

ON A COLLECTION OF LEAFHOPPERS
(CICADELLIDAE HEMIPTERA)
FROM THE SILENT VALLEY

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(With 7 Text-figures)

INTRODUCTION

The present paper deals with the studies on a collection of leafhoppers of Silent Valley collected by Dr. R. S. Pillai, Shri K. R. Rao and parties during the surveys conducted in 1979 and 1980. Lying in the lush green forests of Western Ghats, near Mannarghat of Palghat district of Kerala, Silent Valley constitutes the thickest evergreen tropical forests in the country. Silent Valley which is spread over 8000 hectares is drained by the main river Kuntipuzha which originates at an elevation of 2200 m. in the north and reaches the Mannarghat plains with an average elevation of about 60 m. Area of survey, included grasslands and sholas on valleys and mountain slopes, riverine belts, especially at the areas of proposed dam site which are all of great scenic and aesthetic beauty.

Our knowledge of cicadellid fauna of India is confined to the works of Distant (1908, 1916, 1918) and Pruthi (1936, 1937, 1938), who have worked on the cicadellid fauna of Western Ghats in a general way. No one has however reported so far, any leafhoppers from the Silent Valley.

This paper lists 14 species of Cicadellidae with necessary collection data and taxonomical observations. *Doratulina jacosa* (Melich.) and *Doratulina laetus* (Dist.) are originally recorded from Sri Lanka and they are now reported here for the first time from India. *Doratulina laetus* was originally described by Distant under the genus *Deltocephalus*, but now it is treated in this paper under *Doratulina* by the author.

The classification followed in this paper is after Young (1979) and Oman (1949) who have treated the leafhoppers under a single

family, Cicadellidae, although Metcalf (1962–68) has treated them under the super family Cicadelloidea and considering seventeen different families under it. Metcalf's classification has not found wide acceptance by many workers on cicadellidae.

SYSTEMATIC ACCOUNT

Family : **CICADELLIDAE**

Borthrogonia ferruginea (Fabricious)

Cicada ferruginea Fabricious, 1794, *Ent. syst.* ; 32.

Tettigoniella ferruginea (Fabr.) : Distant, 1908, *Fauna Brit. India*, Rhynchota, 4 : 202 ;
Datta, 1973, *Zool. Anz* ; 191 (5 & 6) : 458.

Borthrogonia ferruginea (Fabr.) : Metcalf, 1965; *General Catalogue of the Homoptera*,
Cicadelloidea, Fasc. vi. i. : 235.

Material : 1 ♂, 1 ♀, Silent Valley, Valiyaparathodu, 22. 1. 80,
Coll. K. R. Rao ; 1 ♀, damsite, Kumatanthodu, Coll. R. S. Pillai.

Distribution : Reported from North India, Assam, Khasi Hills,
Manipur, Burma and Indonesia.

Remarks : The specimens were collected along the river bank
on the grass patches. Vertex with the black spot and face with the
transverse spot seen divided in certain specimens.

Cofana spectra (Distant)

Tettigoniella albida (nec Walker) Signoret, 1853, *Ann. Soc. Ent. Fr.* 21, 3 : 663.

Tettigoniella spectra (Distant), 1908, *Fauna Brit. India*, Rhynchota, 4 : 211 ; new
name for *Tettigella albida* Signorata, 1853 not *Tettigonia albida* Walker 1851.

Tettigella specta (Distant) : Ishihara, 1953, *Matsuyama Agr. Coll. Sci. Rep.* 11 : 16.

Cofana spectra (Distant) : Young, 1979, *Proc. ent. soc. Wash.* 81 (1) : 21.

Material : 2 ♀ ♀, 2 ♂ ♂, Silent Valley, 18. 1. 79, Coll. R. S.
Pillai ; 1 ♂, 1 ♀, along Kuntipuzha, 19. 1. 80, Coll. K. R. Rao.

Distribution : Reported from India, Sri Lanka, Burma, Philip-
pines, Japan, Australia and Africa.

Remarks : These were found hopping from one blade to the
other in the grasslands. Some specimens were observed to have dark
fuscous markings in scutellum at the basal region.

Hecalus porrectus (Walker)

Accocephalus porrectus Walker, 1858, *List. Hom. suppl.* 232.

Thomsoniella porrecta (Walker) : Distant, 1908, *Fauna Brit. India*, Rhynchota, 4 : 278.

Thomsoniella viridis Distant, 1908 : Morrison, 1973. *Pacif. ins.* ; 15 (3-4) : 421.

Thomsoniella albomaculata Distant, 1908 ; Morrison, 1973, *Pacif. ins.* ; 15 (3-4) : 421.

Parabolocratus porrectus (Walker), Distant, 1918 : Morrison, 1973. *Pacif. ins.* ; 15 (3-4) : 421.

Parabolocratus albomaculatus (Distant), 1918 : Morrison, 1973. *Pacif. ins.* ; 15 (3-4) : 421.

Hecalus porrectus (Walker) : Morrison, 1973, *Pacif. ins.* ; 15 (3-4) : 421.

Material : 1 ♂ , Silent Valley, Advance Camp II, 23. 1. 78, Coll. R. S. Pillai, 1 ♂ , 1 ♀ , base Camp 25. 1. 80 Coll. K. R. Rao.

Distribution Widely distributed in the oriental region and occurring in Australia.

Remarks : The species exhibits sexual dimorphism as noted by Morrison (1973) ; the females have been reported as *Porrectus* and males as *albomaculatus* by Rao (1968) and Morrison (1973).

***Hecalus apicalis* (Matsumura)**

Parabolocratus apicalis Matsumura, 1912, *Sapporo Coll. Agi. J.* 282.

Hecalus apicalis (Matsumura) ; Morrison 1973, *Pacif. ins.* ; 15 (3-4) : 424.

Material : 1 ♂ , 1 ♀ , Silent Valley, eastern side of advance Camp II, along a tributary of Kunti river. 26. 1. 79 ; Coll. R. S. Pillai.

Distribution : Reported from Sri Lanka, Raipur from India, Formosa and Lappa islands.

Remarks : Ochraceous facsiae on vertex and pronotum not clearly seen.

***Existianus indicus* (Distant)**

Athysanus indicus (Distant), 1908, *Fauna Brit. India*, (Rhynchota) 4 : 344.

Phyrnomorphus indicus (Distant) : Distant, 1918, *Fauna Brit. India*, Rhynchota 7 : 51 ; Rao, 1973, *Ind. Jour. Ent.*, 35 (4) : 350.

Existianus indicus Oman 1938, 383, equals *Athysanus indicus* Distant : Metcalf 1967. *General Catalogue of the Homoptera*, Cicadelloidea, VI, 10 (1) : 323.

Existianus indicus (Distant) : Metcalf, 1967. *General Catalogue of the Homoptera*, Cicadelloidea, VI, 10 (1) : 322.

Material : 1 ♂ , Silent Valley, Kuntipuzha, 17. 1. 79, Coll. R. S. Pillai ; 1 ♀ , Camp site, 10. 12. 80, Coll. K. R. Rao 1 ♂ , 1 ♀ , along Kuntipuzha, 17. 1. 80, Coll. K. R. Rao.

Distribution : Reported from India, Nepal, China, Formosa, Philippines and Australia.

Remarks : Transverse fascia between the eyes in the specimens are very dark, face with a feeble central black line, but having dark lateral striae.

Existianus fusconervosus (Motsch)

Athysanus fusconervosus Motsch, 1863, *Bull. soc. Nat. Mose* 36 (3) : 97.

Phyrnomorphus fusconervosus (Motsch) : Distant 1918, *Fauna Brit. India*, Rhynchota, 1 : 51.

Existianus fusconervosus Motsch. Oman, 1938 : 383 equals *Athysanus fusconervosus* (Motsch) : Metcalf, 1967, *General Catalogue of the Homoptera, Cicadelloidea*, VI 10 (1) : 321.

Material : 1 ♂, Silent valley, a tributary of Kunti river, eastern side of advance camp II 26. 1. 79, Coll. R. S. Pillai.

Distribution : Recorded from Bombay, Poona, Madras, U. P., Sri Lanka, Philippines, Java, Bali, Lambok, Flores, Palestine.

Remarks : Face with a central black line well visible.

Thamnotettix paraveinatus Singh-Pruthi

Thamnotettix paraveinatus Singh-Pruthi, 1936, *Mem. Indian Mus.* 11 (3) : 117.

Thamnotettix paraveinatus Singh-Pruthi : Metcalf, *General Catalogue of the Homoptera, Cicadelloidea* VI, 10 (1) : 769.

Material : 1 ♀, Silent Valley, 4 km towards north of Valiyaparathodu, 24. 1. 80, Coll. K. R. Rao.

Distribution : It has so far been reported from Kodaikanal, Mysore, Bengal and Sikkim.

Remarks : Metcalf (l.c.) lists the species as available from Madras alone, where as it is reported from other areas also as indicated above.

Nephotettix virescens (Distant)

Solenocephalus virescens Distant, 1908, *Fauna Brit. India*. Rhynchota, 4 : 291.

Nephotettix bipunctatus (Fabr.) Distant, 1908, *Fauna Brit. India*, Rhynchota, 4 : 359.

Nephotettix impliciticeps Ishira, 1964, *Trans. Shikoku ent. Soc.* 8 : 42.

Nephotettix impicticeps Ishihara & Kawase, 1968, *Appl. Ent. Zool.* 3 : 123.

Nephotettix virescens (Distant), Ghauri, 1971, *Bull. Ent. Res.* 60 : 484.

Material : 2 ♂ ♂, Silent Vailey, south Kuntipuzha, 25. 1. 79, Coll. R. S. Pillai ; 1 ♂, 1 ♀, Kuntipuzha, 18. 1. 80 Coll. K. R. Rao.

Distribution : India, Sri Lanka, China, Burma, Hongkong, Vietnam, Indonesia, Laos Malaysia and Indochina.

Remarks : This species and the following species are known to be the vectors for transmitting virus diseases in Rice.

***Nephotettix nigropictus* (Stal)**

Thamnotettix nigropicta Stal, 1870, *Obv. Vet. Ak. Jorth* ; 740.

Nephotettix apicalis sensu Distant, 1908, *Fauna Brit. India*, Rhyngota, 4 : 360.

Nephotettix apicalis sensu, Ishihara, 1964, *Trans. Shikoku ent. Soc.* 8 : 42.

Nephotettix apicalis sensu Ishihara, et Kawase, 1968. *Appl. ent. Zool.* 3 : 123.

Nephotettix nigropictus (Stal) Ghauri, 1971, *Bull. ent. Res.* 60 (3) 491.

Material : 1 ♂, 1 ♀, Silent valley, forest, south of camp, across Kunti river, 24. 1. 79, Coll. R. S. Pillai, 2 ♂ ♂, 1 ♀, Silent Valley, damsite and along the Kuntipuzha, 19. 1. 80. Coll. K. R. Rao ; 1 ♀, Valiyaparathodu, 3. 5. 80, Coll. R. S. Pillai ; 1 ♂, 1 ♀, Kumatanthodu, 7. 12. 80, Coll. R. S. Pillai.

Distribution : Widely distributed through New Guinea, Philippines, China, Laos, Indonesia, Hongkong, Vietnam, Thailand, Malaysia, Burma, Nepal, India, Pakistan and Sri Lanka.

Remarks : Metcalf (1968) provides a long list of synonyms for the species and the earlier species, under the name *Nephotettix apicalis* (de Motschulsky), but here the synonymy for *N. nigropictus* (Stal) is followed after Ghauri (1971).

***Cicadula bipunctata* Singh-Pruthi**

Cicadula bipunctatus Singh Pruthi, 1930, *Mem. Indian. Mus.* 11 : 59.

Cicadula bipunctata Singh Pruthi : Metcalf, 1968, *General Catalogue of the Homoptera*, Cicadelloidea, VI, 10, (2) : 1960.

Material : 2 ♀ ♀, Silent valley, damsite, 25. 1. 80, Coll. K. R. Rao.

Distribution This species has so far been reported from Central and Southern India.

Remarks : This a small species with two distinct tiny spots on the vertex. This species although originally described by Singh Pruthi as *Cicadula bipunctatus*, Metcalf has since changed the species ending to *C. bipunctata* in accordance with the suggestions given by Black Welder and the same is retained here.

Balclutha indica (Singh Pruthi)

Eugnathodes indica Singh Pruthi, 1930, *Mem. Indian Mus.* **11** (1) : 48 ; Mathur, 1953, *Indian Forest leaflet* (Ent.) **121** (3) : 162.

Balclutha indica (Singh Pruthi) : Metcalf 1968 *General Catalogue of the Homoptera, Cicadelloidea*, VI **10** (3) : 2407.

Material : 1 ♂, 1 ♀, Silent valley, Panthanthodu, 13. 12. 80, Coll. R. S. Pillai.

Distribution : It has been recorded from Himalay, Punjab, Madhya Pradesh, Central India and Madras.

Recilia dorsalis (de Motschulsky)

Deltocephalus dorsalis de Motschulsky, 1859, *Etud. Ent.* 114.

Deltocephalus dorsalis (de Motschulsky) Distant, 1908, *Fauna Brit. India, Rhynchota*, **4** : 380.

Inazuma dorsalis (de Motschulsky) : Ishihara, 1953, *Shikoku Trans. Ent. Soc.* **3** : 48.

Inazuma dorsalis (de Motschulsky) : Metcalf 1968. *General Catalogue of the Homoptera, Cicadelloidea*, VI. **10** (2) : 1601.

Material : 1 ♂, 1 ♀, Silent valley, 18. 1. 79. Coll. R. S. Pillai, 2 ♂ ♂, 1 ♀, Silent Valley, Kumatanthodu, 15. 1. 80, Coll. R. S. Pillai.

Distribution : The species enjoys a wide distribution India, Bangladesh, Burma, China, Sri Lanka, Indonesia, Formosa, Japan and Philippines.

Doratulina jacosa Melichar

Doratulina jacosa Melichar, 1903, *Hom. Fauna. Ceylon*, 199.

Doratulina jacosa Melichar : Distant, 1908, *Fauna Brit. India, Rhynchota*, **4** : 393.

Doratulina jacosa Melichar : Singh Pruthi, 1936. *Mem. Indian. Mus.* **11** (3) 110.

Doratulina jacosa Distant : Evans, 1947, *Trans. Ent. Soc. Lond.* **98** : 232.

Doratulina jacosa Melichar : Ishihara, 1954, *Dobuksugaku Zasshi*, **63** : 379.

Doratulina, jacosa Melichar : Metcalf, 1968, *General Catalogue of the Homoptera, Cicadelloidea*, VI, **10** (2) : 1584.

Material 1 ♂, Silent Valley, forest camp, 16. 1. 79 Coll. R. S. Pillai, 1 ♂, 1 ♀, along Kuntipuzha, 17. 1. 80, Coll. K. R. Rao.

Distribution : This species is so far recorded from Sri Lanka, and Japan only. It is therefore recorded from India through Silent Valley for the first time.

***Doratulina laetus* (Melichar) Comb. nov.**

Deltocephalus laetus Melichar, 1908, *Fauna Brit. India*, Rhynchota, 4 : 383.

Deltocephalus laetus Distant ; Metcalf, 1968, *General Catalogue of the Homoptera*, Cicadelloidea. VI, (10) (2) : 1152.

Material : 1 ♂, 1 ♀, Silent Valley, damsite, 31. 1. 80. Coll. K. R. Rao, 1 ♂, Silent Valley extensive grass land 29. 4. 80, Coll. R. S. Pillai.

Distribution : This species is so far recorded from Sri Lanka only. From India, it is reported here for the first time through Silent Valley.

Remarks This species is now placed under *Doratulina* considering the shape of head and genital characters which are described here in detail as Distant's description of the species is not quite adequate.

Vertex : (fig. 1) : Longer than breadth between eyes, sanguineous face (fig. 2) longer than broad ; frons long and fairly raised with dark brown striations on the lateral side : genae and lorae dark brown, the latter not reaching the apex of clypeus.

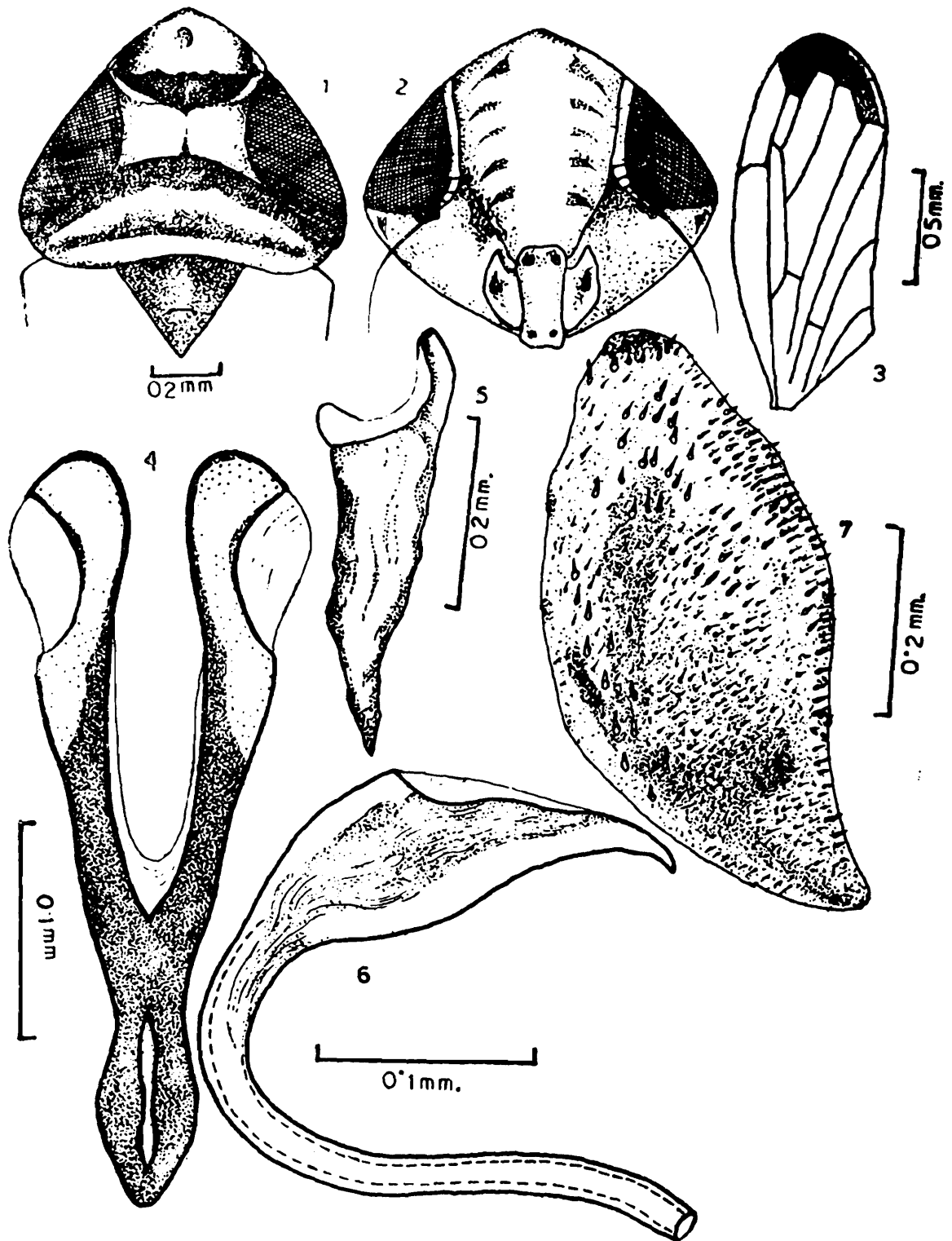
Pronotum : Pale ochraceous, short about one half of vertex, anterior area sanguineous. Scutellum small, about as long as broad and sanguineous.

Tegmen : (Fig. 3) hyaline dirty yellowish brown apical cells in dark suffusions, costal border pale translucent, tegmen not extending to the tip of abdomen.

Abdomen : ochraceous with dark markings above, sterna ventrally sanguineous at the posterior borders.

Male genitalia : Connective (Fig. 4) 'Y' shaped with arms long, slightly divergent, stem short ; styles (Fig. 5) long broad at the cephalad area, narrow and rod like at the caudal region, styles articulating laterally with the connective ; aedeagus (Fig. 6) long styliform, wide at base and curved posterodorsally ; Male plate small subtriangular with a few marginal hair ; Pygofer (Fig. 7) broad flattened with small thin setae at disc and with minute hairs at the margins.

Female genitalia : Valvae concave posteriorly ; Pygofers moderately large ; ovipositor stout, long and protruding beyond the posterior extremity of abdomen.



Doratulina laetus (Melichar)

1. Head and Thorax Dorsal view 2. Head and Thorax Ventral View. 3. Tegment Dorsal View. 4. Connective Dorsal View. 5. Style Dorsal View. 6. Aedeagus lateral view. 7. Pygofer of one side Dorsal View.

SUMMARY

A list of fourteen species of leafhoppers constituting Cicadellid fauna of Silent Valley has been reported here for the first time. Two of them viz. *Doratulina jacosa* (Melich.) and *Doratulina laetus* (Dist.) represent new records for India. The latter species is treated here as a new combination.

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