

## **New *Cymatopus* (Diptera: Dolichopodidae) from Fiji and Related Areas, With Notes on Described Species<sup>1,2</sup>**

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**Abstract.** Four new species of *Cymatopus*: *C. baravikai*, **n. sp.** (Fiji), *C. flavipes*, **n. sp.** (New Caledonia), *C. neocaledonicus*, **n. sp.** (New Caledonia), and *C. othniopteryx*, **n. sp.** (East Timor) are described and illustrated. New distributional records are given for *C. leopoldi*, *C. simplex*, *C. calcaratooides*, and *C. tibialis*.

### **INTRODUCTION**

*Cymatopus* Kertész comprises species of moderately sized dolichopodids commonly found along the rocky coastlines of Indo-Pacific countries, with many species possessing a striking array of male secondary sexual characters (MSSC). Grootaert (2003) asserted that as many as 33 primary and secondary sexual characters can be recognized within the genus.

Meuffels & Grootaert (1984) and Grootaert & Meuffels (1993, 2001) give the latest treatments of the genus. Additionally, Evenhuis & Grootaert (2002) provided some new distributional records. In the 1984, 1993, and 2001 articles, keys to species are given, 4 species newly described, and behavioral notes given for a few species. This paper describes and illustrates an additional 4 species, bringing the total number of species worldwide to fourteen.

### **MATERIALS AND METHODS**

Material was examined in, borrowed from, or deposited in the following institutions: Australian Museum, Sydney (AMS); Australian National Insect Collection, CSIRO, Canberra (ANIC), the Natural History Museum, London (BMNH), Bishop Museum, Honolulu (BPBM), California Academy of Sciences, San Francisco (CAS), Canadian National Collection, Ottawa (CNC), Hungarian Natural History Museum, Budapest (HNHM), Illinois Natural History Survey, Champaign (INHS), Ministry of Forestry Entomological Laboratory, Colo-i-Suva (MAFF), Montana State University, Bozeman (MTEC), Museum National d'Histoire Naturelle, Paris (MNHN), New Zealand Arthropod Collection, Auckland (NZAC), Royal Belgian Institute of Natural Sciences, Brussels (RBINS), University of Queensland, St. Lucia (UQIC).

Morphological terminology and abbreviations follow Bickel (1994). Leg measurements are all at the same scale.

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## SYSTEMATICS

KEY TO INDO-PACIFIC SPECIES OF *CYMATOPUS* KERTÉSZ BASED ON MALES<sup>3</sup>

1. Wing modified, with deep sulcus on hind margin (Figs. 2, 3) ..... 2
- . Wing unmodified in shape (cf. Fig. 1) ..... 3
2. Hind region of wing distal to sulcus with field of microtrichiae; border with fringe of long hairs (Fig. 2); fore tarsi modified... (SE Asia) ..... **malayensis** Parent
- . Hind region of wing distal to sulcus without field of microtrichia; border without fringe (Fig. 3); fore tarsi without modifications .... (East Timor) ..... **othniopteryx**, n. sp.
3. Hypopygium exposed; cerci long, narrow ..... 4
- . Hypopygium small, concealed in postabdomen; cerci and other appendages hidden .... (Samoa) ..... **spinus** (Parent)
4. Tibia I without modified hairs or bristles on medial surface; body length usually less than 2.5 mm ..... 5
- . Tibia I with modified hairs or bristles, or otherwise ornamented on medial surface; body length usually more than 2.5 mm ..... 7
5. Tibiae II and III without long hairs; It4 and It5 flattened ..... 6
- . Tibiae II and III with long hairs toward apex; cerci black, with black hairs; It4 and It5 not flattened ... (Christmas I [Indian Ocean]) ..... **longipilus** Parent
6. Coxa I yellow; hypopygium symmetrical; surstylus with conspicuous hook-shaped bristle ..... **flavipes**, n. sp.
- . Coxa I black; hypopygium asymmetrical; surstylus without conspicuous hook-shaped bristle (Fig. 15) ... (Australia) ..... **simplex** Parent
7. Tibia I with long preapical lobe ..... 8
- . Tibia I with, at most, short or triangular preapical lobe ..... 9
8. Tibia I with black, foliate, modified bristle on anterior distal surface; It5 flattened, length 1.5 x It4 ... (New Guinea, Australia) ..... **calcaratoides** Grootaert & Meuffels
- . Tibia I without modified setae or bristles on anterior surface; It5 not flattened, length subequal to It4 ... (Christmas I [Indian Ocean]) ..... **calcaratus** Parent
9. Tibia I with modified setae or bristles on medial surface without concavity or swollen area medially..... 10
- . Tibia I without such bristles or setae on medial surface ..... 12
10. Tibia I with bump or swollen area just beyond midpoint on ventral surface (Fig. 11) ... (New Caledonia) ..... **neocaledonicus**, n. sp.
- . Tibia I without swollen area ..... 11
11. Tibia I with strong, black, foliate, modified seta on medial surface; with hyaline, pectinate comb apically ..... **thaicus** Grootaert & Meuffels
- . Tibia I with three, curved black bristles distomedially; without pectinate comb apically ..... **leopoldi** Meuffels & Grootaert

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3. I agree with Grootaert & Meuffels (1993) that *setosus* Curran, *cheesmani* (Parent), *bredini* Robinson, and *wirthi* Robinson should be removed from *Cymatopus*. I here treat them as of uncertain generic placement until more research can be conducted to ascertain their generic position.

12. Tibia I with concavity at basal one-third (Fig. 5) bordered basally by protuberance bearing three strong black bristles ... (Fiji) ..... **baravikai**, n. sp.  
 —. Tibia I without such a concavity ..... 13
13. Tibia I with pectinate comb apically; It4 with comb of long, curved setae ..... **tibialis** Kertész  
 —. Tibia I without pectinate comb apically; It4 without modified setae .....  
 ..... **motuporensis** Grootaert & Meuffels

*Cymatopus baravikai* Evenhuis, new species

(Figs. 4–6)

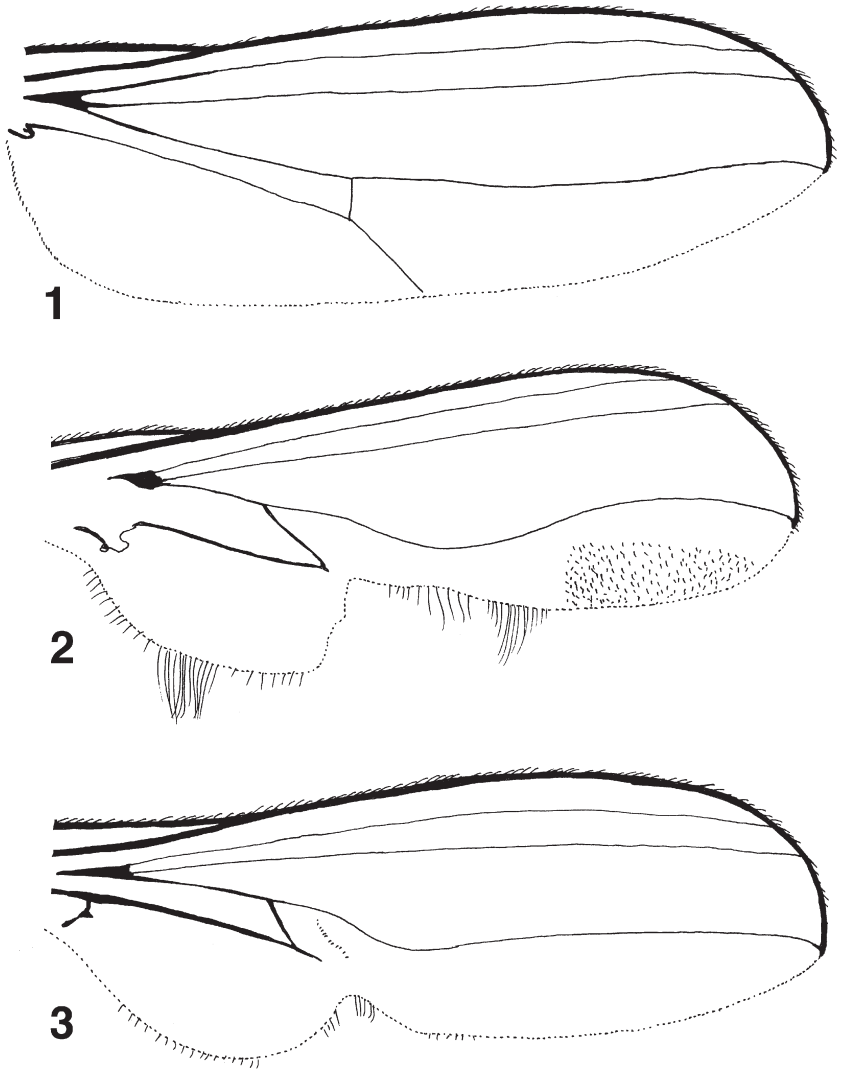
**Diagnosis.** This species is most similar in appearance to *C. neocaledonicus*, n. sp., from which it can be separated, in males, by the presence of a concavity on the basal third of tibia I (this concavity absent in *neocaledonicus*).

**Description.** Male. Length: Body: 3.9–5.4 mm; wing 3.7–4.4 mm. *Head.* Frons and face grayish-black, gray pollinose; clypeus slightly protruding. Face width 1.5 times width of first flagellomere. Palpus grayish brown, with 10–12 black hairs, 1 long hair apically, as long as palpus, bristles absent. Mouthparts brown. Occiput black, with long, brownish hairs ventrally; pair of long ocellars and shorter fronto-orbitals just above antennal sockets; pair of minute postocellars; pair of converging postverticals. Upper postoculars uniseriate, black; lower postoculars multiseriate. Antenna (Fig. 4) black; first flagellomere short, conical, slightly higher than long. Arista apical, 3 times length of first three antennal segments.

*Thorax.* Mesonotum brownish black, gray pollinose; pleura gray, gray pollinose. No acrostichals, 5 dorsocentrals, 1 short humeral, 1 long posthumeral, 3 short propleurals; 1 notopleural, 3 supraalar, 1 long postalar. Scutellum grayish black, with pair of long converging scutellars, minute hair lateral to each scutellar.

*Legs.* Black except apex of femur I and base of tibia I brownish orange and all of trochanter I yellow. Claws black, pulvilli as long as claws. *Fore leg* (Fig. 5): lengths (femur, tibia, and tarsi): 43: 37: 30: 15: 10: 11: 7. Coxa I with row of about 3–4 strong black bristles basally, patch of shorter finer hairs basomedially, 8–10 long hairs apically. Trochanter I bare. Femur I widest at base, tapering evenly to apex, basal width ca. 1/3 length of coxa I; basoventrally with 4–5 strong thick black spatulate bristles on lateral surface; 2 rows of long black hairs along basal 3/4 of ventromedial surface; anterodorsal surface with short hairs distributed evenly along surface; 1–2 small preapical bristles. Tibia I subequal in length to femur, with concavity on basal 3/5, with 4–5 strong black, slightly curved bristles on basomesal prominence, basalmost bristle clavate, remainder pointed apically; concavity with 1 strong black bristle basomesally, 1 strong black bristle apicomeresally; numerous strong short spiky bristles along ventral surface; clear, pectinate comb preapically; short hairs on postero-lateral and dorsal surfaces. It1 shorter than tibia, with 2–3 short, strong black hairs at extreme base near juncture with tibia, 2–3 strong, short black bristles at mid-level on anteromesal surface, row of short, straight hairs on anterior surface, finer curved hairs on lateral surface. It2 and It3 unmodified; It4 slightly flared. It5 flared. *Mid leg.* Lengths (femur, tibia, tarsi): 52: 57: 35: 17: 8: 6: 4. Coxa II with two black lateral bristles. Trochanter brown with short black hairs. Femur II without strong bristles, numerous short posteroventral and preapical setae. Tibia II subequal in length to femur, unmodified. Tarsi unmodified. *Hind leg.* Lengths (femur, tibia, tarsi): 65: 60: 40: 22: 13: 8: 8. Coxa and trochanter III bare. Femur III conspicuously bowed mesally, without strong bristles. Tibia III with 3 preapical bristles.

*Wing* (cf. Fig. 1). Slightly infuscated brownish, veins brown; costa ends just beyond vein  $M_{1+2}$ ; vein  $M_{1+2}$  slightly undulate;  $R_1$  and  $R_{2+3}$  slightly converging at wing margin;  $R_{2+3}$  and  $M_{1+2}$  subparallel. Crossvein m-cu short, oblique, 1/3 length of apical part of  $M_{3+4}$ . Anal vein absent. Halter stem darker basally, otherwise halter stem and knob yellowish white. Squama yellowish white with fringe of long white hairs.



**Figs. 1–3.** Wings of male *Cymatopus*. 1. *C. neocaledonicus*, n. sp. 2. *C. malayensis* Parent. 3. *C. othniapteryx*, n. sp.

**Abdomen.** Brownish black, gray pollinose laterally on tergites II–V. Tergal hairs and setae very short, black. Sixth sternum with yellowish caudal appendages flared apically (cf. Fig. 9).

**Genitalia** (Fig. 6). Hypopygium small, sessile, gray. Cercus rod-like, with long hairs on all surfaces, longest apically. Hypandrium (Fig. 6c) brown, strongly bifid apically. Hook-shaped bristle on surstylus subapical; surstylus with long, mesally directed prominence bearing strong apical spine.

Female. As in male except for the following: Face broader, slightly wider than width of first antennal flagellomere. Legs more brownish on segments that are black in male. Femur I with 4–5 long strong black hairs basoventrally, with 3 strong bristles anteroventrally. All other segments unmodified.

**Types.** Holotype ♂ (BPBM 16,559, FBA 001801) and 3♂, 11♀ paratypes from: FIJI: **Viti Levu:** Suva Province: Suva Point, Laucala Bay, 18°08'S, 178°26'E, 28 Oct 2004, N.L. Evenhuis, D.J. Bickel, M. Tokota'a, intertidal rocks. **Other paratypes:** FIJI: **Viti Levu:** 8♂, 18♀, Naqara Island, 22 Jan 2005, sweeping rocky shore near mangroves, N.L. Evenhuis, D.J. Bickel (BPBM); 17♂, 10♀, 8 km. E. Korotogo, 8 Jun 1988, R. Hurley (MTEC). **Taveuni:** Caukadrove Province: 3♂, 4♀, Taveuni Estates, along marine shoreline at high tide, 16°50'S, 179°59'E, 26 Sep 2002, E.I. Schlinger, M. Tokota'a (FBA 001802–001815) (BPBM). LAU Is: 3♀. **Koroni I,** intertidal rocks, 4 Jul 1977, J.D. Dugdale (NZAC). **Ovalau:** 1♀, Levuka, 0–200 m, Feb 1972, N.L.H. Krauss (BPBM). Holotype in BPBM. Paratypes in BPBM, CAS, CNC, MAFF, MTEC, NZAC, and AMS.

**Remarks.** Specimens on Viti Levu were collected by sweeping with nets over barnacle-covered intertidal rocks and by hand collecting specimens with plastic vials on the interstices of the vertical rock faces near the shoreline.

**Etymology.** The specific epithet derives from the Fijian, *baravi* [= shore] + *kai* [= inhabitant], referring to the marine shoreline habitat of this species.

### *Cymatopus flavipes* Evenhuis, new species

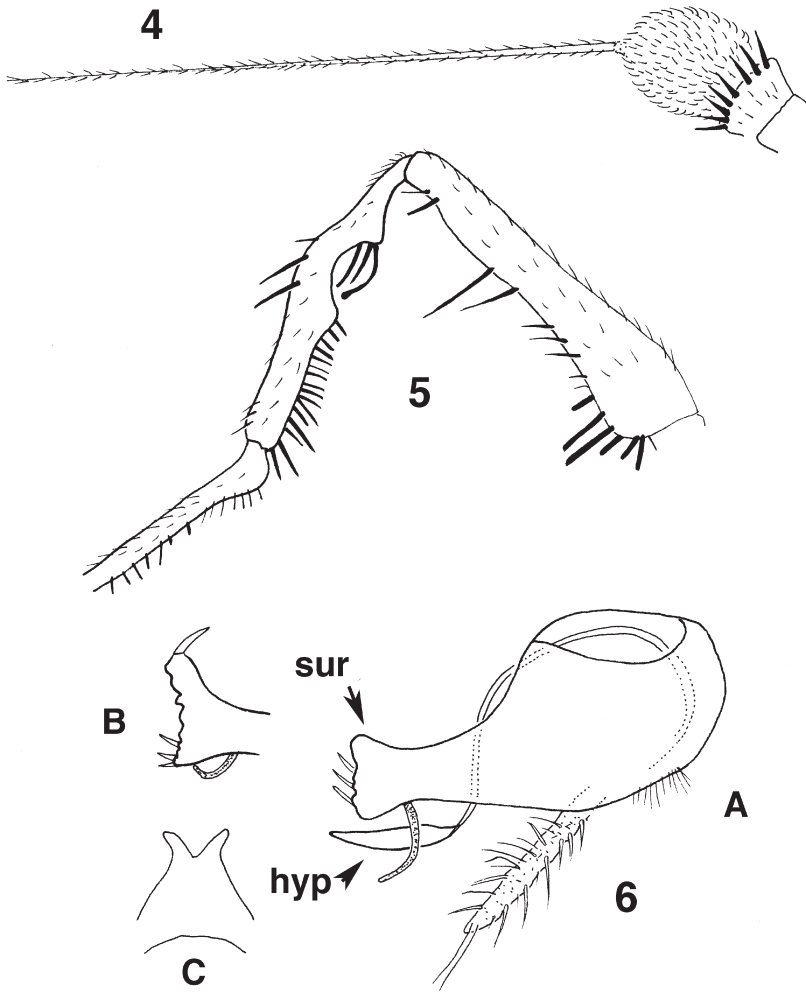
(Figs. 7–10)

**Diagnosis.** Similar to *C. simplex* and *C. longipilus* in not having modified bristles or setae on the medial surface of tibia I, but is easily distinguished from those two species by yellow coxa of the foreleg.

**Description.** Male. Length: Body: 2.6–3.3 mm; wing 2.5–3.0 mm. **Head.** Frons and face grayish brown, gray pollinose; clypeus tan, slightly protruding. Face width 3/4 width of first flagellomere. Palpus gray with 12–14 black hairs evenly spaced, 1 long hair apically, as long as palpus, bristles absent. Mouthparts brown. Occiput black, gray pollinose, with sparse long black hairs ventrally; pair of long ocellars and shorter fronto-orbitals just above antennal sockets; pair of minute postocellars; pair of converging postverticals. Postoculars uniseriate, black. Antenna (Fig. 7) yellow to brownish black; first flagellomere, conical, length 2 x height. Arista apical, 2.5 x length of first three antennal segments.

**Thorax.** Mesonotum grayish brown, gray pollinose; pleura gray, gray pollinose. No acrostichals, 5 dorsocentrals, 1 short humeral, 1 long posthumeral, 2 short propleurals; 1 notopleural, 3 supraalars, 1 long postalar. Scutellum gray, gray pollinose, with pair of long converging scutellars, minute hair anterolaterad of each scutellar.

**Legs.** Legs with coxa I and all femora yellow, coxae II and III brownish orange to grayish black, tibiae and tarsi brown. Claws black, pulvilli as long as claws. **Fore leg** (Fig. 8): lengths (femur, tibia, and tarsi): 34: 25: 29: 14: 11: 5: 5. Coxa I with row of about 4 strong black bristles basally, 8–10 finer hairs on apical 1/2, 2–3 apical setae. Trochanter I with 4–5 very small, weak hairs. Femur I widest at base, tapering evenly to apex, basal width ca. 1/3 length of coxa I; ventrally with row strong thick black bristles on lateral surface, 2 rows of long black hairs along apical 3/4 of ventromedial surface; anterodorsal surface with short hairs distributed evenly along surface; 1–2 small preapical bristles. Tibia I shorter than femur, slightly bent basally, strong short spiky bristles on apical 1/2 of ventral surface; clear, pectinate comb preapically; strong black preapical setae not borne on lobe. It1 longer than tibia, with 3–4 very short, strong black hairs at extreme base near juncture of tibia, 2 rows of



**Figs. 4–6.** *Cymatopus baravikai*, n. sp., male. 4. Antenna. 5. Fore femur, tibia, and base of first tarsal segment. 6. Male genitalia; a. hypopygium, lateral view; b. detail of surstylus, dorsal view; c. apex of hypandrium, ventral view. Abbreviations: hyp = hypandrium; sur = surstylus.

short, straight hairs on anteromesal surface, finer curved hairs on lateral surface. It<sub>2</sub>, It<sub>3</sub>, and It<sub>4</sub> unmodified. It<sub>5</sub> flattened, length ca. 3 x width. *Mid leg.* Lengths (femur, tibia, tarsi): 49: 49: 29: 15: 10: 6: 6. Coxa II with two black lateral bristles. Trochanter yellow with a few short black hairs. Femur II without strong bristles, numerous short, posteroventral setae, 1 preapical seta. Tibia II subequal in length to femur, unmodified, with 1 preapical seta. Tarsi unmodified. *Hind leg.* Lengths (femur, tibia, tarsi): 64: 47: 33: 19: 10: 6: 6. Coxa III with 2 lateral setae. Trochanter III bare. Femur III conspicuously bowed anteriorly, without strong bristles. Tibia III and tarsi unmodified.

*Wing* (cf. Fig. 1). As in *baravikai*, n. sp. Halter stem yellow basally, otherwise halter stem and knob white. Squama yellowish white with fringe of long brown hairs.

*Abdomen.* Grayish brown, gray pollinose laterally on tergites II–V. Tergal hairs and setae very short, black. Fourth sternum with lateral spicules. Sixth sternum with yellowish caudal appendages flared apically (Fig. 9).

*Genitalia* (Fig. 10). Hypopygium small, sessile, gray. Cercus slender, long hairs restricted to lateral surface. Hypandrium (10B,C) shining brown, laterally with spine-like bristle (Fig. 10B); hook shaped bristle of surstylus placed subapically, surstylus curved mesally, with short mesally directed spine at apex.

Female. As in male except for MSSC of legs.

**Types.** Holotype ♂ and 8♂♀ paratypes from: **NEW CALEDONIA:** Plage de Poé, 5 km W. Bourail, 5 Jul 1995, B.J. Sinclair. **Other Paratypes:** **NEW CALEDONIA:** 5♂♀, Mou, 0 m, on tidal rocks, 3 Dec 1990, D.J. Bickel (AMS); 23♂♀, Tembla, beach area, 22 Nov 1992, E. & M. Schlinger (INHS); 18♂♀, 4 km. S. Poindimie, 7 Mar 1978, E.I. Schlinger; 1♀, Poro Beach area, 7 Mar 1978, E.I. Schlinger (INHS). Holotype in MNHN. Paratypes in AMS, INHS, BPBM, and MNHN.

**Etymology.** The specific epithet derives from the Latin, *flavus* [= yellow] + *pedis* [= leg, foot], referring to the characteristic yellow legs of both males and females of this species.

### *Cymatopus neocaledonicus* Evenhuis, new species

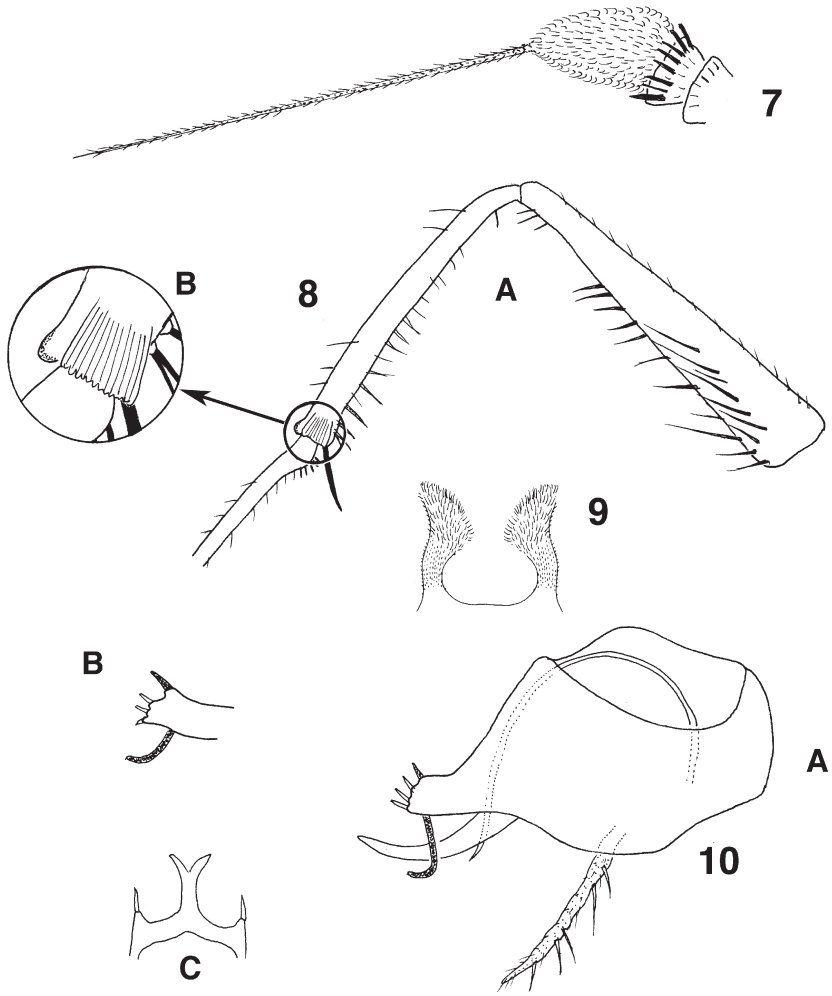
(Figs. 11–13)

**Diagnosis.** Most similar to *C. baravikai*, n. sp., but can be easily distinguished by the absence of a concavity on tibia I (present in *C. baravikai*) and the presence of a swollen area at mid point ventrally on tibia I (absent in *C. baravikai*). *Cymatopus neocaledonicus* can be easily separated from the only other species of the genus from New Caledonia, *C. plautinus*, n. sp. by the black legs (these legs yellow in *C. plautinus*).

**Description.** Male. Length: Body: 4.0–4.5 mm; wing 3.4–3.6 mm. *Head.* Frons and face grayish-black, silvery pollinose; clypeus slightly protruding. Face width 1.5 times width of first flagellomere. Palpus grayish brown with 10–12 black hairs, 1–2 long hairs apically, as long as palpus, bristles absent. Mouthparts brown. Occiput black, with long black hairs ventrally; pair of long ocellars and shorter fronto-orbitals just above antennal sockets; pair of minute postocellars; pair of converging postverticals. Upper postoculars uniseriate, black; lower postoculars multiseriate. Antenna (cf. Fig. 4) black; first flagellomere short, conical, length subequal to height. Arista apical, 2.5 x length of first three antennal segments.

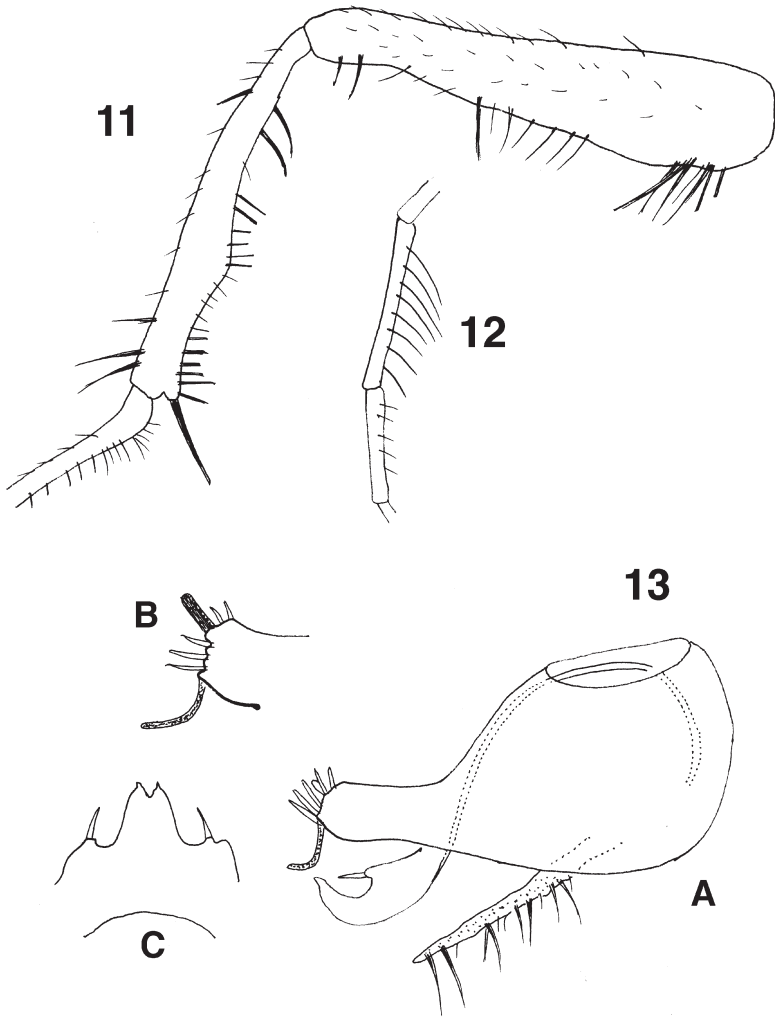
*Thorax.* Mesonotum brownish black, gray pollinose; pleura gray, gray pollinose. No acrostichals, 5 dorsocentrals, 1 short humeral, 1 long posthumeral, 3 short propleurals; 2 notopleurals, 3 supraalar, 1 long postalar. Scutellum grayish-black, with pair of long converging scutellars, short hair 1/3 length of scutellars laterad of each scutellar.

*Legs.* Black except trochanter I brownish yellow. Claws black, pulvilli as long as claws. *Fore leg* (Fig. 11–12): lengths (femur, tibia, and tarsi): 46: 40: 40: 21: 14: 10: 10. Coxa I with row of about 4–5 strong black hairs on basal 3/4, patch of 8–10 short hairs apically. Trochanter I bare. Femur I (Fig. 11) widest at base, tapering evenly to apex, basal width ca. 1/3 length of coxa I; basoventrally with 4–5 thick black hairs on lateral surface, 2 rows of long black hairs along basal 3/4 of anteroventral surface; short hairs distributed evenly along anterodorsal surface; apical portion of lateral surface



**Figs. 7–10.** *Cymatopus flavipes*, n. sp., male. **7.** Antenna. **8.** **a.** Fore femur, tibia, and base of first tarsal segment. **b.** Detail of apex of fore tibia. **9.** Caudal appendages of sixth sternum. **10.** Male genitalia; **a.** hypopygium, lateral view; **b.** detail of surstylus, dorsal view; **c.** apex of hypandrium, ventral view.





**Figs. 11–13.** *Cymatopus neocaledonicus*, n. sp., male. **11.** Fore femur, tibia, and base of first tarsal segment. **12.** Second and third tarsal segments of foreleg. **13.** Male genitalia; **a.** hypopygium, lateral view; **b.** detail of surstylus, dorsal view; **c.** apex of hypandrium, ventral view.

with 4–6 strong black hairs; 1–2 small preapical bristles. Tibia I (Fig. 11) subequal in length to femur, with swollen area ventrally at mid-level bearing 4–5 strong black hairs, patch of 3–4 strong black bristles on dorsal surface; numerous black hairs along ventral surface; small lobe preapically bearing strong black preapical seta; short hairs on lateral and dorsal surfaces, 2 preapical hairs dorsally. It1 slender, subequal in length to tibia, with 4–5 short, strong black hairs at extreme base near joint, otherwise It1 unmodified. It2 (Fig. 12) with 8–9 long curved bristles on mesal surface. It3 (Fig. 12) with 2–3 short spiky bristles basally. It4 and It5 unmodified. *Mid leg.* Lengths (femur, tibia, tarsi): 71: 62: 45: 20: 10: 8: 8. Coxa II with row of 4–5 black lateral bristles, small patch of longer hairs apically. Trochanter bare. Femur II without strong bristles, numerous short posteroventral and preapical setae. Tibia II subequal in length to femur, unmodified. Tarsi unmodified. *Hind leg.* Lengths (femur, tibia, tarsi): 69: 71: 45: 26: 12: 8: 9. Coxa III with 3 black lateral hairs. Trochanter III bare. Femur III conspicuously bowed mesally, without strong bristles. Tibia III with 3 preapical bristles.

*Wing* (cf. Fig. 1). Infuscated pale smoky brownish, especially so in cell r1; veins brown; costa ends just beyond vein  $M_{1+2}$ ; vein  $M_{1+2}$  slightly undulate;  $R_1$  and  $R_{2+3}$  slightly converging at wing margin;  $R_{2+3}$  and  $M_{1+2}$  subparallel. Crossvein m-cu short, oblique, 1/3 length of apical part of  $M_{3+4}$ . Anal vein absent. Halter stem darker basally, otherwise halter stem and knob yellowish white. Squama yellowish brown with fringe of long brown hairs.

*Abdomen.* Gray-black, gray pollinose laterally on tergites II–V. Tergal hairs and setae very short, black. Sixth sternum with yellowish white caudal appendages flared apically (cf. Fig. 9).

*Genitalia* (Fig. 13). Hypopygium small, sessile, gray. Cercus narrow, long hairs restricted to lateral surface, two longest hairs apically. Hypandrium (Fig. 13c) shining brown, broad, rounded apically with tiny bifid apex, spine-like bristle laterally. Surstylus slightly curved mesally, with apical hook-like seta; 3–4 spines and single strong, blunt, black seta subapically.

Female. As in male except for the following: Face broader, slightly wider than width of first antennal flagellomere. Legs more brownish on segments that are black in male. Coxa I with two rows of short black hairs along entire length. Femur I with two rows of hairs: lateral row with short, blunt black hairs; mesal row with long black hairs. Tibia I with strong black setae laterally on basal one-third. All other segments unmodified.

**Types.** Holotype ♂ and 13♂ ♀ paratypes from: **NEW CALEDONIA:** 4 km S. Poindimie, 7 Mar 1978, E.I. Schlinger. Holotype in MNHN. Paratypes in INHS, MNHN, and AMS.

**Etymology.** The specific epithet refers to the country of New Caledonia.

### *Cymatopus othniopteryx* Evenhuis, new species

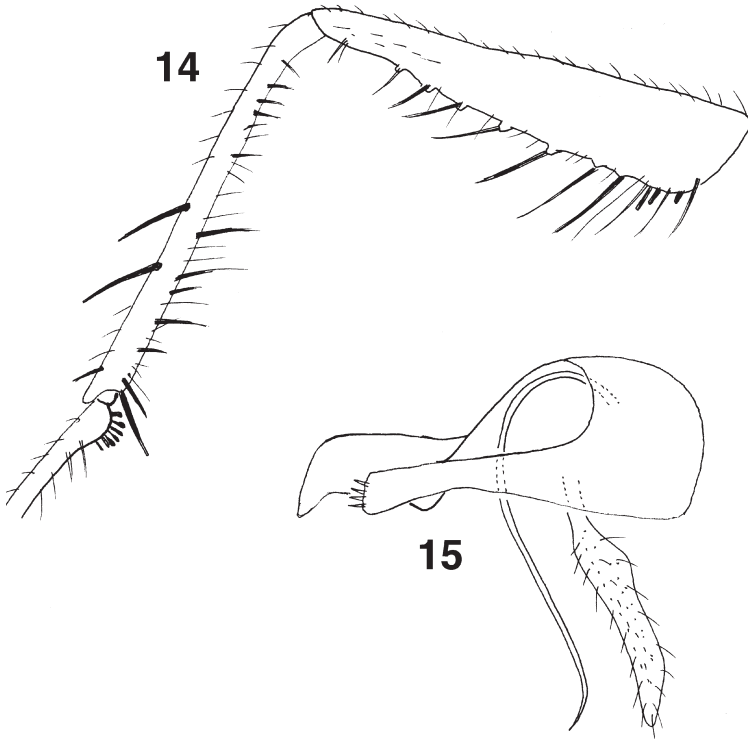
(Figs. 3, 14)

**Diagnosis.** Similar in appearance to *C. malayensis* on the basis of the conspicuously modified hind margin of the wing in males. This species is easily distinguished from *C. malayensis*, however, by the absence of any patch of microtrichae in the apical portion of the wing field and the absence of a patch of long hairs on the hind margin fringe distal to the sulcus in the wing

**Description.** Male. Length: Body: 4.6–5.0 mm; wing 4.2–4.7 mm. *Head.* Frons and face grayish black, gray pollinose; clypeus slightly protruding. Face slightly wider than width of first flagellomere. Palpus grayish brown with 10–12 black hairs, 2 long hairs apically, as long as palpus, bristles absent. Mouthparts brown. Occiput black, with long white hairs ventrally; pair of long ocellars and shorter fronto-orbitals just above antennal sockets; pair of minute postocellars; pair of converging postverticals. Upper postoculars uniseriate, black. Antenna brown; first flagellomere short, conical, slightly longer than high. Arista apical, 2 x length of first three antennal segments.

*Thorax.* Mesonotum dark brownish black, gray pollinose; pleura dark brown, gray pollinose. No acrostichals, 5 dorsocentrals, 1 short humeral, 1 long posthumeral, 4 strong spiky propleurals; 2 notopleurals, 3 supraalar, 1 long postalar. Scutellum grayish black, with pair of long converging scutellars, hair lateral to each scutellar ca. 1/2 length of scutellar.

*Legs.* Brown, except apices of coxa I, femur I, and base of tibia I yellowish orange; trochanter



**Figs. 14–15.** *Cymatopus*, males. **14.** *C. othniopteryx*, fore femur, tibia, and base of first tarsal segment. **15.** *C. simplex*, male hypopygium, lateral view.

I yellow. Claws black, pulvilli as long as claws. *Fore leg* (Fig. 14): lengths (femur, tibia, and tarsi): 40: 38: 28: 15: 11: 5: 5. Coxa I with row of about 4–5 strong black bristles dorsobasally, 8–10 longer, thinner hairs apically. Trochanter I bare. Femur I widest at base, tapering evenly to apex, basal width ca. 1/4 length of coxa I; small patch of black bristles basoventrally on lateral surface, row of 8–10 long, black hairs along basal 3/4 of lateroventral surface, lengths of hairs becoming gradually shorter toward apex; anterodorsal surface with short hairs distributed evenly along surface; 2–3 small preapical hairs. Tibia I subequal in length to femur, with 2 strong black setae on dorsal surface near mid-level, numerous strong, short, spiky bristles along ventral surface; strong, black, preapical seta not borne on lobe; short hairs on lateral and dorsal surfaces. It1 shorter than tibia, with 4–5 short, strong, brownish spatulate hairs at extreme base near juncture with tibia, otherwise It1 unmodified. It2 and It3 unmodified; It4 slightly flared. It5 flared. *Mid leg.* Lengths (femur, tibia, tarsi): 65: 57: 37: 20: 8: 8: 5. Coxa II with 1 black lateral bristle and 2–3 fine apical hairs. Trochanter brown with short black hairs. Femur II without strong bristles, numerous short hairs. Tibia II shorter than femur, with 2 strong preapical setae. Tarsi unmodified. *Hind leg.* Lengths (femur, tibia, tarsi): 65: 62: 40: 22: 12: 10: 8. Coxa III with 2 strong lateral setae. Trochanter III bare. Femur III slightly bowed mesally, without strong bristles. Tibia III and tarsi unmodified.

*Wing* (Fig. 3). Slightly infuscated, yellowish, veins yellowish brown; hind margin of wing mod-

ified by deep concavity at end of  $M_{3+4}$ ; vein C ends at vein  $M_{1+2}$ ; vein  $M_{1+2}$  strongly undulate;  $R_1$  and  $R_{2+3}$  slightly converging at wing margin; Crossvein m-cu short, meeting CuA1 at acute angle, almost opposite end of  $R_1$  in C; apical part of  $M_{3+4}$  not reaching wing margin; sparse, short hairs along hind margin, a few longer hairs in concavity; microtrichiae restricted to small row distal to crossvein m-cu. Anal vein absent. Halter stem darker basally, otherwise halter stem and knob yellowish white. Squama yellowish white with fringe of long white hairs.

*Abdomen.* Black, gray pollinose laterally on tergites II–V. Tergal hairs and setae very short, black. Fourth sternum with small spicules laterally.

*Genitalia.* Not dissected. Hypopygium small, sessile, black. Cercus relatively broad, with setae apically and laterally.

Female. As in male except for lack of MSSC of legs and wing, and the following: Face broader, slightly wider than width of first antennal flagellomere.

**Types.** Holotype ♂ and paratype ♀ from: **EAST TIMOR:** Dili District: intertidal rocks at Cape Hatomanulato, W. of Metinaro, 5 Sep 2004, D.A. Polhemus. Holotype and paratype in USNM.

**Remarks.** This is only the second known species in the genus with modified wings in the males. *Cymatopus malayensis* has modified wings of a similar shape (Fig. 2), but also has conspicuous MSSC in the male legs, which are lacking in *C. othniopteryx*. Further collecting along shores of Indo-Malayan areas may reveal further species in this “modified-wing” group.

**Etymology.** The specific epithet derives from the Greek, *οτηνειος* [= odd, strange] + *πτεροψυξ* [= wing], referring to the bizarre modification of the wing in males.

## NEW RECORDS

### *Cymatopus calcaratoides* Grootaert & Meuffels

*Cymatopus calcaratoides* Grootaert & Meuffels, 1993: 1577.

This species was originally described from Papua New Guinea, the following record extends the distribution into the Cape York Peninsula, Australia.

*Material Examined:* AUSTRALIA: 2♂, 2♀, **Queensland:** Portland Roads, 12°36'S, 143°25'E, 14 Dec 1971, D.K. McAlpine, G.A. Holloway, D.P. Sands (AMS).

*Remarks.* Although this is the first printed published record of this species from Australia, the distribution was previously recorded online (Bickel & Elliott, 2000).

### *Cymatopus leopoldi* Meuffels & Grootaert

*Cymatopus leopoldi* Meuffels & Grootaert, 1984: 146.

This species was originally described from Laing Island, Papua New Guinea. The following record extends the distribution into the Torres Straits Islands and Cape York Peninsula, Australia.

*Material Examined:* AUSTRALIA: **Queensland:** 1♂, 1♀, Cape Tribulation, 16°04'S, 145°28'E, G. Daniels, M.A. Schneider (UQIC); 1♂, Dugong Island, Torres Strait, 25 Aug 1949, M.V. Melbidir (ANIC).

*Remarks.* Although this is the first printed published record of this species from Australia, the distribution was previously recorded online (Bickel & Elliott, 2000).

### *Cymatopus simplex* Parent

*Cymatopus simplex* Parent, 1941: 195.

This endemic Australian species was originally recorded from southern Queensland. Numerous specimens at hand from various sources extend its distribution to the shores of the following coastal Australian states: New South Wales, South Australia, Tasmania, Victoria, and Western Australia; as well as Lord Howe Island.

*Material Examined*: AUSTRALIA: **Lord Howe Island**: [no further data], E.T. Kingston (AMS). **New South Wales**: Ashton Park, Mosman, Sydney, 33°50'S, 151°15'E, 16 Sep 1980, D.J. Bickel (AMS); Ashton Park, Mosman, Sydney, 33°50'S, 151°15'E, 21 Nov 1993, B.J. Sinclair (CNC); Bass Point, N of Kiama, 7 Jan 1978, E.I. Schlinger (CAS); Batemans Bay, 35°43'S, 150°11'E, 17 Sep 1949, Paramonov (ANIC); Broulee Beach, 35°51'S, 150°11'E, 9 Oct 1971 (ANIC); Brunswick Heads, 28°32'S, 153°33'E, Jan 1961, K.R. Norris (ANIC); Bundeena, 10 Dec 1966, D.K. McAlpine (AMS); Byron Bay, Jan 1961, K.R. Norris (ANIC); Kurnell, 34°00'S, 151°13'E, 7 Sep 1979, D.K. McAlpine (AMS); La Perouse, 26 May 1956, D.K. McAlpine (AMS); Narrabeen Head, 16 Jan 2005, tidal rocks, N.L. Evenhuis (BPBM); Newport, 33°39'S, 151°19'E, 15 Aug 1987, T. Robinson (AMS); Royal NP, Burning Palms trail, 34°11'S, 151°02'E, 25 Jun 1995, B.J. Sinclair (CNC); Royal NP, Burning Palms, 34°11'S, 151°02'E, 25 Jun 1995, B.J. Sinclair (CNC); Royal NP, Burning Palms trail, 34°11'S, 151°02'E, 13 Mar 1994, B.J. Sinclair (CNC); Sydney Harbour, Shark Island, 27 Nov 1987, B.J. Day (AMS); Valcluse, Bottle & Glass Rocks, 15 Apr 1981, McAlpine, Day, & Kent (AMS); Valla Beach, nr Nambucca, 11 Aug 1984, K.C. Khoo (AMS). **South Australia**: Seal Bay, Kangaroo Island, 36°00'S, 137°20'E, 6 Dec 1977, D.K. McAlpine & M.A. Schneider (AMS). **Tasmania**: Freycinet NP, 23 Feb 1994, B.J. Sinclair (CNC); Rocky Cape NP, nr sisters Beach, 29 Jan 1989, D.J. Bickel (AMS). **Victoria**: Walkerville, nr Waratah Bay, 6 Apr 1986, D.K. McAlpine (AMS). **Western Australia**: Bunker Bay, Cape Naturaliste, 33°32'S, 115°02'E, 11 Nov 1991, D.J. Bickel (AMS). [All localities are represented by male vouchers confirming the identification.]

*Remarks*. This species is not a member of *Cymatopus* s. str. (cf. hypopygia in Figs. 6, 10, and 13 vs. Fig. 15) and may be better placed in another genus, such as the New Zealand genus *Abatetia* Miller. It is here provisionally left in *Cymatopus* until further research can ascertain its generic status. Although this is the first printed published record of this species from states of Australia other than Queensland, the distribution was previously recorded online (Bickel & Elliott, 2000).

### *Cymatopus tibialis* Kertész

*Cymatopus tibialis* Kertész, 1901: 409.

*Cymatopus tibialis* was originally described from New Guinea. Grootaert & Meuffels (1984) added new records from Papua New Guinea but the range remained restricted to the island of New Guinea. Material examined in this study extends its distribution into the Solomon Islands.

*Material Examined*. SOLOMON ISLANDS. SANTA CRUZ GROUP: **Reef I**: 1 ♂, Mohawk Bay, near beach, 26 Jul 1926, E. Troughton & A. Livingston (AMS).

### CHECKLIST OF SPECIES OF *CYMATOPUS* KERTÉSZ

[excluding the 4 Neotropical species (*setosus* Curran, *cheesmani* (Parent), *bredini* Robinson, and *wirthi* Robinson), which may belong in a different genus]

1. *Cymatopus baravikawai* Evenhuis, n. sp. **Type-locality**: Suva, Viti Levu, Fiji. **Types**: Holotype ♂ in BPBM.  
**Distribution**: Fiji (Viti Levu, Taveuni, Lau Group [Koroni I])
2. *Cymatopus calcaratoides* Grootaert & Meuffels, 1993: 1577. **Type-locality**: Laing Island, Papua New Guinea. **Types**: Holotype ♂ in RBINS  
**Distribution**: Papua New Guinea.
3. *Cymatopus calcaratus* Parent, 1935: 59. **Type-locality**: Christmas Island [Indian Ocean]. **Types**: Holotype in BMNH.  
**Distribution**: Christmas Island [Indian Ocean].
4. *Cymatopus flavipes* Evenhuis, n. sp. **Type-locality**: Plage de Poé, New Caledonia. **Types**: Holotype ♂ in MNHN.  
**Distribution**: New Caledonia.
5. *Cymatopus leopoldi* Meuffels & Grootaert, 1984: 146. **Type-locality**: Laing Island,

Papua New Guinea. **Types:** Holotype ♂ in RBINS.

**Distribution:** Australia (Queensland), Papua New Guinea.

6. *Cymatopus longipilus* Parent, 1935b: 61. **Type-locality:** Christmas Island [Indian Ocean]. **Types:** Holotype in BMNH.

**Distribution:** Christmas Island [Indian Ocean], Thailand.

7. *Cymatopus malayensis* Parent, 1935a: 208. **Type-locality:** Pulau Aur, Malaysia. **Types:** Lectotype in BMNH.

**Distribution:** Malaysia (Johore, Pulau Aur), Singapore, Thailand.

8. *Cymatopus motuporensis* Grootaert & Meuffels, 1993: 1580. **Type-locality:** Motupore Island, Papua New Guinea. **Types:** Holotype ♂ in RBINS

**Distribution:** Papua New Guinea.

9. *Cymatopus neocaledonicus* Evenhuis, n. sp. **Type-locality:** 4 km S. of Poindimie, New Caledonia. **Types:** Holotype ♂ in MNHN.

**Distribution:** New Caledonia.

10. *Cymatopus othniapteryx* Evenhuis, n. sp. **Type-locality:** Cape Hatomanulato, East Timor. **Types:** Holotype ♂ in USNM.

**Distribution:** East Timor.

11. *Cymatopus simplex* Parent, 1941: 195. **Type-locality:** Burpengary, Queensland, Australia. **Types:** Holotype ♂ in BMNH.

**Distribution:** Australia (Lord Howe Island, New South Wales, South Australia, Queensland, Tasmania, Victoria, Western Australia).

12. *Cymatopus spinosus* Parent, 1934: 297 [1935b: 64]. **Type-locality:** Samoa. **Types:** Syntypes in BMNH.

**Distribution:** Samoa.

13. *Cymatopus thaicus* Grootaert & Meuffels, 2001: 351. **Type-locality:** Khao Lak, Phang-Nga, Thailand. **Types:** Holotype ♂ in RBINS.

**Distribution:** Malaysia, Thailand

14. *Cymatopus tibialis* Kertész, 1901: 409. **Type locality:** Seleo Island & Berlinhafen [= Aitape], Papua New Guinea. **Types:** Syntypes in HNHM (destroyed in 1956).

**Distribution:** Papua New Guinea, Solomon Islands (Reef I).

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