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Revision of the planthopper tribe Rhotanini (Hemiptera: Auchenorrhyncha: Derbidae)

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Abstract

Species of the tribe Rhotanini Muir (1918) (Hemiptera: Auchenorrhyncha: Derbidae) are found in the humid tropics of southern Asia, Australia, the Pacific and West Africa. In particular, many species are found in the rain forests of Borneo and New Guinea. This tribe has received little attention in the past and we provide a comprehensive taxonomic revision of its species. We recognize the following eight genera: *Alara* Distant, 1911 (= *Mecynorhynchus* Muir), 31 species, *Dichotropis* Muir, 1913, 9 species, *Levu* Kirkaldy, 1906, 34 species, *Muiralevu* Zelazny, 1981 (= *Formolevu* Yang & Wu, **syn. nov.**), 19 species, *Rhotana* Walker, 1857 (= *Genestia* Stål, = *Decora* Bierman), 72 species, *Rhotanella* Fennah, 1970, 8 species, *Saccharodite* Kirkaldy, 1907 (= *Muiralyricen* Metcalf, = *Malpa* Metcalf, = *Genestiella* Fennah), 108 species and *Sumangala* Distant, 1911, 13 species. Maps illustrating the distribution of these 8 genera and tables showing the distribution of each species are provided. A key to the genera is included. Where possible, species within each genus are grouped into species groups and keys are provided for the species within these groups. Keys are also given for the species of a genus found in a given country or larger island. The 116 previously known species of the tribe are reviewed and many are redescribed. We propose the following new combinations or new status: *Rhotana biermani* (Schmidt 1926) **n. comb.**, *Rhotana dammermani* (Schmidt 1926) **n. comb.**, *Rhotana lalage* (Fennah 1969) **n. comb.**, *Saccharodite palauensis* (Fennah 1956) **n. comb.**, *Saccharodite ponapeana* (Fennah 1956) **n. comb.**, *Levu haedulus* (Fennah 1956) **new status**, *Levu lactineus* (Fennah 1956) **new status**, *Levu paganus* (Fennah 1956) **new status**, *Muiralevu exotivus* (Yang & Wu 1993) **n. comb.** and *Muiralevu quadramaculatus* (Muir) **rev. comb.** We also describe the following new species. For *Alara*: *A. anulus* Zelazny **sp. nov.**, *A. armifera* Zelazny **sp. nov.**, *A. armilla* Zelazny **sp. nov.**, *A. cheesmani* Zelazny **sp. nov.**, *A. cultellus* Zelazny **sp. nov.**, *A. frigida* Zelazny **sp. nov.**, *A. lingua* Zelazny **sp. nov.**, *A. linigera* Zelazny **sp. nov.**, *A. rubicunda* Zelazny **sp. nov.** and *A. schmidtii* Zelazny **sp. nov.** from New Guinea and surrounding islands; *A. aquilonia* Zelazny **sp. nov.** and *A. interrupta* Zelazny **sp. nov.** from Laos; *A. australiensis* Zelazny **sp. nov.** from Australia; *A. clava* Zelazny **sp. nov.**, *A. cranstoni* Zelazny **sp. nov.** and *A. regia* Zelazny **sp. nov.** from Borneo; as well as *A. cornigera* Zelazny **sp. nov.** from West Malaysia. For *Dichotropis*: *D. brevis* Zelazny **sp. nov.**, *D. flexuosa* Zelazny **sp. nov.**, *D. maai* Zelazny **sp. nov.**, *D. nivea* Zelazny **sp. nov.**, *D. sedlaceorum* Zelazny **sp. nov.** and *D. sublimis* Zelazny **sp. nov.** from New Guinea; *D. peregrina* Zelazny **sp. nov.** from New Guinea, Borneo and West Malaysia; as well as *D. straatmani* Zelazny **sp. nov.** from New Guinea and the Solomon Isl. For *Levu*: *L. apiatus* Zelazny **sp. nov.**, *L. candidus* Zelazny **sp. nov.**, *L. echinus* Zelazny **sp. nov.**, *L. elmohardyi* Zelazny **sp. nov.**, *L. simplissimus* Zelazny **sp. nov.**, and *L. triangularis* Zelazny **sp. nov.** from

New Guinea; *L. apicalis* Zelazny **sp. nov.** from Laos; *L. confinis* Zelazny **sp. nov.** from Vietnam; *L. erraticus* Zelazny **sp. nov.** from New Guinea and Vanuatu; *L. immaculatus* Zelazny **sp. nov.** and *L. nocturnus* Zelazny **sp. nov.** from Vanuatu; *L. kirkaldyi* Zelazny **sp. nov.**, *L. knighti* Zelazny **sp. nov.**, *L. psittacus* Zelazny **sp. nov.**, *L. pudens* Zelazny **sp. nov.**, *L. rufigena* Zelazny **sp. nov.** and *L. shanahani* Zelazny **sp. nov.** from the Solomon Isl.; as well as *L. kraussi* Zelazny **sp. nov.** from Tonga. For *Muiralevu*: *M. cavernae* Zelazny **sp. nov.**, *M. coniunctus* Zelazny **sp. nov.**, *M. parvus* Zelazny **sp. nov.**, *M. rufomarginatus* Zelazny **sp. nov.** and *M. silvestris* Zelazny **sp. nov.** from Borneo; *M. dimidius* Zelazny **sp. nov.**, *M. ignavus* Zelazny **sp. nov.**, *M. maestus* Zelazny **sp. nov.**, *M. reticulatus* Zelazny **sp. nov.**, and *M. telum* Zelazny **sp. nov.** from West Malaysia; *M. medleri* Zelazny **sp. nov.** from Nigeria; *M. septemspinus* Zelazny **sp. nov.** from the Ivory Coast and Nigeria; as well as *M. vetus* Zelazny **sp. nov.** from Java. For *Rhotana*: *R. aequa* Zelazny **sp. nov.**, *R. dentata* Zelazny **sp. nov.**, *R. dextra* Zelazny **sp. nov.**, *R. fordii* Zelazny **sp. nov.**, *R. globosa* Zelazny **sp. nov.**, *R. gracilis* Zelazny **sp. nov.**, *R. luteola* Zelazny **sp. nov.**, *R. melichari* Zelazny **sp. nov.**, *R. novahiberniensis* Zelazny **sp. nov.**, *R. panthera* Zelazny **sp. nov.**, *R. papuensis* Zelazny **sp. nov.**, *R. rubifasciata* Zelazny **sp. nov.**, *R. sectator* Zelazny **sp. nov.**, *R. similis* Zelazny **sp. nov.**, *R. triplex* Zelazny **sp. nov.** and *R. unca* Zelazny **sp. nov.** from New Guinea and neighbouring islands; *R. aperta* Zelazny **sp. nov.**, *R. crassa* Zelazny **sp. nov.**, *R. cribraria* Zelazny **sp. nov.**, *R. fera* Zelazny **sp. nov.**, *R. hirashimai* Zelazny **sp. nov.**, *R. holtmanni* Zelazny **sp. nov.**, *R. kuncheriai* Zelazny **sp. nov.**, *R. magna* Zelazny **sp. nov.**, *R. pacata* Zelazny **sp. nov.**, *R. reticulata* Zelazny **sp. nov.**, *R. sabaea* Zelazny **sp. nov.**, *R. suttoni* Zelazny **sp. nov.** and *R. truncata* Zelazny **sp. nov.** from Borneo; *R. argus* Zelazny **sp. nov.**, *R. brendelli* Zelazny **sp. nov.** and *R. wallacei* Zelazny **sp. nov.** from Sulawesi; *R. deminuta* Zelazny **sp. nov.** from New Caledonia; *R. dohertyi* Zelazny **sp. nov.** from India; *R. gressittorum* Zelazny **sp. nov.** and *R. mendax* Zelazny **sp. nov.** from Australia; *R. jacobsoni* Zelazny **sp. nov.** from Sumatra and West Malaysia; *R. miles* Zelazny **sp. nov.** from Borneo and the Philippines; *R. ramosa* Zelazny **sp. nov.** from Sumatra; *R. spenceri* Zelazny **sp. nov.** from Vietnam; *R. stali* Zelazny **sp. nov.** from Sri Lanka; as well as *R. tridentata* Zelazny **sp. nov.** from Borneo and West Malaysia. For *Rhotanella*: *Rh. bipunctata* Zelazny **sp. nov.** from Sulawesi; as well as *Rh. cyclops* Zelazny **sp. nov.** and *Rh. sophiae* Zelazny **sp. nov.** from New Guinea. For *Saccharodite*: *Sa. abnormis* Zelazny **sp. nov.**, *Sa. aculeata* Zelazny **sp. nov.**, *Sa. affinis* Zelazny **sp. nov.**, *Sa. aquila* Zelazny **sp. nov.**, *Sa. aurora* Zelazny **sp. nov.**, *Sa. bakeri* Zelazny **sp. nov.**, *Sa. bos* Zelazny **sp. nov.**, *Sa. carens* Zelazny **sp. nov.**, *Sa. cervetta* Zelazny **sp. nov.**, *Sa. colorata* Zelazny **sp. nov.**, *Sa. costa* Zelazny **sp. nov.**, *Sa. eburnea* Zelazny **sp. nov.**, *Sa. foliata* Zelazny **sp. nov.**, *Sa. hollowayi* Zelazny **sp. nov.**, *Sa. ignea* Zelazny **sp. nov.**, *Sa. lamina* Zelazny **sp. nov.**, *Sa. lata* Zelazny **sp. nov.**, *Sa. lucifera* Zelazny **sp. nov.**, *Sa. lugubris* Zelazny **sp. nov.**, *Sa. mappa* Zelazny **sp. nov.**, *Sa. perlucida* Zelazny **sp. nov.**, *Sa. plurima* Zelazny **sp. nov.**, *Sa. propinqua* Zelazny **sp. nov.**, *Sa. rufa* Zelazny **sp. nov.**, *Sa. saucia* Zelazny **sp. nov.**, *Sa. scissa* Zelazny **sp. nov.**, *Sa. timida* Zelazny **sp. nov.**, *Sa. tricuspis* Zelazny **sp. nov.**, and *Sa. virgula* Zelazny **sp. nov.** from Borneo; *Sa. altissima* Zelazny **sp. nov.**, *Sa. aucta* Zelazny **sp. nov.**, *Sa. conducta* Zelazny **sp. nov.**, *Sa. egregia* Zelazny **sp. nov.**, *Sa. extraria* Zelazny **sp. nov.**, *Sa. fasciata* Zelazny **sp. nov.**, *Sa. media* Zelazny **sp. nov.**, *Sa. minuscula* Zelazny **sp. nov.**, *Sa. modesta* Zelazny **sp. nov.**, *Sa. montana* Zelazny **sp. nov.**, *Sa. nanus* Zelazny **sp. nov.**, *Sa. nervosa* Zelazny **sp. nov.**, *Sa. nigra* Zelazny **sp. nov.**, *Sa. nishidai* Zelazny **sp. nov.**, *Sa. picta* Zelazny **sp. nov.**, *Sa. pirum* Zelazny **sp. nov.**, *Sa. pulla* Zelazny **sp. nov.**, *Sa. punctata* Zelazny **sp. nov.**, *Sa. rosea* Zelazny **sp. nov.**, *Sa. solitaria* Zelazny **sp. nov.**, and *Sa. variabilis* Zelazny **sp. nov.** from New Guinea and neighbouring islands; *Sa. chinensis* Zelazny **sp. nov.** from South China; *Sa. crispa* Zelazny **sp. nov.**, *Sa. gagnei* Zelazny **sp. nov.**, *Sa. ligata* Zelazny **sp. nov.** and *Sa. teres* Zelazny **sp. nov.** from New Caledonia; *Sa. cruenta* Zelazny **sp. nov.** from Borneo, Sumatra and Thailand; *Sa. dionaea* Zelazny **sp. nov.**, *Sa. insulana* Zelazny **sp. nov.**, *Sa. obrieni* Zelazny **sp. nov.**, *Sa. purpurea* Zelazny **sp. nov.**, and *Sa. rubilineata* Zelazny **sp. nov.** from the Solomon Islands; *Sa. doddi* Zelazny **sp. nov.** from Australia; *Sa. indochinensis* Zelazny **sp. nov.** from Laos; *Sa. joycei* Zelazny **sp. nov.** from Fiji; *Sa. longuida* Zelazny **sp. nov.** from West Malaysia; *Sa. rostrata* Zelazny **sp. nov.** from Borneo and Sumatra; *Sa. satyrus* Zelazny **sp. nov.** from Sumatra; *Sa. securifera* Zelazny **sp. nov.** from Borneo, Sumatra and West Malaysia; *Sa. siamensis* Zelazny **sp. nov.** from Thailand; *Sa. vietnamensis* Zelazny **sp. nov.** from Vietnam; *Sa. viperina* Zelazny **sp. nov.** from Borneo and West Malaysia; as well as *Sa. vitrea* Zelazny **sp. nov.** from New Guinea and the Solomon Islands. For *Sumangala*: *Su. badia* Zelazny **sp. nov.**, *Su. distanti* Zelazny **sp. nov.**, *Su. nubila* Zelazny **sp. nov.**, and *Su. tenebrosa* Zelazny **sp. nov.**, from Borneo; as well as *Su. indica* Zelazny **sp. nov.** from India. The brings the total species recognized in the tribe to 294. A neotype has been assigned for *Genestia vitriceps* Stål, 1858, now *Rhotana vitriceps* (Stål) and lectotypes have been designated for the following species: *Alara dux* Distant, 1911, *Decora dammermani* Schmidt, 1926 (now *R. dammermani*), *Dichotropis amboinensis* Muir, 1913, *Levu africana* Muir, 1926 (now *M. africanus*), *L. amboinensis* Muir, 1913, *L. laratica* Muir, 1913 (now *Sa. laratica*), *L. matsumurae* Muir, 1915 (now *Sa. matsumurae*), *L. quadramaculata* Muir, 1915 (now *M. quadramaculatus*), *L. rubra* Muir, 1913 (now *Sa. rubra*), *L. samoensis* Muir, 1927, *L. vitiensis* Kirkaldy, 1906, *Mecynorhynchus fuscus* Muir, 1915 (now *A. fusca*), *Me. hyalinus* Muir, 1915 (now *Su. nigropunctata*), *Me. obscurus* Muir, 1915 (now *A. obscura*), *Rhotana albata* Melichar, 1903, *R. chrysonoe* Kirkaldy, 1906 (now *Sa. chrysonoe*), *R. formosana* Matsumura, 1914, *R. fuscofasciata* Distant, 1906, *R. haematoneura* Kirkaldy, 1906, *R. halosydne* Kirkaldy, 1907 (now *L. halosydne*), *R. kagoshimana* Matsumura, 1914 (now *Sa. kagoshimana*), *R. latipennis* Walker, 1857, *R. opalina* Distant, 1907 (now *Sa. chrysonoe*), *R. quadrimaculata* Distant, 1907, *R. ramentosa* Distant, 1907, *R. septemmaculata* Distant, 1907, *R. transversa* Distant, 1907 (now *Sa. chrysonoe*), *R. unimaculata* Muir, 1914 (now *R. maculata*), *R. venosa* Distant, 1906, and *Sumangala delicatula* Distant, 1911.

Key words: Taxonomy, *Alara*, *Dichotropis*, *Levu*, *Muiralevu*, *Rhotana*, *Rhotanella*, *Saccharodite*, *Sumangala*