



A new species of *Nanophyllium* Redtenbacher, 1906 from the northern coast of New Guinea (Phasmida, Phylliidae)

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A new species of leaf insect, *Nanophyllium stellae* n. sp. is described and illustrated. As for the majority of the current taxa of *Nanophyllium* Redtenbacher, 1906, the new species is named from a single male specimen, as no other specimens are currently known to exist. A key to the current species of *Nanophyllium* Redtenbacher, 1906 is provided. The holotype was photographed using a Canon 5D Mark II and a MP-E 65mm macro lens and will be deposited in the San Diego Natural History Museum. Photos were stacked using Zerene photo stacking software, version 1.04, 64-bit. Measurements of anatomical figures were made to the nearest 0.1 mm. Currently, only four species of *Nanophyllium* Redtenbacher, 1906 have been described, all from males, with *N. stellae* n. sp. marking the fifth species. To date, there have been no females described, save one possible *N. hasenpuschi* Brock & Grösser, 2008 specimen illustrated from Nabire, Irian Jaya (Brock & Hasenpusch, 2003).

Differentiation. The dark coloration and small body size clearly place *Nanophyllium stellae* n. sp. in the genus *Nanophyllium* Redtenbacher, 1906. *N. stellae* n. sp. is the largest species in the genus with a body length of 39.9 mm. The genus has a rather small range found primarily on New Guinea with a single additional record from the eastern coast of Australia (Rentz, 1988). *Nanophyllium stellae* n. sp. is only known from a single male from Cyclop Mountains to the west of Jayapura and north of Lake Sentani and is here differentiated from the other species in the genus.

Nanophyllium stellae n. sp. (Figure 1A–B)

Holotype, ♂: Indonesia, Irian Jaya (Jayapura), Cyclop Mts. 25–29. XII. 2009 (S 2°32', E 140°28') [Coll.RC 16–130]. Collected by Viktor Sinjaev. Purchased by the author from Anton Kozlov of Russia.

Description. The description of coloration is based upon the dead dried specimen, however based upon other photographs of the genus *Nanophyllium* Redtenbacher, 1909; it is assumed the coloration has not changed drastically since death. Dark wings and a wide abdomen (maximum width 11mm) are notable characteristics. Profemora, mesofemora, and metafemora all with large rounded disk-like interior and exterior lobes help to characterize this species.

Coloration. Overall body coloration a dark brown save for a pale stripe running the length of the medial sagittal plane from the anterior of the head capsule to the mesothorax. A similar colored stripe can be found on the ventral surface running from the prosternum to the anterior of the metasternum. Tegmina of a similar dark brown as the body. Alae a slightly lighter brown than the body and relatively transparent. Antennae darker brown than the overall body coloration and similar to the dark brown on the head capsule. Granulation on the body generally has a lighter color than the surface it is found on. The tarsi on each leg has a slightly green coloration versus the overall brown coloration found throughout.

Morphology. Head capsule as long as wide (length-width ratio 1:1). Vertex irregularly granulose with the majority near the posterior, including the posteromedian and clear protuberances near the compound eyes and posterior to the antennal field. Compound eyes protruding and ovular, three well developed yellow ocelli are present as well in the center of the head. Antennae long and slender with segments rectangular in shape, covered in setae each as long as the segments are wide. Antennae contain twenty-one segments (including the scapus and pedicellus) with each segment of segments XI–XIX twice as long as each segment from III–X. Pronotum as wide as long with rather parallel lateral margins, a concave anterior and a convex posterior. Surface slightly granular, more so near the pale stripe running along the medial sagittal plane. Prosternum irregularly granulose but with granules of relatively even size. Mesopraescutum wider than long (length-width ration 1:1.3) gradually narrowing towards the posterior. Lateral margins of mesopraescutum are a granular surface that is not quite developed enough to represent spiniform tubercles, anterior end

slightly more granular. Surface slightly granular and only slightly raised along the medial sagittal plane. Mesopleurae only gradually diverging, armed with a single spiniform tubercle on the anterior edge. Surface of mesopleurae are marked slightly with irregular granules and pits of varying sizes. Ventral aspect of mesosternum entire surface covered in irregularly spaced granules. Slightly larger granules located along the medial sagittal plane. Tegmina (length 6.2 mm, maximum width 2.9 mm) very small not even extending to the posterior of the metathorax. Alae (length 28.4 mm), well developed, oval fan configuration. Exposed section of folded alae only slightly sclerotized. Abdominal segment II tapering, III gradually widening, IV strongly angled with a natural fold onto the dorsal surface, V the widest segment, V–VII gradually tapering, VIII with parallel sides, IX tapering towards apex, X slightly widening towards the apex. Anal segment longer than wide, with a rounded apex. Genitalia, poculum broad and starting halfway through abdominal segment VIII and ending in a broad rounded apex that reaches the anterior of segment X. Cercus long and slender with slightly wider posterior, overall shovel-shaped with sides curled in more so on the anterior end. Vomer long and broad with sides gradually converging. Profemora with large rounded interior and exterior lobes. Exterior lobe almost at a right angle and wider than interior. Interior lobe with three small underdeveloped points. Protibiae lacking an exterior lobe, interior lobe roundly triangular spanning the entire length of the protibia. Mesofemora: exterior lobe gently rounded, interior lobe strongly rounded, smooth, and twice as wide as exterior lobe. Interior and exterior lobe of metafemora gently rounded with interior lobe wider. Mesotibiae and metatibiae lacking lobes.

Measurements [mm]: Length of body 39.9, length/width of head 2.4/2.4, length of pronotum 2.1, length of mesonotum 2.0, length of tegmina 6.2, greatest width of tegmina 2.9, length of alae 28.4, greatest width of abdomen 11.0, length of profemora 7.6, length of mesofemora 7.0, length of metafemora 8.0, length of protibiae 4.1, length of mesotibiae 5.5, length of metatibiae 7.3, length of protarsi 4.2, length of antennae 19.6.

Etymology. The new species is named in honor of Stella Williams, a passionate entomologist from King City, California, United States, with a proposed vernacular name of Stella's Leaf-insect.

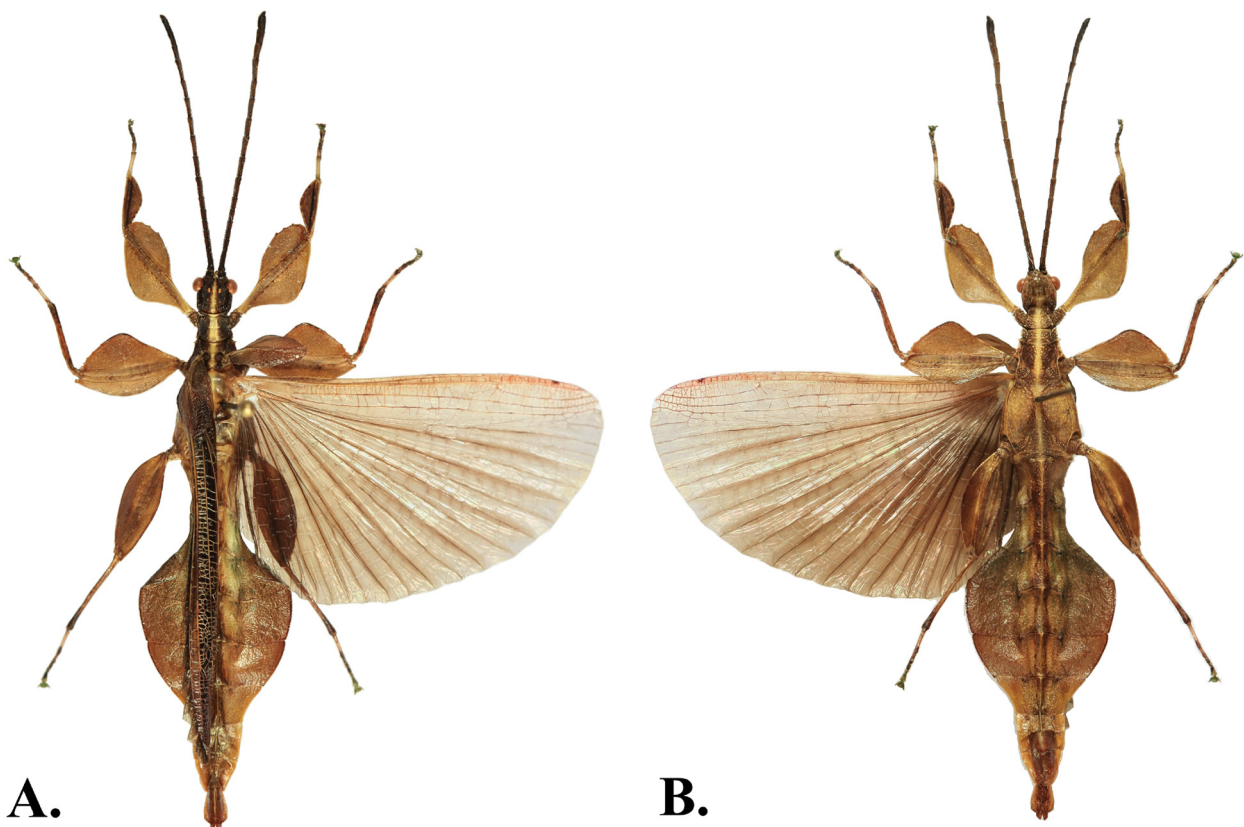


FIGURE 1. Male holotype of *Nanophyllum stellae* n. sp., **A:** Dorsal view; **B:** ventral view.

Key to the males of the genus *Nanophyllium* Redtenbacher, 1906*

1. Alae completely brown 2.
 - Alae mostly clear or entirely clear of color 5.
 2. Profemoral lobes angular in overall shape 3.
 - Pro-, meso-, & metafemora rounded and smooth (Irian Jaya, Jayapura) *N. stellae* n. sp.
 3. Outer lobe of profemur not notably larger than inner 4.
 - Outer lobe of profemur notably larger than inner (N. Guinea) *N. adisi* Zompro & Grösser, 2003
 4. Outer and inner lobe of profemur more or less equal in size (N. Guinea, Katau) *N. pygmaeum* Redtenbacher, 1906
 - Outer lobe of profemur notably smaller than inner (Australia, Iron Range) "*N. pygmaeum*" Redtenbacher, 1906**
 5. Alae nearly completely colorless/transparent (Irian Jaya, Fak Fak) *N. rentzi* Brock & Grösser, 2008
 - Alae brown, with a white center (Irian Jaya, Nabire) *N. hasenpuschi* Brock & Grösser, 2008
- * Adapted from Grösser (2008).
- ** The Australian *Nanophyllium* specimen collected by Rentz, as a nymph in 1986 is included in this key as a variation of *N. pygmaeum* Redtenbacher, 1906 because of the notable morphological and geographical differences between the two records (Rentz, 1988).

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