

Faunitaxys

*Revue de Faunistique, Taxonomie et Systématique
morphologique et moléculaire*



Volume 7
Numéro 13

Septembre 2019

ISSN: 2269 - 6016
Dépôt légal: Septembre 2019

Faunitaxys

*Revue de Faunistique, Taxonomie et Systématique
morphologique et moléculaire*

ZooBank : <http://zoobank.org/79A36B2E-F645-4F9A-AE2B-ED32CE6771CC>

Directeur de la publication, rédacteur, conception graphique et PAO:

Lionel Delaunay

Cette revue ne peut pas être vendue
Elle est distribuée par échange aux institutions (version papier)
et sur simple demande aux particuliers (format PDF)
à l'adresse suivante:

AFCFF
28, rue Voltaire, F- 42100 Saint Etienne
E-mail: lionel.delaunay@free.fr

Elle est disponible librement au téléchargement à partir du site:

<http://faunitaxys.fr/>

La parution de *Faunitaxys* est apériodique

Impression
SARL SPEED COPIE, 6, rue Tréfilerie, F- 42100 Saint-Etienne
speedcopie@wanadoo.fr

Imprimé le 20 septembre 2019

A new leaf insect from Obi Island (Wallacea, Indonesia) and description of a new subgenus within *Phyllium* Illiger, 1798 (Phasmatodea: Phylliidae: Phylliinae)

ROYCE T. CUMMING (1), STEPHANE LE TIRANT (2) & FRANK H. HENNEMANN (3)

(1) Entomology Department, San Diego Natural History Museum, POB 121390, Balboa Park, San Diego, California, United States, 92112-1390. Associate researcher for the Montréal Insectarium, Québec, Canada; H1X 2B2 - phylliidae.walkingleaf@gmail.com
- ZooBank : <http://zoobank.org/6CA8501F-10BA-4E07-9BF4-65CFCE4E9E92>

(2) Collection manager, Montréal Insectarium, 4581 rue Sherbrooke, Montréal, Québec, Canada, H1X 2B2 - sletirant@ville.montreal.qc.ca
- ZooBank : <http://zoobank.org/A9391F8A-15D7-4D3B-9E3F-7123BA27EA2E>

(3) Tannenwaldallee 53, 61348 Bad Homburg, Germany- hennemann@phasmatodea.com
- ZooBank : <http://zoobank.org/651FCCFA-271B-48A3-A58E-A30FDC739493>

Keywords:

Phasmatodea ; description ;
Phasmida ; new subgenus ;
Phylliidae ; new species ;
Phylliini ; distribution ;
Phyllium ; biogeography.
Wallacea ;
Indonesia ;
Obi Island ;
Comptaphyllum ;
regina ;

Abstract. – A large species of leaf insect from Obi Island, Indonesia is here described as *Phyllium regina* n. sp. which is currently only known from a single female specimen. With the description of this new species, and review of its closest relatives, *Phyllium caudatum* Redtenbacher, 1906 and *Phyllium riedeli* Kamp & Hennemann, 2014, these species share a unique set of characteristics that sets them apart from all other Phylliidae. We here transfer these three species from the *siccifolium* species group of *Phyllium* (*Phyllium*) as defined by Hennemann et al. (2009) into their own subgenus *Phyllium* (*Comptaphyllum*) **subgen. nov.**, based on the below discussed characteristics. In addition to the description of the new species and subgenus, the unknown male *Phyllium riedeli* morphology is here described. To conclude, a distribution map for the three species is presented, as well as a morphological key to the three species.

Cumming R. T., Le Tirant S. & Hennemann F. H., 2019. – A new leaf insect from Obi Island (Wallacea, Indonesia) and description of a new subgenus within *Phyllium* Illiger, 1798 (Phasmatodea: Phylliidae: Phylliinae). *Faunitaxys*, 7(13) : 1 – 9.

ZooBank : <http://zoobank.org/576FD843-120A-49C3-B582-38BAB25C8D1C>

Introduction

The Phylliidae (leaf insects, walking leaves, etc.) are a cryptic group of flat bodied phasmids which resemble leaves and are geographically restricted to western Melanesia and northern Australia. They are a group which has undergone numerous new species descriptions in the last few decades (Brock, et al., 2019). Recent work by Cumming, Le Tirant, and Hennemann (2019) reviewed the species of *Phyllium* Illiger, 1798 within the Wallacea bioregion which included a discussion on the lines of faunal balance within this region as they pertain to the *Phyllium*. Shortly after the publication of this Wallacea specific work, the authors located yet another Wallacea endemic species, below described as *Phyllium* (*Comptaphyllum*) *regina* n. sp. known from Obi Island Indonesia, the first species of *Phyllium* recorded from this island. As predicted in the 2019 Wallacea work, this complex region readily yielded yet another beautiful undescribed *Phyllium* taxon and the authors are confident of still yet undescribed species within the region which are still in need of examination and formal classification.

Materials and Methods

The male *Phyllium riedeli* was photographed by Danny Burk (USA: Indiana) using a Canon 5dsr with a Canon 65mm 1-5X macro lens and a Canon ring flash.

The holotype *Phyllium riedeli* was photographed by Thomas Van De Kamp (SMNK), with a Canon EOS 50D camera equipped with a Tamron AF 90mm 2.8 Di Macro 1:1 SP lens

and a Canon Macro Twin Lite MT-24EX flash.

Photographs of the holotype *Phyllium regina* n. sp. were taken by Mercedes Paris (MNCN) using a Nikon D-700 camera with a Nikon objective AF-S VR Micro-Nikkor 105mm f/2.8G IF-ED lens. For taking and stack the images a Helicon Remote and Helicon Focus software were used.

The holotype specimen is deposited within the Museo Nacional de Ciencias Naturales collection in Madrid, Spain (MNCN).

Photographs of specimens within the Frank Hennemann personal collection were taken by himself using a Nikon D7000 camera equipped with a Nikon DX AF-S Micro 40mm lens and a wireless Nikon SU-800 dual speed light system. Background lightning was provided by a 18W 6000K LED panel light plate. Measurements of specimens were taken using digital calipers and are given to the nearest 0.1 mm.

Abbreviations

- **BYU**: Monte L. Bean Life Science Museum, Brigham Young University, Provo, Utah / U.S.A.
- **LACM**: Los Angeles County Natural History Museum, Los Angeles / U.S.A.
- **MNCN**: Museo Nacional de Ciencias Naturales, Madrid / Spain.
- **MNHU**: Museum für Naturkunde der Humboldt-Universität, Berlin / Germany.
- **NHMW**: Naturhistorisches Museum Wien, Vienna / Austria.
- **SMNK**: Staatliches Museum für Naturkunde, Karlsruhe / Germany.
- **SMTD**: Staatliches Museum für Tierkunde, Dresden / Germany.
- **FH**: Private collection of Frank H. Hennemann / Germany.
- **RC**: Private collection of Royce T. Cumming / U.S.A.
- **SLT**: Private collection of Stéphane Le Tirant / Canada.

Treatment of Species

Phyllium (Comptaphyllium) subgen. nov. Cumming, Le Tirant & Hennemann

ZooBank : <http://zoobank.org/CC33087F-5E21-4E35-A23A-49B77B6E4062>

Type species: *Phyllium caudatum* Redtenbacher, 1906: 177.

Etymology. – Adjectival, meaning the decorated leaves. From Latin “compta” = adorned/decorated + “phyllium” = leaf in Greek. This new subgenus is neuter in gender like *Phyllium*, the genus it is within. We chose this name because of the numerous spines/nodes throughout the surface of the head and thorax of these species which are all uniformly situated giving them a beautiful decorated appearance.

Discussion / Differentiation. – This new subgenus is here confined to three known species, all from East of Weber’s line of faunal balance (see Cumming, Le Tirant & Hennemann, 2019 for discussion of the biogeographic lines of Wallacea in relation to the Phylliidae).

The combination of morphological features which define this new subgenus are here listed as such:

Males & females. – Protibial interior lobe not reaching from end to end of the shaft, only restricted to the proximal half to two-thirds but never more; a *head capsule* with clearly defined nodes arranged in evenly spaced patterns; anterior rim of the *mesopraescutum* with a large prominent spine, *prosternum* with a prominent swelling with a granular surface (Arrow Fig. 13).

Males (male *Ph. regina* n. sp. unknown). – *Abdomen* long and narrow (only about 30% as wide as long); *mesopleurae* with five well defined spines; *tegmina* short, only reaching the anterior margin of abdominal segment III.

Females. – Females with *antennae* which are long and slender (apical antennomere IX as long as or longer than the preceding three segments combined); *alae* which are small but present (5-10 mm in length); *mesopleurae* which have four of five short rounded tubercles; terminal segments of the abdomen always significantly tapered more than the preceding segments giving the abdomen a clear spade shaped appearance.

Eggs. – With long frill like pinnae along the lateral margins; operculum with a medial row of pinnae along the sagittal plane, not pinnae encircling the margin of the operculum.

Phyllium (Comptaphyllium) caudatum Redtenbacher, 1906

(Fig. 2, 5-6, 16-17, 20-23)

Distribution.

“NEW GUINEA” [type-locality - NHMW, No. 23.311]. PAPUA NEW GUINEA:

– Eastern Highlands Province, Crater Mountain Research Area, Herowana Village, July 15th-19th, 2001, leg. Bradler, Jarvis, & Svenson [BYU].

– Eastern Highlands Province, Ubaigubi, 20mi S Goroka, 6° 29’S, 145° 11’E, VI-1986, G. Dodge [LACM].

– Morobe Province, Menyama District, Aseki Rural [MNHU, coll. RC].

– Morobe Province, Menyama District, Aseki, Winingi [coll. FH].

– Morobe Province, Ramunga, Osela [coll. FH].

– Gulf Province, Ivimka camp, Lakekamu Basin, 07.73 S 146.76 E, 110-200m, 6-10 Nov. 1996, Coll. R. R. Snelling [LACM].

Discussion. – This species is here removed from *Phyllium* (*Phyllium*) and designated as the type species for this new

subgenus, as it was the first species described from within the new subgenus (described over 100 years ago by Redtenbacher). *Phyllium caudatum* is also the most common species of the three within the new subgenus, with many dried specimens offered for sale each year as well as having recently entered the phasmid breeding enthusiast community (see Figs. 20-23 for photos of live *Ph. caudatum* bred in Switzerland by Bruno Kneubühler).

Examination of the females from New Britain (“Neu-Pommern”) as stated to be *Ph. caudatum* by Günther (1932: 755, 763) are obviously a different species. Günther (1933: 152) also recorded *Ph. caudatum* from the Admiralty Islands (Lou) and New Britain (Kariei) but the descriptions of both specimens suggest these are also not *Ph. caudatum* but a different species. Just as for the two aforementioned females from “Neu-Pommern” the lobed abdominal segments VII and VIII described for these latter two specimens rather resemble e.g. *Phyllium elegans* Größer, 1991, a species originally described from New Guinea but also known to occur in New Britain. Examination of the male from Bougainville, Solomon Islands in MNHU and recorded by Günther (1932: 763) shows this is obviously another different species, having a much broader and angular abdomen with segments V and VI almost parallel-sided. All these specimens key out to the *siccifolium* species group of *Phyllium* (*Phyllium*) and do not belong within the *Comptaphyllium subgen. nov.* newly described here. The exact identities will be subject to forthcoming works on New Guinean Phylliidae by the authors. Consequently, all these localities can be regarded as erroneous for *Ph. caudatum*, which according to present knowledge is a New Guinean endemic. Klante (1976: 72) wrongly reproduced these non-New Guinean localities for *Ph. caudatum* and provided measurements for some of the specimens.

Phyllium (Comptaphyllium) riedeli Kamp & Hennemann, 2014

(Fig. 1, 4, 7-9, 18-19)

Holotype, ♀: Indonesia: Irian Jaya, Papua Province, (S03 57.161’ E138 57.357’) 1,875m [SMNK].

– 1 ex. ♂: Indonesia, Dabra, Buare River, 3°18’S 138°43’E, 5-16/1/2001 [coll. RC 17-004]. Collected by Viktor Sinjaev (Russia).

Discussion. – This small species (female HT 56.3 mm, male here described 53.0 mm), is the smallest member of the new subgenus (only slightly more than half the length of *Phyllium regina* n. sp.) and is currently only known from the Indonesian side of the island of New Guinea.

Differentiation.

From *Phyllium caudatum*: it has a less granulose head and pronotum in size, but with more prominent serration on the interior lobes of the pro-, meso-, and metafemora. Also, overall body size is smaller than *Ph. caudatum* (*Ph. riedeli* at 53.0 mm and *Ph. caudatum* males ranging 61.8- 63.0mm).

The male *Ph. regina* n. sp. is currently unknown, but based on the size of the holotype female (at 102.7 mm long) the male *Ph. regina* n. sp. must be a rather large insect, and based on the size ratio of male to female size from *Phyllium caudatum* and *Phyllium riedeli*, the male *Phyllium regina* n. sp. could be as large as 75.6 to 96.6 mm in length (Table 1).

Morphology

Coloration. – Overall body coloration a pale mint green with several light brown inconspicuous markings. These markings are most notable on the serration of the profemora as well as the protibiae and

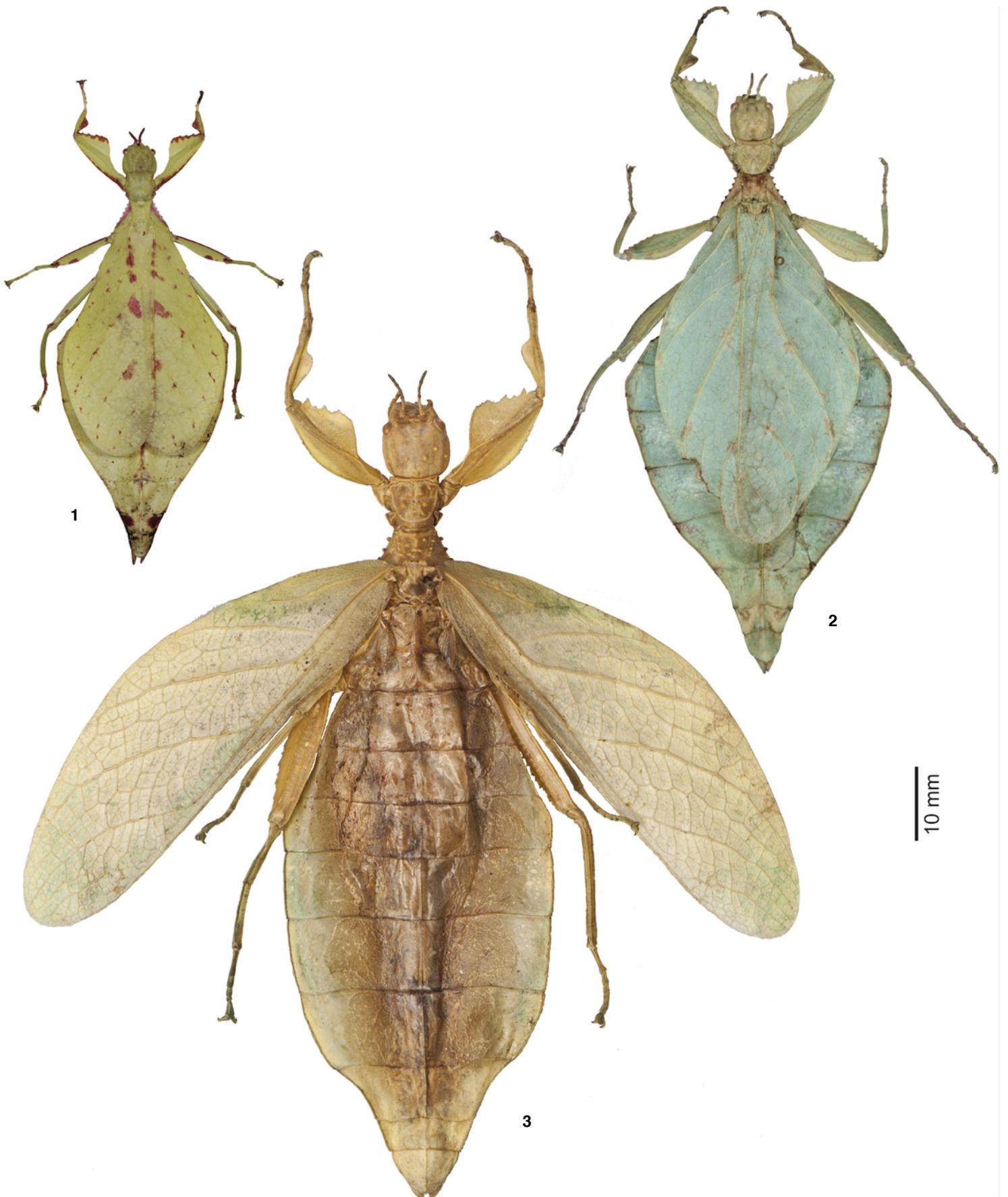


Fig. 1–3. Known females of *Phyllium* (*Comptaphyllium*) **subgen. nov.**, dorsal, scaled to relative size. **1:** *Phyllium riedeli* Kamp & Hennemann, 2014, holotype [SMFK]. **2:** *Phyllium caudatum* Redtenbacher, 1906 [coll. FH, No. 0076-1]. **3:** *Phyllium regina* **n. sp.**, holotype [MNCN, No. 110705].

Species	Female Size Range (mm)	Male Size Range (mm)	Male to Female size ratio (%)
<i>caudatum</i>	69.0 - 84.0	61.8 - 63.0	73.6 - 91.3
<i>riedeli</i>	56.3	53.0	94.1
<i>regina</i>	102.7	75.6 - 96.6 *	73.6 - 94.1 **

Table 1. Size range of known species for *Phyllium* (*Comptaphyllium*) **subgen. nov.**, males and females with predicted size range for the unknown *Phyllium regina* **n. sp.** male.

* Theoretical predicted size range for the unknown male *Phyllium regina* **n. sp.** based on the holotype female size of 102.7mm with the predicted male to female size ratio known from the two other closely related species.

** Theoretical male to female ratio based on the other two known species ratios, with 73.6% the largest size difference observed in *Phyllium caudatum*, and the smallest size difference observed in *Phyllium riedeli* at 94.1%.

mesotibiae. Abdominal segment V is also marked with clear spots surrounded by a pale brown ring. Compound eyes are a pale brown in color and are assumed to have been brighter in life.

Head capsule. – *Vertex* regularly granulose with approximately 28 granules and a posteromedial tubercle that is about twice the size of all other tubercles. All granules on the vertex are marked by a single seta emerging from the center, except for the posteriomedian tubercle which has three evenly spaced setae. – *Compound eyes* are ovular and protruding. Anterior to the compound eyes there are notable frontal convexities that are covered in twelve to thirteen golden setae that are two times the length of the setae of the vertex granules. – *Antennae*, 22 segments (including scapus and pedicellus), ovular in cross section, segments III- XVIII with long irregularly spaced setae, terminal four segments with setae that are denser and more evenly spaced, darker in color, and short (about one third the length of those found on the majority of the segments).

Thorax. – *Pronotum* with seven to eight nodes arranged in a pattern which is mirrored on each half of the medial plane. Pronotum surface with a distinct pit in the center and slight furrows along the sagittal plane and perpendicular to the central pit. Anterior and lateral margins with more prominent margins than the posterior. – *Prosternum* with one larger granule near the posterior and approximately 7-8 smaller granules. – *Mesopraescutum*, with a prominent anterior rim with a distinct spine, the mesopraescutum plate is raised slightly along sagittal plane with three larger nodes and three to four smaller nodes. Lateral margins of the mesopraescutum with seven to eight short rounded nodes of somewhat uneven spacing. – *Mesopleurae* weakly diverging, only slightly wider than the anterior; their lateral margins with five distinct spiniform tubercles and 2-3 smaller tubercles between the anterior two tubercles. – *Mesosternum* lateral sutures are distinct and bordering the irregularly granulose surface of the mesosternum. – *Tegmina* reaching the posterior of abdominal segment II and more heavily sclerotized than the alae.

Alae. – Well developed reaching to the anterior of abdominal segment IX with exposed section of folded alae only slightly sclerotized.

Abdomen. – *Abdominal segments II* through half of IV widening and then IV through the apex steadily converging. Segment V with large notable eye spots. Anal abdominal segment first half subparallel and then converging to a rounded apex with cerci emerging from below. – *Poculum apex* quite wide and circular. – *Cerci* with stout dark setae throughout and no distinct cupping to the overall shape. Vomer long and narrow with a singular hook pointing up into the paraproct.

Legs. – *Profemora exterior lobe* very thin and with a distinct single row of setae of equal length and spacing. – *Interior profemoral lobe* triangular and with 5 serrate teeth of only slightly varying sizes and distances between them. – *Protibiae* without an exterior lobe and with an interior lobe that is a scalene triangle on the proximal half. – *Mesofemoral interior lobe* with serration of 4-6 strong spines ranging in size and spacing on the distal half. – *Exterior lobe* without serration but with the distal half not as smooth as the anterior half. – *Mesofemoral interior* and

exterior lobes of approximate equal widths. – *Metafemoral interior lobe* with approximately 7 serrate spines, exterior lobe lacking spination. – *Meso-*, and *metatibiae* lacking interior and exterior lobes.

Measurements [mm].

- length of body (including cerci): 53.0
- length/width of head: 3.1/3.0
- length of antennae: 26.4
- length of pronotum: 2.6
- length of mesonotum: 3.6
- length of tegmina: 13.0
- greatest width of tegmina: 4.3
- length of alae: 36.7
- greatest width of abdomen: 11.5
- length of profemora: 8.3
- length of mesofemora: 8.3
- length of metafemora: 10.7
- length of protibiae: 5.2
- length of mesotibiae: 5.3
- length of metatibiae: 8.5
- length of protarsi: 5.9

***Phyllium* (*Comptaphyllium*) *regina* n. sp.**

(Fig. 3, 10-15)

ZooBank : <http://zoobank.org/CBD824BA-3180-4A38-8907-85E09DEEDBFC>

Holotype, ♀: Indonesia, North Maluku Province, Obi Island, “A 1896, *unintelligible* Obi”, MNCN_Ent 110705 [MNCN, No, 110705].

Differentiation.

– From *Ph. caudatum*: It is larger (100.0+ mm in length versus 69.0-84.0 mm in *Ph. caudatum*); mesopleurae with four broad, rounded (nearly spherical) tubercles (five in *Ph. caudatum*); terminal antennal segment no longer than the preceding three segments (terminal antennal segment longer than the preceding four segments in *Ph. caudatum*).

– From *Phyllium riedeli*: The first immediate observable difference is the extreme size difference with *Phyllium regina* **n. sp.** almost twice the size of *Ph. riedeli*; also, a notable difference between the two species is that *Ph. regina* **n. sp.** has gonapophyses which are long and slender exceeding the apex of the terminal abdominal segment (a feature also seen in *Ph. caudatum*) versus *Ph. riedeli* which is the only species in the subgenus which has short gonapophyses which do not reach the apex of the terminal abdominal segment.

Morphology

Coloration. – Entire holotype specimen a pale straw-yellow without notable rot, which likely means the specimen was preserved

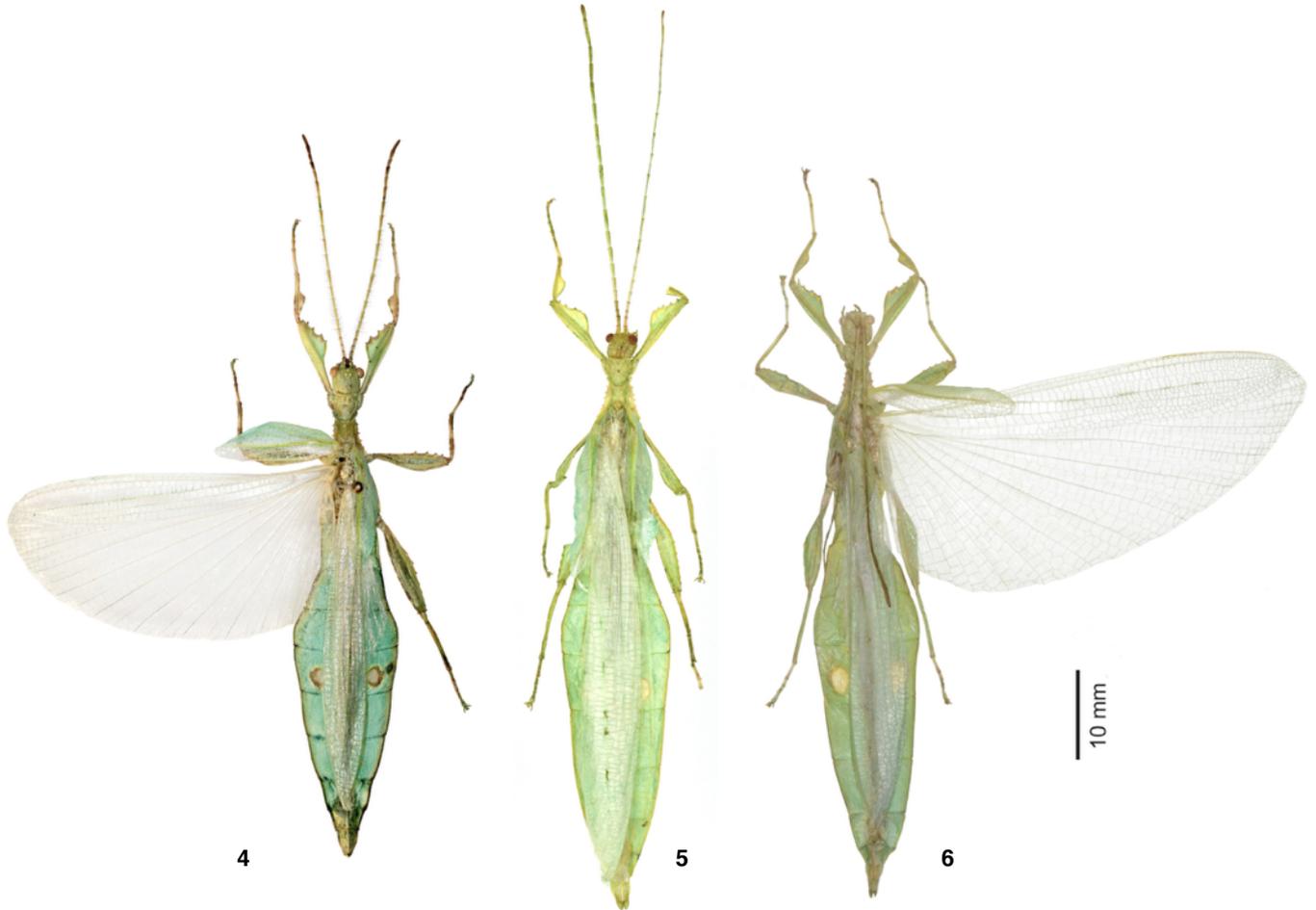


Fig. 4–6. Known males of *Phyllium* (*Comptaphyllium*) **subgen. nov.**, dorsal, scaled to relative size. **4:** *Ph. riedeli* Kamp & Hennemann, 2014 [coll. RC 17-004]. **5:** *Ph. caudatum* Redtenbacher, 1906 [coll. SLT]. **6:** *Ph. caudatum* Redtenbacher, 1906 [coll. FH, No. 0076-5].

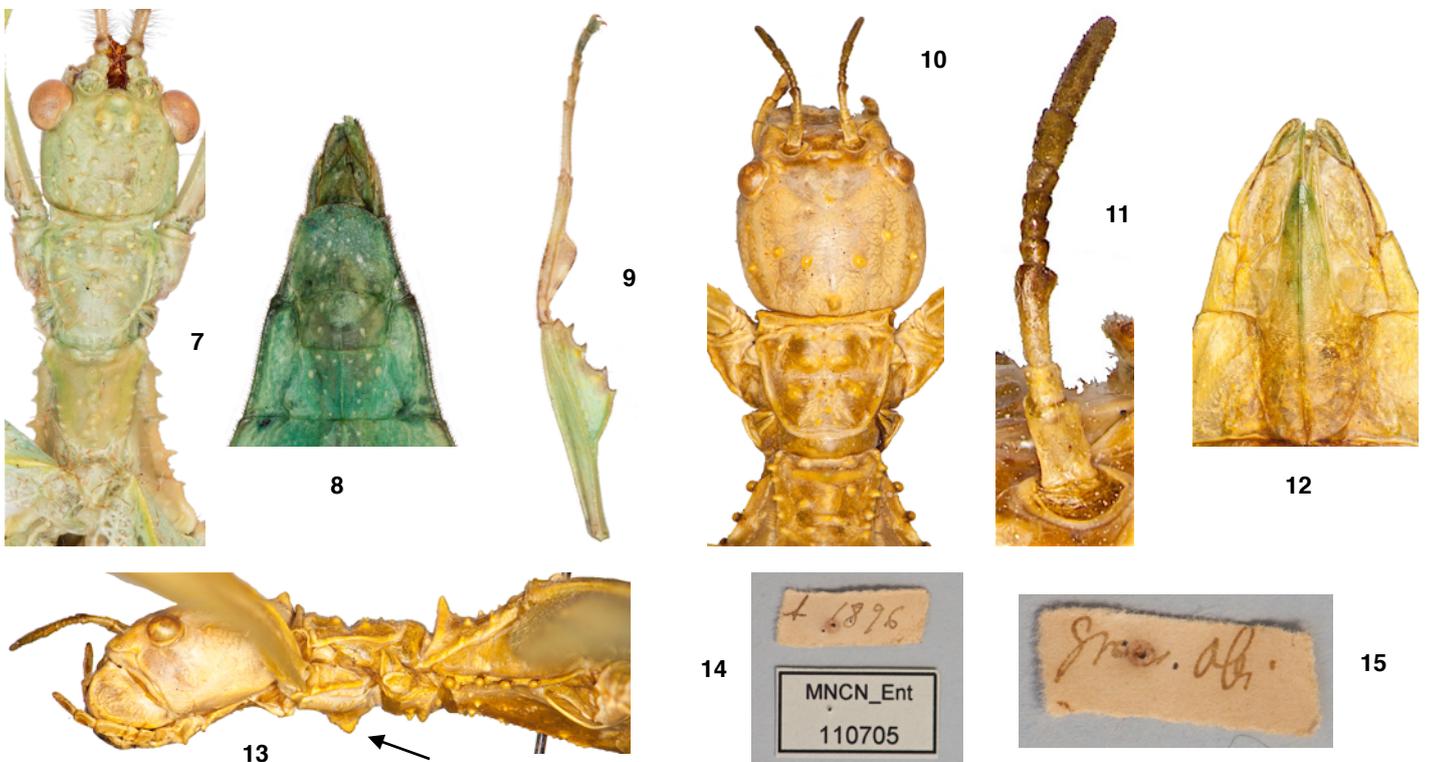


Fig. 7–9. Details for male *Phyllium riedeli* Kamp & Hennemann, 2014 [coll. RC 17-004]. **7:** Head, pronotum and mesonotum. **8:** Genitalia ventral view. **9:** Left front leg.

Fig. 10–15. Holotype female *Phyllium regina* n. sp. [MNCN, No. 110705]. **10:** Dorsal view, head and pronotum. **11:** Antenna dorsal view. **12:** Genitalia, ventral. **13:** Head through thorax lateral view (arrow highlights the spine on the prosternum typical for *Comptaphyllium* subgen. nov.). **14 & 15:** Data labels.

with alcohol of some sort after it was gutted. Light green patches can still be seen on the tegmina and abdomen in places and it is likely the entire specimen was vibrant green in life.

Head capsule (Figs 10). – Broad with gently convex cheeks. – *Vertex* smooth except for granules on the posterior half of the head which are arranged in an undulating pattern, and a single distinct posteromedian tubercle. – *Antennae* (Fig. 11) long and slender with minimal setae throughout, longer than postocular section of head capsule and consisting of nine segments. – *Apical antennomere* (IX) elongate with rounded apex, about three times longer than wide and about as long as the preceding three antennal segments combined. Frontal convexity broad with a wrinkled surface. – *Compound eyes*, not notably bulging from the head capsule, and not particularly large, with a diameter only about a quarter the length of the lateral head capsule margins. No *ocelli* present.

Thorax. – *Pronotum* (Fig. 10) roughly squarish with a nearly straight anterior and lateral margins which uniformly converge to the gently convex posterior margin which is about half the length of the anterior margin. Anterior margin of pronotum thickest with the lateral and posterior margins with moderate rims. – *Prosternum* anterior half with a large prominent projection which is covered in a finely granular surface (Fig. 13 as viewed laterally) and the posterior half with five nodes and a granular ridge along the posterior margin. – *Mesopraescutum* slightly wider than long, with only slight narrowing towards the posterior. Anterior rim with a large projecting spine, numerous times larger than all other tubercles. Lateral margins armed with five to six tubercles of variable sizes. Mesopraescutum disc with six ± weak irregularly places tubercles. – *Mesopleurae* uniformly diverging; their lateral margins with four rounded circular tubercles (Fig. 10). – *Mesosternum* slightly granular on the anterior with the remainder nearly smooth. – *Tegmina* long (length 64.8 mm, max. width 19.6 mm) with the apex extending past the anterior margin of abdominal segment VIII.

Alae. – Underdeveloped (length 6.2 mm), only partially reaching onto the first abdominal segment.

Abdomen. – Abdominal segments II through the anterior half of IV gradually and uniformly widening, middle of IV the widest portion followed by segments V and VI which are nearly parallel. Abdominal segment VII has converging convex rounded margins, segment VIII with concave converging margins, followed by IX and X with gradually converging margins ending in the abdominal segment (X) that at its widest, is wider than long with a rounded broad

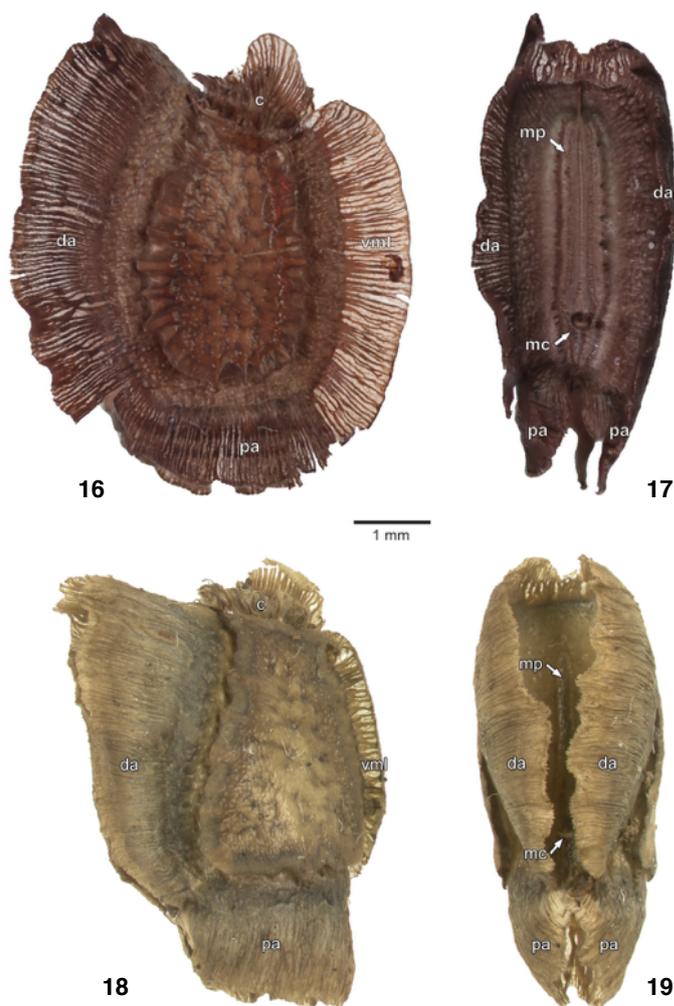


Fig. 16–19. Known eggs of *Phyllium* (*Comptaphyllium*) subgen. nov. **16 & 17:** *Ph. caudatum* Redtenbacher, 1906. **18 & 19:** *Ph. riedeli* Kamp & Hennemann, 2014.

– **c** = opercular crown. – **da** = dorsal appendage. – **mc** = micropylar cup.
– **mp** = micropylar plate. – **pa** = polar appendage. – **vml** = ventromedian lamella.

Keys to known species of *Phyllium* (*Comptaphyllium*) subgen. nov.

Female

1. Gonapophyses long, exceeding the posterior of the abdomen; medium to large species (69mm +) **2**
— Gonapophyses short, not exceeding the posterior of the abdomen; a small species (holotype 56.3mm); Indonesia, Papua Province ***riedeli*** Kamp & Hennemann, 2014
2. Mesopleurae with five broad, rounded tubercles; medium sized species (69.0 - 84.0mm); terminal antennal segment longer than the preceding four segments; Papua New Guinea, Eastern Highlands, Morobe, and Gulf Provinces ***caudatum*** Redtenbacher, 1906
— Mesopleurae with four broad, rounded (nearly circular) tubercles; large sized species (100mm +); terminal antennal segment no longer than the preceding three segments; Indonesia, Obi Island ***regina*** n. sp.

Male *

1. Antennae when resting over the dorsal surface shorter (only reaching the posterior margin of abdominal segment III; a small species (~ 50mm); Indonesia, Papua Province ***riedeli*** Kamp & Hennemann, 2014
— Antennae when resting over the dorsal surface longer (at least reaching half way through of abdominal segment IV); a large species (~ 61.8 - 63.0mm); Papua New Guinea, Eastern Highlands, Morobe, and Gulf Provinces ***caudatum*** Redtenbacher, 1906

* Male *Phyllium regina* n. sp. is currently unknown

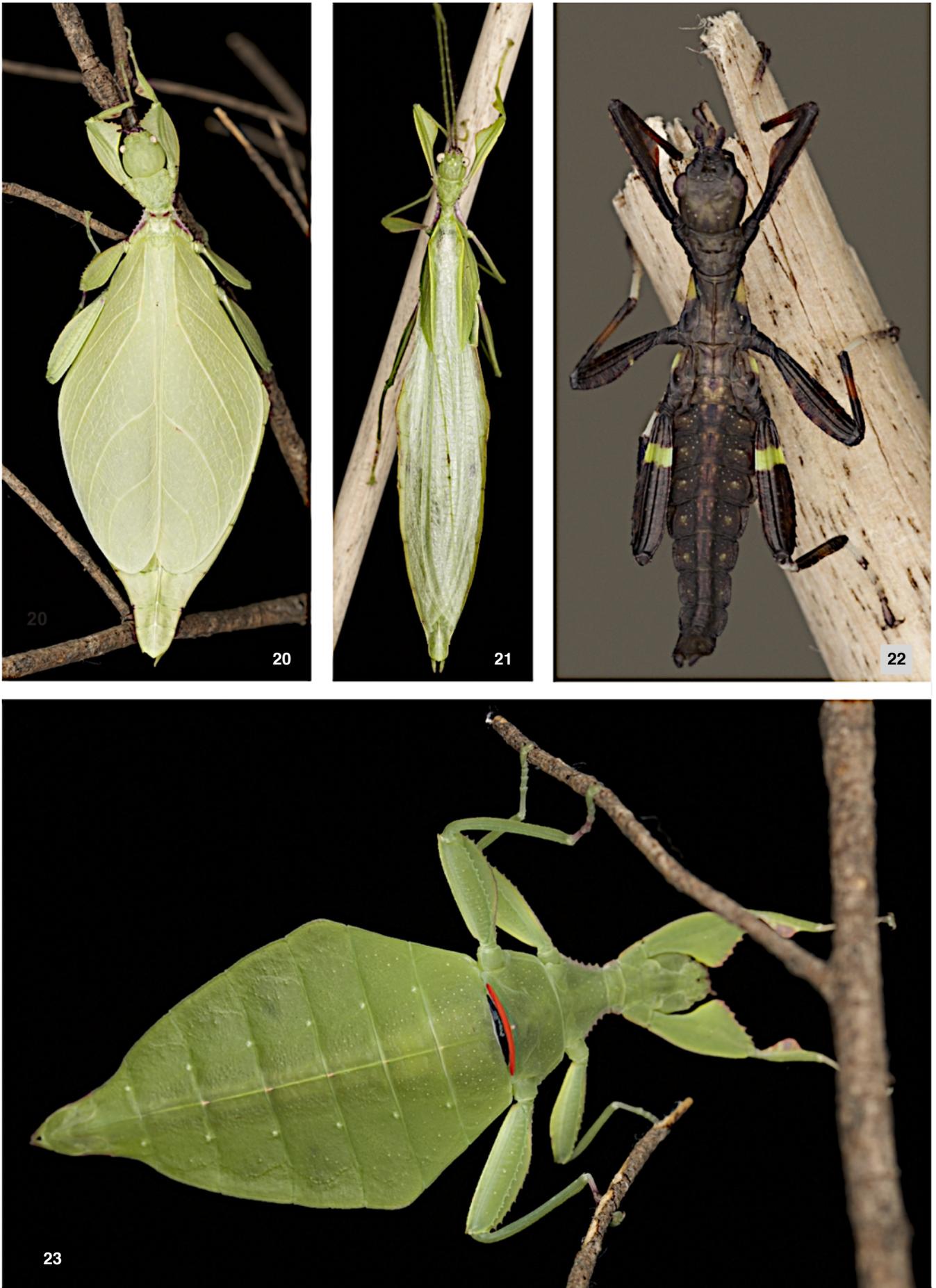


Fig. 20–23. Live *Phyllium caudatum* Redtenbacher, 1906, all photos courtesy of Bruno Kneubühler. **20:** Adult female, dorsal. **21:** Adult male, dorsal. **22:** Freshly emerged nymph, dorsal. **23:** Adult female, ventral showing the brightly colored warning coloration which is displayed when disturbed.

apex. – Subgenital plate long and slender, projecting half-way into the terminal abdominal segment X (Fig. 12). – *Cerci* nearly flat, with only fine setae, and a lumpy surface texture with little to no clear granulation. – *Gonapophyses* long and slender, with the tips exceeding the apex of the terminal abdominal segment X.

Legs. – Profemoral exterior lobe roundly arcing and narrow with a clear finely serrate/granular margin across the entire length. Profemoral interior lobe about equal in width as the exterior lobe, with an obtuse angle and the serration irregular, with two to three large teeth with at least one additional small tooth between the larger (sometimes more than one), and near the proximal most serration there are irregular small teeth. – *Protibiae* without exterior lobe, interior lobe a rounded scalene triangle which is only present on the proximal half of the shaft. Exterior and interior lobe of *meso-* and *metafemora* gently rounded, with the exterior lobe narrower than the interior lobe and the interior lobes with irregular serration throughout two thirds of the lengths. *Meso-* and *metatibiae* simple, lacking lobes.

Measurements [mm].

- length of body: 102.7
- length of head: 9.9
- length of pronotum: 6.4
- length of mesonotum: 10.1
- length of tegmina: 65.7
- greatest width of tegmina: 19.6
- length of alae: 6.2
- greatest width of abdomen: 34.8
- length of profemora: 16.7
- length of mesofemora: 16.3
- length of metafemora: 19.8

- length of protibiae: 12.1
- length of mesotibiae: 12.4
- length of metatibiae: 18.0
- length of antennae: 6.2

Etymology. – Noun, Latin for Queen, “regina”. We felt the uniform arrangement of nodes on the head were reminiscent of a delicate crown, and the impressive, “bead-like” nodes along the mesopleurae are reminiscent of a necklace. To top it off, this new species is impressively large and regal.

Acknowledgments

The authors thank René Limoges, entomological technician at the Montreal Insectarium, Canada for taking many photos for this work, as well as for many professional courtesies. The authors would like to thank Anton Kozlov (Russia) for recognizing the importance of the *Phyllium riedeli* male specimen and sending it to the first author. Also, to Danny Burk (USA) for his time and expertise in taking the photographs of the *Phyllium riedeli* male specimen for the figures of this work. Thank you to Mercedes París (MNCN, Madrid) for taking the photos of the new species within their collection. Thank you to Thomas Van De Kamp (SMFK, Germany) for photographs of the *Phyllium riedeli* holotype female. Thank you to Bruno Kneubühler (Switzerland) for photos of living specimens which really help to show the true beauty of these creatures in life. Special thanks to our two peer reviewers Judith Marshall (United Kingdom) and Dr Allan Taylor (Canada) for their quality feedback on this paper.



■ *Phyllium regina* n. sp.

■ *Phyllium riedeli*

■ *Phyllium caudatum*

Fig. 24. Distribution of the known *Phyllium* (*Comptaphyllium*) species (Google Earth: Image Landsat/ Copernicus: Data SIO, NOAA, U.S. Navy, NGA, GEBCO: Image date December 13th, 2015; accessed June 30th, 2019).

References

- Brock P. D., 2014. – A new species of leaf insect (Phasmida: Phylliidae) from West Papua, Indonesia. In Telnov [Ed.], *Biodiversity, Biogeography and Nature Conservation in Wallacea and New Guinea*. Volume II 146, pl. 2-3.
- Brock P. D., Büscher T. H. & Baker E., 2018. – *Phasmida SF: Phasmida Species File Version 5.0/5.0*. In: Roskov Y., et al., (Eds.), *Species 2000 & ITIS Catalogue of Life. Species 2000: Naturalis, Leiden*. Digital resource at www.catalogueoflife.org/ col. ISSN 2405-8858. [Accessed June 28th, 2019].
- Cumming R. T., Le Tirant S. & Hennemann F. H., 2019. – Review of the *Phyllium* Illiger, 1798 of Wallacea, with description of a new subspecies from Morotai Island (Phasmatodea: Phylliidae: Phylliinae). *Faunitaxys*, 7(4), 2019: 1-25.
- Größer D., 1991. – Bemerkungen zur Gattung *Phyllium* in Neuguinea, mit einer Neubeschreibung (Phasmatodea: Phylliidae). *Entomologische Zeitschrift*, 101(15), 278-282.
- Größer D., 2001. – Wandelnde Blätter. Ein Katalog aller bisher beschriebenen Phylliinae-Arten und deren Eier mit drei Neubeschreibungen. 1st Edition
- Größer D., 2008. – Wandelnde Blätter. Ein Katalog aller bisher beschriebenen Phylliinae-Arten und deren Eier mit drei Neubeschreibungen. 2nd Edition. *Edition Chimaira*, Frankfurt am Main, 175 pp.
- Günther K., 1932. – Beiträge zur Systematik und Geschichte der Phasmoidenfauna Ozeaniens. *Mitteilungen aus dem Zoologischen Museum in Berlin*, 17(6): 753-835.
- Günther K., 1933. – Über eine kleine Sammlung von Phasmoiden und Forficuliden aus Melanesien. *Verhandlungen der Naturforschenden Gesellschaft Basel*, 44: 151-164.
- Hennemann F. H., Conle O.V., Gottardo M. & Bresseel J., 2009. – On certain species of the genus *Phyllium* Illiger, 1798, with proposals for an intra-generic systematization and the descriptions of five new species from the Philippines and Palawan (Phasmatodea: Phylliidae: Phylliinae: Phylliini). *Zootaxa*, 232: 1-83.
- Illiger J. K. W., 1798. – *Verzeichnis der Käfer Preussens*. Johann Jacob Gebauer, Halle, 510 pp.
- Kamp T. & Hennemann F. H., 2014. – A tiny new species of leaf insect (Phasmatodea, Phylliidae) from New Guinea. *Zootaxa*, 3869 (4): 397-408.
- Klante H., 1976. – Die “Wandelnden Blätter”. Eine taxonomische Revision der Gattung *Phyllium* Ill. (Insecta, Orthoptera, Phasmatoptera). *Zoologische Beiträge*, 22: 49–76.
- Redtenbacher J., 1906. – Die Insektenfamilie der Phasmiden. I. Phasmidae, Areolatae. Verlag W. Engelmann, Leipzig, pp. 180, [pl. 1-6].

Résumé

Cumming R. T., Le Tirant S. & Hennemann F. H., 2019. – Un nouvel insecte feuille de l'île d'Obi (Wallacea, Indonésie) et description d'un nouveau sous-genre de *Phyllium* Illiger, 1798 (Phasmatodea: Phylliidae: Phylliinae). *Faunitaxys*, 7(13) : 1 – 9.

Phyllium regina n. sp., une grande espèce d'insecte-feuille, actuellement connue d'un seul spécimen femelle, est décrite de l'île d'Obi (Indonésie). Cette nouvelle espèce et deux espèces proches, *Phyllium caudatum* Redtenbacher, 1906 et *Phyllium riedeli* Kamp & Hennemann, 2014, partagent un ensemble unique de caractéristiques qui les distinguent de tous les autres Phylliidae. Ainsi, nous transférons ici ces trois *Phyllium* (*Phyllium*) du groupe de *siccifolium*, tel que défini par Hennemann et al. (2009), dans un nouveau sous-genre *Phyllium* (*Comptaphyllium*) **subgen. nov.**, en se basant sur les caractéristiques discutées ci-dessous. En plus de la description de cette nouvelle espèce et de ce nouveau sous-genre, la morphologie inconnue de *Phyllium riedeli* mâle est décrite. En conclusion, une carte de répartition ainsi qu'une clé de détermination des trois espèces sont présentées.

Mots-clés. – Phasmatodea, Phasmida, Phylliidae, Phylliini, *Phyllium*, Wallacea, Indonésie, île d'Obi, *Comptaphyllium*, *regina*, description, nouveau sous-genre, nouvelle espèce, distribution, biogéographie.

Faunitaxys

Volume 7, Numéro 13, Septembre 2019

SOMMAIRE

Un nouvel insecte feuille de l'île d'Obi (Wallacea, Indonésie) et description d'un nouveau sous-genre de *Phyllium* Illiger, 1798 (Phasmatodea: Phylliidae: Phylliinae).

Royce T. Cumming, Stéphane Le Tirant & Frank H. Hennemann 1 – 9

CONTENTS

A new leaf insect from Obi Island (Wallacea, Indonesia) and description of a new subgenus within *Phyllium* Illiger, 1798 (Phasmatodea: Phylliidae: Phylliinae).

Royce T. Cumming, Stéphane Le Tirant & Frank H. Hennemann 1 – 9

Illustration de la couverture: Forêt tropicale typique d'une île indonésienne.

Crédit:

Fig. 1, 18, 19 @ Van De Kamp T., Germany.

Fig. 2, 5 @ Limoges R., Insectarium de Montréal, Québec, Canada.

Fig. 3, 10, 11, 12, 13, 14, 15 @ Paris M., Spain.

Fig. 4, 7, 8, 9, 16, 17 @ Burk D., U.S.A.

Fig. 6 @ Hennemann F.H., Germany.

Fig. 20-23 @ Kneubühler B., Switzerland.

Fig. 24 @ Google Earth : Image Landsat.