slightly beyond mid coxae, dark brown to black.

Pronotum broader than long, coarsely and densely punctuate, especially in posterior half; calli distinct partly smooth partly with coarse punctations; anterior margin concave to accommodate head, lateral margin crenulate in anterior part more or less smooth in posterior part, anterior angles with laterally directed spiny tubercle, humeral angles sub-prominent. Fig. 1 shows the bug without any spines on humeral angles; spines are present on both angles in some (Fig. 5) on left (Fig. 6) or on right side only (Fig. 7); variations exist. Scutellum long, reaching to the middle of abdomen, slightly convex, its margin gently sinuate and apex blunt. Coloration yellow brown in basal half, with black punctations all over, apical part pale but uniformly dark in some (Fig. 8). Corium mostly dark with pale margin, coarsely punctuated all over. Membrane pale brown or translucent, longer than abdomen, revealing dorsal coloration of abdominal tergites in terminal part, some veins of membrane partly brownish.Thoracic sterna partly dark and pale or uniformly brownish or greyish brown in some.

Fig. 5. Lateral spines are present on both angles

Fig. 6. Spine present on left side

Fig. 7. Spine present on right side

Fig. 8. Coloration of scutellm

Metathoracic scent gland ostiole and peritreme small, evaporatorium not extensive or well marked, whitish in some (Fig. 9). Variation occurs in coloration of abdominal sternites (Fig. 10, 11), while pygophore and female terminalia are as in Fig. 12 and 13, respectively.

Fig 9 Metathoracic scent gland ostiole

The adult bugs congregated in enormous numbers in swarms on trees, and were later on horticulture crops (Table 1). Large congregations resulted in drooping of arecanut fronds and withering of pepper leaves. However, critical observations revealed that the bugs do not feed on any of the forest or crop plants.

The mean number of six collections recorded a maximum of 80.75% adults no spines or horns on their pronotum, while 7.33% showed horns on its both sides; those with horn either left side or left side were 5.92 and 6.00%, respectively (Table 2). There was

Table 1. Occurrence of adults of *Udonga montana* on forest plants and horticultural crops

S. No	Common name	Scientific name	Plant parts covered
	Forest plants		
1	Asna tree	*Terminalia elliptica*	Leaves and branches
2	Gulmohar	*Delonix regia*	Leaves and branches
3	Gliricidia	*Gliricidia sepium*	Leaves and branches
	Crops		
6	Arecanut	*Areca catechu*	Leaves and stem
7	Pepper	*Piper nigrum*	Leaves and stem
8	Banana	*Musa* spp	Leaves
9	Guava	*Psidium guajava*	Leaves and stem
10	Maize	*Zea mays*	Leaves

Fig. 10. Variation in coloration of abdominal sternites

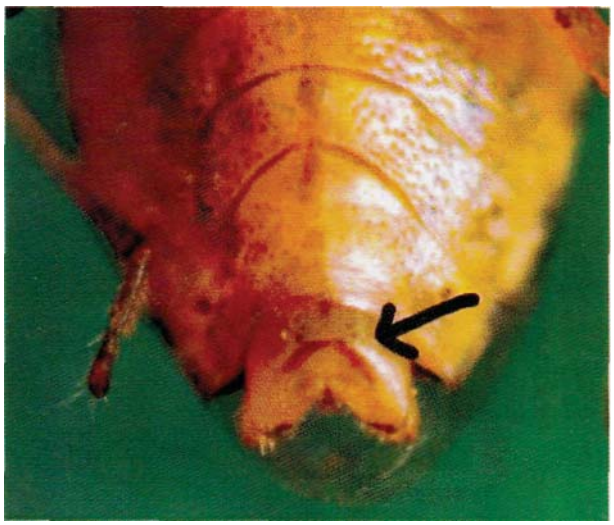

Fig. 12. Ventral view of Pygophore

Fig. 11. Variation in coloration of abdominal sternites

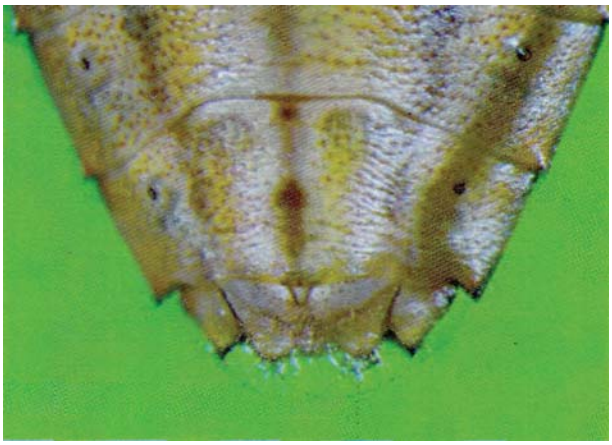

Fig. 13. Ventral view of female terminalia

non significant variation in the length, width, and antennal length of horned/ hornless specimens (Table 3). Bugs were also observed in congregations during July 2012 in Hosamane and Nittur areas of Hosnagar Taluka of Shivamogga district.

Udonga montana had been known to form large swarms amongst forest plants, teak, coffee and pepper from Wayanad, Kerala (Mathew and Sudheendrakumar, 1992; Prakasan *et al*., 1992), Karnataka (Anonymous, 2011), and there are several reports from NE India; most reports mention about bamboo plants being affected and that the bugs feed on seeds. These bugs are also consumed by human beings and even collected and stored for long term use in Assam, Mizoram, Manipur and Tripura (Thakur and Firake, 2012).

Table 2. Morphometrics of adults of *U. montana* vs. variations in pronotum (n=200)

Adult collection	Village	with horns							
		No horns		on both sides		only on left side		only on right side	
		Number	%	Number	%	Number	%	Number	%
I fortnight July 2014	Kuntagodu N14° 07' 16.9" E075° 01' 44.8" 663m	168	84.00	11	5.5	14	7.00	7	3.50
II fortnight of July 2014	Hosuru N14° 06' 34.3" E075° 01' 00.3" 629m	160	80.00	21	10.5	10	5.00	9	4.50
I fortnight of August 2014	Hosagunda N14° 05' 57.4" E075° 09' 08.4" 630m	162	81.00	17	8.50	9	4.50	12	6.00
I fortnight of August 2014	Ikkeri N14° 08' 15.8" E075° 01' 01.9" 613m	161	80.50	15	7.50	14	7.00	10	5.00
I fortnight of September 2014	Jembegoppa N14° 05' 25.1" E075° 08' 51.1" 609 m	160	80.00	11	5.50	13	6.50	16	8.00
II fortnight of September 2014	Waradamula N14° 07' 09.0" E075° 02' 19.3" 663m	158	79.00	13	6.50	11	5.50	18	9.00
Mean ± SD		161.50 ± 3.45	80.75 ± 1.72	14.67 ± 3.88	7.33 ± 1.94	11.83 ± 2.14	5.92 ± 1.07	12.00 ± 4.24	6.00 ± 2.12

Table 3. Morphometrics of body size of *U. Montana vs.* horns on pronotum (n=10)

Hornless on both sides of pronotum	Length *	11.48 mm
	Width	5.49 mm
	Antenna length	4.75 mm
Horns on both sides of pronotum	Length	12.10 mm
	Width	5.20 mm
	Antenna length	4.39 mm
Horn only on left side of pronotum	Length	12.30 mm
	Width	5.22 mm
	Antenna length	4.16 mm
Horn only on right side of pronotum	Length	11.95 mm
	Width	5.03 mm
	Antenna length	4.00 mm

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