

***Neothalassius*, a new genus of Parathalassiinae (Diptera: Dolichopodidae s.lat.) from the Pacific coast of South America**

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Abstract

A new genus, *Neothalassius* **gen. nov.**, and two new species, *Neothalassius triton* **sp. nov.** and *Neothalassius villosus* **sp. nov.**, are described from rocky shorelines along the Pacific seacoast of South America. The phylogenetic placement of *Neothalassius* within the subfamily Parathalassiinae is discussed.

Key words: Empidoidea, Dolichopodidae, Parathalassiinae, *Neothalassius*, Neotropical, Chile, new genus, new species, phylogeny

Introduction

The subfamily Parathalassiinae appears to be the sister group to the long-legged flies (Empidoidea: Dolichopodidae s.str.) (Sinclair & Cumming 2006). Parathalassiines are very small (1–3 mm), relatively rarely collected flies that occur along river margins or on rocky or sandy seacoasts. The subfamily occurs in all zoogeographical regions except Antarctica, and currently includes seven extant genera and 39 described species. Parathalassiines are recognized by the following combination of features: antenna with single articulated arista-like stylus; wing with costal vein circumambient; cell dm usually present and emitting three veins, i.e. M_1 , M_2 , M_4 (however, cell dm and veins dm-m and M_2 are lost in some taxa); crossvein bm-m nearly complete, but not usually joining M_1 ; male terminalia with the left epandrial lamella bearing a ventral process (Brooks & Cumming 2011, 2012).

Brooks & Cumming (2011) reviewed the New World parathalassiine fauna and recognized six genera from the region including *Chimerothalassius* Shamshev & Grootaert, *Eothalassius* Shamshev & Grootaert, *Microphorella* Becker, *Parathalassius* Mik, *Thalassophorus* Saigusa, and a distinctive, new undescribed genus from rocky coastal habitats in Chile. The new genus was included in Brooks & Cumming's (2011) generic key, where it was recognized by its reduced wing venation, with veins M_2 , dm-m and cell dm absent (similar to *Chimerothalassius*), and its distinctive head with posteriorly directed mouthparts. Here we formally describe this new genus and its two included species, and discuss its phylogenetic placement within the Parathalassiinae.

Material and methods

Specimens examined in this study are deposited in the Canadian National Collection of Insects, Ottawa, Canada (CNC), the University of Guelph Insect Collection, Guelph, Canada (DEBU), the Museo Nacional de Historia Natural, Santiago, Chile (MNHNS) and the United States National Museum of Natural History, Washington D.C., USA (USNM). Primary type label data are cited verbatim and are listed from the top label downward, with data from each label placed in quotation marks and separated from data on other labels by a semicolon. Lines on labels are indicated by a slash (/) with additional information included in square brackets, i.e. [].

As in our previous papers (e.g., Brooks & Cumming 2011, 2012), terms used for adult structures primarily

follow Cumming & Wood (2009), except for the antenna and wing venation where Stuckenberg (1999) and Saigusa (2006) are followed, respectively. Homologies of the male terminalia follow Brooks & Cumming (2011, 2012) and Brooks & Ulrich (2012).

Male and female terminalia dissections were macerated in 85% lactic acid heated in a microwave oven for multiple 20–30 second intervals, until muscle tissue was dissolved. As in Brooks & Cumming (2011, 2012) and Brooks & Ulrich (2012), figures of male genitalia in lateral view are oriented with the anatomically dorsal and ventral parts directed towards the top and bottom of the page, respectively, following Sinclair & Cumming (2006, figs 347–350).

Systematics

Genus *Neothalassius* gen. nov.

Type-species: *Neothalassius triton* sp. nov.

Diagnosis. Adults of *Neothalassius* are easily distinguished from other parathalassiine genera by the head with well-developed parafacial plate; gena distinctly projected below eye (Figs 9–12); mouthparts directed posteriorly with narrow labellum and broad flat palpus (Figs 3, 5, 9–12); wing veins M_2 , dm-m and cell dm absent (Fig. 13); fore coxa spinose (Fig. 5); tarsomere 5 of all legs with dorso-medial projection (Fig. 4); and abdominal sternite 1 with medial projection on the anterior margin (Fig. 7).

Description. Small dark grey flies (body length: 1.2–2.0 mm, wing length: 1.5–1.9 mm), with reduced chaetotaxy (Figs 3, 5, 6). **Male. Head** (Figs 9–12): Broader than thorax in dorsal view; rounded or ovoid in lateral view. Compound eye with posteroventral margin concave. Neck inserted high on head. Ocellar triangle conspicuous. Occiput flat or concave on upper median part. Dichoptic, eyes entirely covered with uniform ommatrichia, medial edge with emargination near antenna. Frons broader than high, widening towards vertex. Face widening below with well-developed facial ridge and parafacial plate laterally flanking clypeus. Clypeus not separated from face, higher than wide, deflected posteriorly, largely hidden by flanking parafacial plates. Gena wide, distinctly projected below eye (Figs 9–12). Bristles of head well-differentiated: pair of fronto-orbitals close to base of antennae, pair of anterior ocellars, 1–2 pairs tiny posterior ocellars, pair of postocellars, pair of verticals, upper postocular setae in row, becoming field of setae ventrally across broad postgena. Antenna inserted above middle of head in profile; scape short, funnel-shaped; pedicel spheroidal, with subapical circlet of setulae; postpedicel about 2X longer than wide, drop- or bulb-shaped, clothed in fine hairs; stylus arista-like. Mouthparts (Figs 3, 5, 9–12) directed posteriorly with narrow labellum; palpus broad, flat, subrectangular, sensory pit indiscernible; epipharyngeal carina present; epipharyngeal blades narrow; labellum with pseudotracheae indistinct. **Thorax:** Mesoscutum moderately arched (Figs 3, 5), prescutellar depression present (Fig. 6). Prosternum fused with proepisternum forming precoxal bridge. Postpronotal lobe distinct with a few small setulae. Mesonotum shield-shaped in dorsal view, slightly longer than wide, bristles well-differentiated. Acrostichal setae absent; 3–4 dorsocentral bristles with weak accessory setae between bristles, 0–1 presutural supra-alar bristle, 1 postsutural supra-alar bristle, 2 notopleural bristles, and 1 post-alar bristle, per side; scutellum broadly subtriangular with 1 pair of erect inclinate bristles near apex. Mesopleuron bare. **Wing** (Fig. 13): Pterostigma absent, membrane somewhat translucent, entirely covered with minute microtrichia, anal lobe not developed, alula absent. Costa (C) circumambient, with strong bristle at extreme anterior base. Anterior costal section bearing row of short spine-like setae intermixed with fine setae from Sc to R_{2+3} , posterior part of costa beyond R_{2+3} with only fine setae. All longitudinal veins complete, reaching wing margin, Sc faint apically. R_1 straight. R_{2+3} diverging from R_{4+5} in basal half, gradually curved posteriorly to run parallel to R_{4+5} in distal half. R_{4+5} straight. M_1 diverging from R_{4+5} in basal half, gradually curved anteriorly to run subparallel to R_{4+5} in distal half. M_2 absent. M_4 mainly straight with slight posterior curve apically. Base of Rs originating opposite humeral crossvein. Crossvein r-m short, trace-like or indiscernible. Crossvein bm-m appearing incomplete, depigmented at junction point with M_1 . Crossvein dm-m and cell dm absent. Cells bm and cua in basal fourth of wing, subequal in length and width. Cell cua closed with distal end rounded. Vein CuA+CuP short. Calypter with fine setae. **Legs:** Almost entirely devoid of well-developed bristles, mostly clothed with fine pale setae; tarsal claws, pulvilli and empodium normally developed on all legs;

tarsomere 5 of fore, mid and hind legs with dorso-medial projection (Fig. 4). *Foreleg*: Coxa with field of short, stout, spine-like setae on anterior surface (Fig. 5); tibia with apical comb-like row of closely-spaced setae medially; tarsomere 1 modified, with slight ventromedial excavation or large basiventral swelling; tarsomeres 2 and 3 with row of minute spine-like setae ventrally. *Midleg*: Coxa with a few weak setae on anterior surface; tibia with apicoventral bristle; tarsomeres 1–4 with stronger setae on apicoventral margin. *Hindleg*: Coxa with a few fine setae on outer surface; tibia with apical comb-like row of closely-spaced setae medially adjacent apicoventral bristle; tarsomeres 1–4 with somewhat stronger setae on apicoventral margin. **Abdomen** (see Figs 3, 6, 7, 8): Abdominal muscle plaques present. Tergites 1–6 and sternites 1–5 sparsely clothed with short, fine setae; sternite 6 and 7 bare; tergite 7 with 1 small posterolateral seta per side, otherwise bare. Sternite 1 with medial spine-like or nipple-like process on anterior margin (Fig. 7). Segments 1–4 symmetrical with simple subrectangular tergites and sternites; segments 5–7 narrowed, somewhat more heavily sclerotized (especially segments 6 and 7) and laterally compressed to form cavity on right side for hypopygium. Sternite 5 with broad projecting pregenitalic process with membranous apex. Sternite 8 more or less subquadrate, forming dome-like cap over anterodorsal region of hypopygium; tergite 8 reduced to narrow band-like sclerite. *Hypopygium* (Figs 16–21): Lateroflexed to right; inverted with posterior end directed anteriorly; compact, less than half length of abdomen; asymmetrical; foramen not formed. Epandrium divided into left and right lamellae. Left epandrial lamella (Figs 16, 19) partially overlapping left side of hypandrium, posterior margin trifurcate, ventral margin broadly rounded and fused with hypandrium but epandrial margin distinct; ventral epandrial process present, elongate with rounded apex, apparently not articulated at base. Left surstylus bilobed, dorsal and ventral lobes separated by deep U-shaped cleft through which left postgonite lobe protrudes. Dorsal lobe of left surstylus with large curved apical bristle and weaker dorsal seta, ventrally with short tubercle bearing thick spatulate apical seta (prensiseta). Ventral lobe of left surstylus with 1 ventral seta and pair of closely-set thickened setae (prensisetae) on medial surface. Right epandrial lamella (Figs 17, 20) partially overlapping right side of hypandrium, subtriangular, fused with hypandrium along lower margin, ventral epandrial process present. Right surstylus bilobed, dorsal and ventral lobes separated by deep U-shaped cleft through which right postgonite lobe protrudes. Dorsal lobe of right surstylus with large curved apical bristle and weaker dorsal seta, with thick seta (prensiseta) on medial surface. Ventral lobe of right surstylus bifurcate with elongate dorsal portion lying behind postgonite lobe, bearing 2 ventral setae; ventral portion tapering distally with apical seta. Hypandrium reniform or elongate-reniform in lateral view. Postgonite with basal internal portion cradling base of phallus and ejaculatory apodeme, left and right postgonite lobes large and globular, protruding out from between dorsal and ventral lobes of surstylus. Phallus tubular, J-shaped, bent upwards. Ejaculatory apodeme keel-like, laterally flattened. Hypoproct projected as a pair of sac-like, mainly membranous asymmetrical lobes. Cercus small with setose dorsomedial lobe and lateral tubercle (joined with hypoproct) bearing apical seta (Figs 18, 21). **Female** (not known for *N. villosus* **sp. nov.**): Similar to male except: legs with fore tarsomere 1 unmodified; abdominal sternite 1 with smaller medial process on anterior margin; apical abdominal segments retracted into segment 5 (segments 6–8 glabrous); terminalia (Figs 14, 15) with tergite 8 medially divided, narrowly fused with sternite 8 anterolaterally; tergite 10 medially divided with three acanthophorite spines on each side; cercus heavily sclerotized, narrow, pointed apically; spermatheca apparently an unsclerotized unpigmented tube with sperm pump at base.

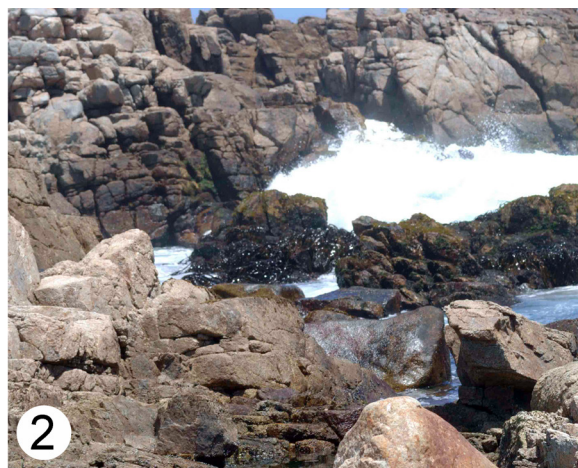
Etymology. The generic name is derived from *neo* for new, in reference to the New World Neotropical distribution of the genus and *thalassius*, a common parathalassiine suffix for sea coast. The gender is masculine.

Distribution and habitat. *Neothalassius* **gen. nov.** is found on rocky seacoasts of Chile (Figs 1, 2) and is currently known to range from Cuya in the northern Tarapacá Region (Region I), south to Chiloé Island (i.e., Chepu) in the Los Lagos Region (Region X) (Figs 22, 23).

Key to species of *Neothalassius* (males)

- 1 Antennal arista-like stylus longer than postpedicel (Figs 9, 10); head higher than broad in anterior view (Fig. 9) with parafacial plate and gena strongly produced, ovoid in lateral view (Fig. 10) with postgena moderately developed bearing short setae; face broad; palpus exposed and mostly visible; R_1 reaching costa before middle of wing, well before termination point of M_1 (Fig. 13); coxa of foreleg with spine-like setae on lower anterior surface only, trochanter and base of fore femur without similar spine-like setae; first tarsomere of fore tarsus with slight ventromedial excavation; abdominal sternite 1 with short, rounded medial process on anterior margin; male terminalia with sternite 8 lacking cleft along posterior margin, sparsely covered with short unmodified setae *N. triton* **sp. nov.**

- Antennal arista-like stylus shorter than postpedicel (Figs 11, 12); head shorter than broad in anterior view (Fig. 11) with parafacial plate and gena moderately produced, rounded in lateral view (Figs 5, 12) with postgena broad bearing long setae below; face narrow, palpus largely concealed; R_1 reaching costa near middle of wing, almost in line with termination point of M_4 ; coxa of foreleg with spine-like setae on entire anterior surface (Fig. 5), trochanter and base of fore femur with similar spine-like setae; first tarsomere of fore tarsus with large basiventral swelling; abdominal sternite 1 with long, spine-like process on anterior margin projecting anteriorly between hind coxae (Fig. 7); male terminalia with sternite 8 cleft along posterior margin, bearing eyelash-like row of long setae on each side of cleft (Fig. 8) *N. villosus* sp. nov.



FIGURES 1–4. *Neothalassius* gen. nov., habitat photographs, male habitus and hindleg. 1–2. Rocky coastal site at Algarrobo, Chile, with Santiago dipterist Christian Gonzalez in foreground at left (photographs by Steve Marshall). 3. *Neothalassius triton* sp. nov., lateral habitus of holotype ♂. 4. *Neothalassius triton* sp. nov., male hindleg, apex of tibia and tarsus, dorsal view. Abbreviation: tsm—tarsomere.

***Neothalassius triton* sp. nov.**

(Figs 3, 4, 9, 10, 13–18, 22)

Type material. **HOLOTYPE** ♂ labelled: “CHILE: Aconcagua,/ Algarrobo, rocky coast, 23/ Nov 2006, S.A. Marshall,/ debu00283164”; “HOLOTYPE/ *Neothalassius triton*/ Brooks & Cumming” [red label] (MNHNS).

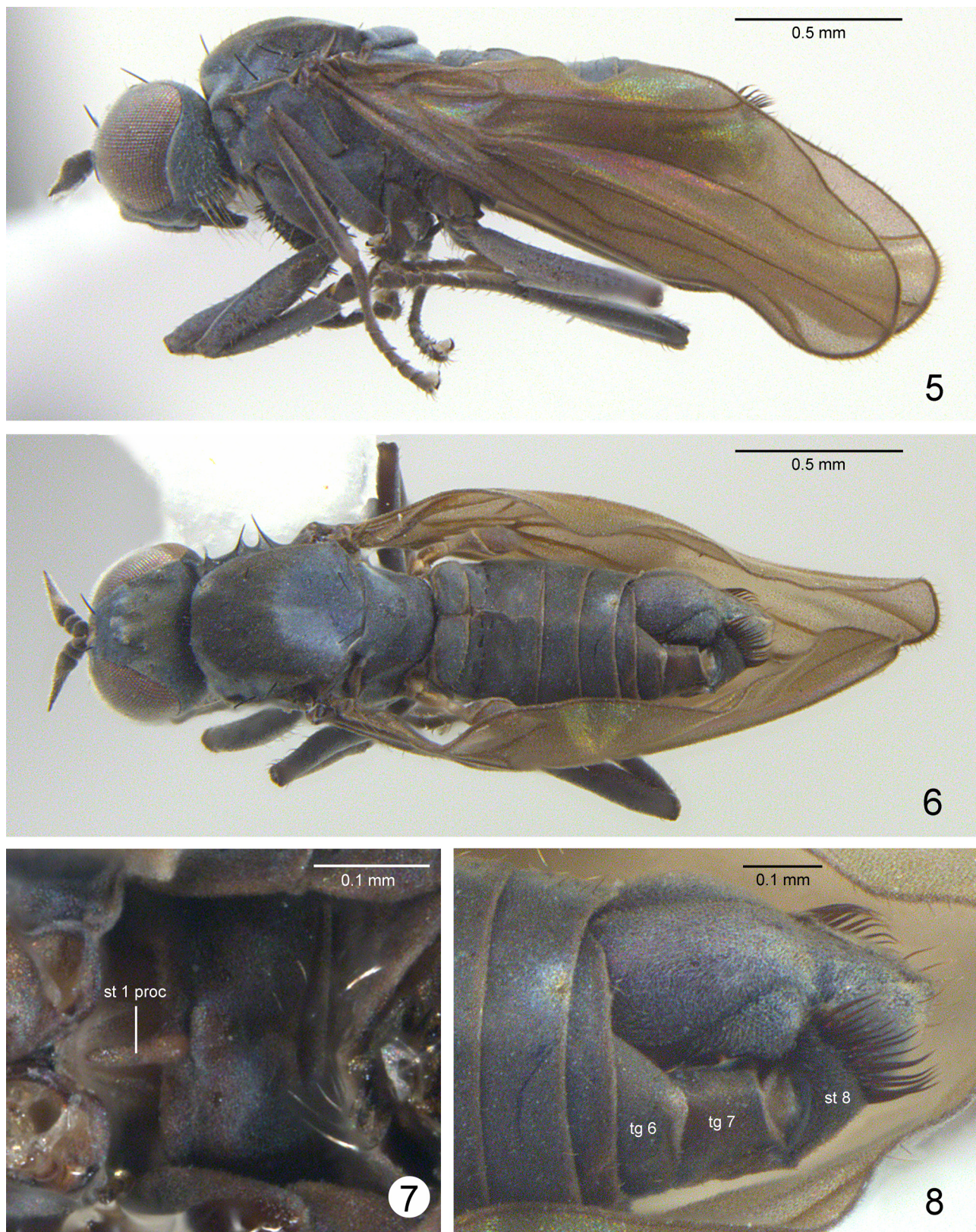
PARATYPES: **CHILE:** same data as holotype [ca. 33°22'S 71°42'W] except, debu00283172, debu00283177, debu00283190, debu00283180 (3♂, 1♀, respectively, DEBU); same data as holotype except, debu00283174, debu00283170 (1♂, 1♀, respectively, CNC); Valparasio Region, Cachagua, shoreline, rocks 32°34.90'S 71°27.40'S 8.xii.2008, Kits & Marshall (1♂, DEBU); Coquimbo Region, Punta Teatinos [ca. 29°49'S 71°17'W], 16.ix.1952, G. Kuschel (2♂, 1♀, USNM); same data except 13.x.1957, on seashore, G. Kuschel (1♀, USNM); Los Lagos Region, Chiloé Island, Chepu [ca. 42°03'S 74°02'W], x.1958, on seashore, G. Kuschel (1♂, 1♀, USNM).

Diagnosis. Males of *N. triton* sp. nov. are easily distinguished from those of *N. villosus* sp. nov. by the characters listed in the key above. Additional diagnostic features include the following: antennal postpedicel strongly tapered and narrowed in distal half (Fig. 10); mid femur slightly swollen in basal third with dense setulae below swelling; mid tarsomere 1 not swollen basally, with series of hook-like setulae ventrally; hind tarsomeres 1–4 with elongated medioapical setae, tarsomere 1 somewhat swollen with narrowed base (Fig. 4); hypopygium (Fig. 17) with right ventral epandrial process lacking basal projection, with apical portion directed dorsally and mostly hidden in lateral view; hypandrium reniform in lateral view; proctiger (cerci + hypoproct, Fig. 18) slightly asymmetrical with right and left lobes similar in shape and size.

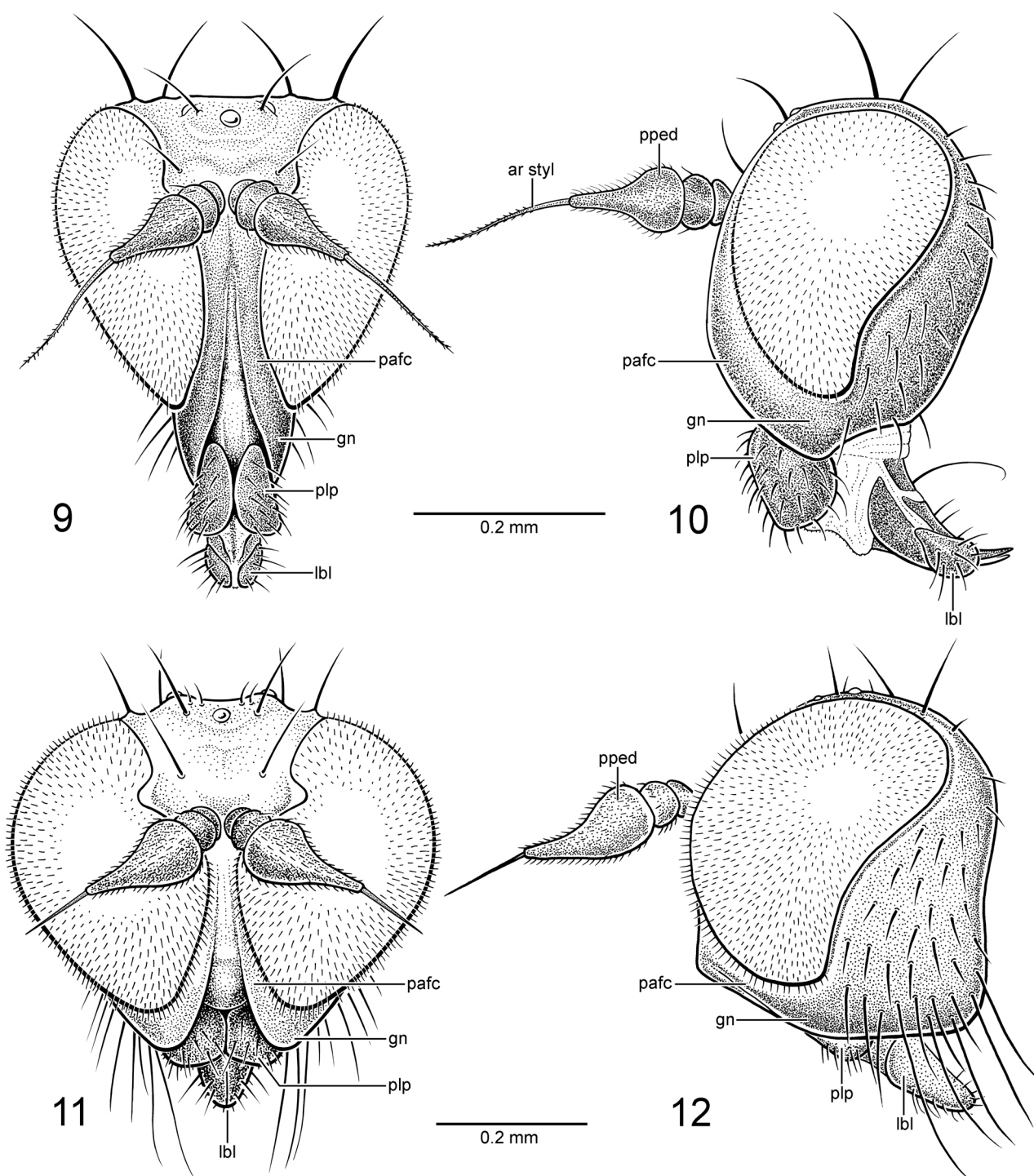
Description. Male: Body length 1.2–1.6 mm, wing length 1.5–1.9 mm. Body (Fig. 3) dark grey to greyish-brown in ground colour with greyish pruinosity, with faint bluish-green and bronze metallic tinges visible at certain angles; legs with pruinosity slightly less dense, brownish-grey; major bristles of head (i.e., fronto-orbitals, anterior ocellars, postocellars, verticals) and thorax (i.e., dorsocentrals, supra-alars, notopleurals, post-alars, scutellars) black, other smaller setae pale unless otherwise noted. **Head** (Figs 9, 10): Ovoid in lateral view (Fig. 10), higher than broad in anterior view (Fig. 9), mainly dark grey with compound eye dull red. Occiput weakly concave on upper median part above occipital foramen. Frons about 2X broader than high. Face (including parafacial plates) about as broad as distance between posterior ocelli, strongly protruding in lateral view. Face and medial edge of parafacial plates brownish. Clypeus brown. Gena strongly produced. Postgena moderately broad in lateral view bearing short setae. Antenna (Fig. 10) entirely dark brown; postpedicel rounded in basal half, strongly tapered and narrowed in distal half; arista-like stylus longer than postpedicel. Mouthparts with proboscis (including labrum and hypopharynx) distinctly curved (Fig 10); palpus exposed and mostly visible, dark brown, clothed with fine setae.

Thorax: Dark grey to greyish-brown, with faint bluish-green and bronze metallic tinges visible at certain angles especially on scutum; 4 dorsocentral bristles present and 1 presutural supra-alar bristle present or absent, per side. Halter pale brownish-white. **Wing** (Fig. 13): Veins brown. R_1 reaching costa before middle of wing, well before termination point of M_4 . **Legs:** *Foreleg:* Coxa with short, black, spine-like setae on lower anterior surface only, trochanter and base of femur without similar spine-like setae; femur slightly longer than tibia; tarsus subequal in length to femur; tarsomere 1 slightly shorter than combined length of tarsomeres 2–5, with slight ventromedial excavation, medial surface apparently with sparsely distributed, indistinct black spine-like setae; tarsomeres 2–4 decreasing slightly in length apically; tarsomere 5 slightly longer than tarsomere 2. *Midleg:* Femur subequal in length to tibia, basal third slightly swollen with dense setulae below swelling; tarsus slightly longer than tibia; tarsomere 1 subequal to combined length of tarsomeres 2–5, with series of hook-like setulae ventrally; tarsomeres 2–4 decreasing slightly in length apically; tarsomere 5 subequal in length to tarsomere 2. *Hindleg:* Femur slightly longer than tibia; tibia with well-developed setae on dorsal and lateral surfaces; tarsus (Fig. 4) slightly shorter than tibia; tarsomeres 1–4 with elongated medioapical setae; tarsomere 1 somewhat swollen with narrowed base, subequal to combined length of tarsomeres 2–4, tarsomeres 2–4 decreasing slightly in length apically; tarsomere 5 longer than tarsomere 2. **Abdomen:** Dark grey to greyish-brown. Sternite 1 with short, rounded medial process on anterior margin. Sternite 8 lacking cleft along posterior margin, sparsely covered with short unmodified setae. **Hypopygium** (Figs 16–18): About as long as high in lateral view. Left ventral epandrial process with 2 strong ventral setae near base (Fig. 16). Right ventral epandrial process lacking basal projection, apical portion directed dorsally and lying adjacent to phallus, mostly hidden in lateral view (Fig. 17). Ventral lobe of right surstylus with ventral portion narrow (Fig. 17). Hypandrium reniform in lateral view. Phallus with apical portion ribbed along dorsal surface, apex not bifurcate. Hypoproct (Fig. 18) with right and left lobes similar in size, left lobe with

narrow ventrolateral process. Cercus (Fig. 18) with lateral tubercle well-developed, right and left cercus slightly asymmetrical. **Female:** Similar to male except as follows: foreleg with tarsomere 1 unmodified, lacking ventromedial excavation; base of mid femur not swollen and with only sparse setulae ventrally; terminalia as in description of genus (see above).



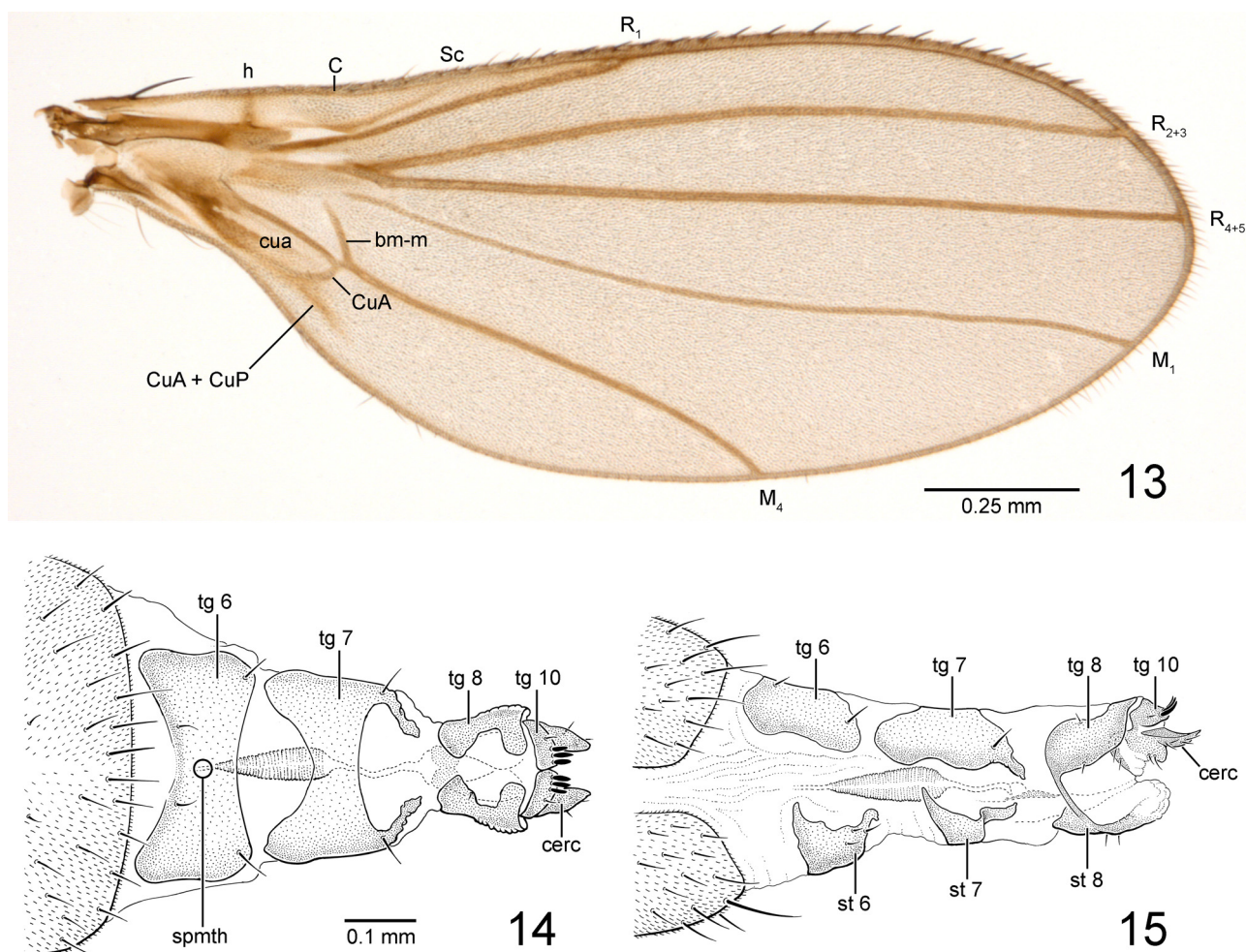
FIGURES 5–8. *Neothalassius villosus* sp. nov., male habitus and abdomen. **5.** Lateral habitus of holotype ♂ (antennal arista-like stylus broken off). **6.** Dorsal habitus of holotype ♂ (antennal arista-like stylus broken off). **7.** Male abdominal sternites of paratype ♂. **8.** Postabdomen of holotype ♂, dorsal view. Abbreviations: proc—process; st—sternite; tg—tergite.



FIGURES 9–12. Heads of males. **9.** *Neothalassius triton* **sp. nov.**, anterior view. **10.** *Neothalassius triton* **sp. nov.**, lateral view. **11.** *Neothalassius villosus* **sp. nov.**, anterior view. **12.** *Neothalassius villosus* **sp. nov.**, lateral view. Abbreviations: ar styl—arista-like stylus; gn—gena; lbl—labellum; pafo—parafacial; plp—palpus; pped—postpedicel.

Etymology. The specific epithet is named after the Greek god *Triton*, the messenger of the sea, in reference to the coastal distribution of this species.

Distribution. *Neothalassius triton* **sp. nov.** is currently known to occur on rocky seashores along the Chilean coast from Punta Teatinos in the Coquimbo Region (Region IV), south to Chepu on Chiloé Island in the Los Lagos Region (Region X) (Fig. 22).



FIGURES 13–15. *Neothalassius triton* sp. nov., wing and female terminalia. **13.** Male wing. **14.** Female terminalia, dorsal view. **15.** Female terminalia, lateral view. Abbreviations: bm-m—basal medial crossvein; C—costal vein; cerc—cercus; CuA—anterior branch of cubital vein; cua—anterior cubital cell; CuP—posterior branch of cubital vein; h—humeral crossvein; M_1 , M_4 —medial veins; R_1 , R_{2+3} , R_{4+5} —radial veins; Sc—subcostal vein; spmth—spermatheca; st—sternite; tg—tergite.

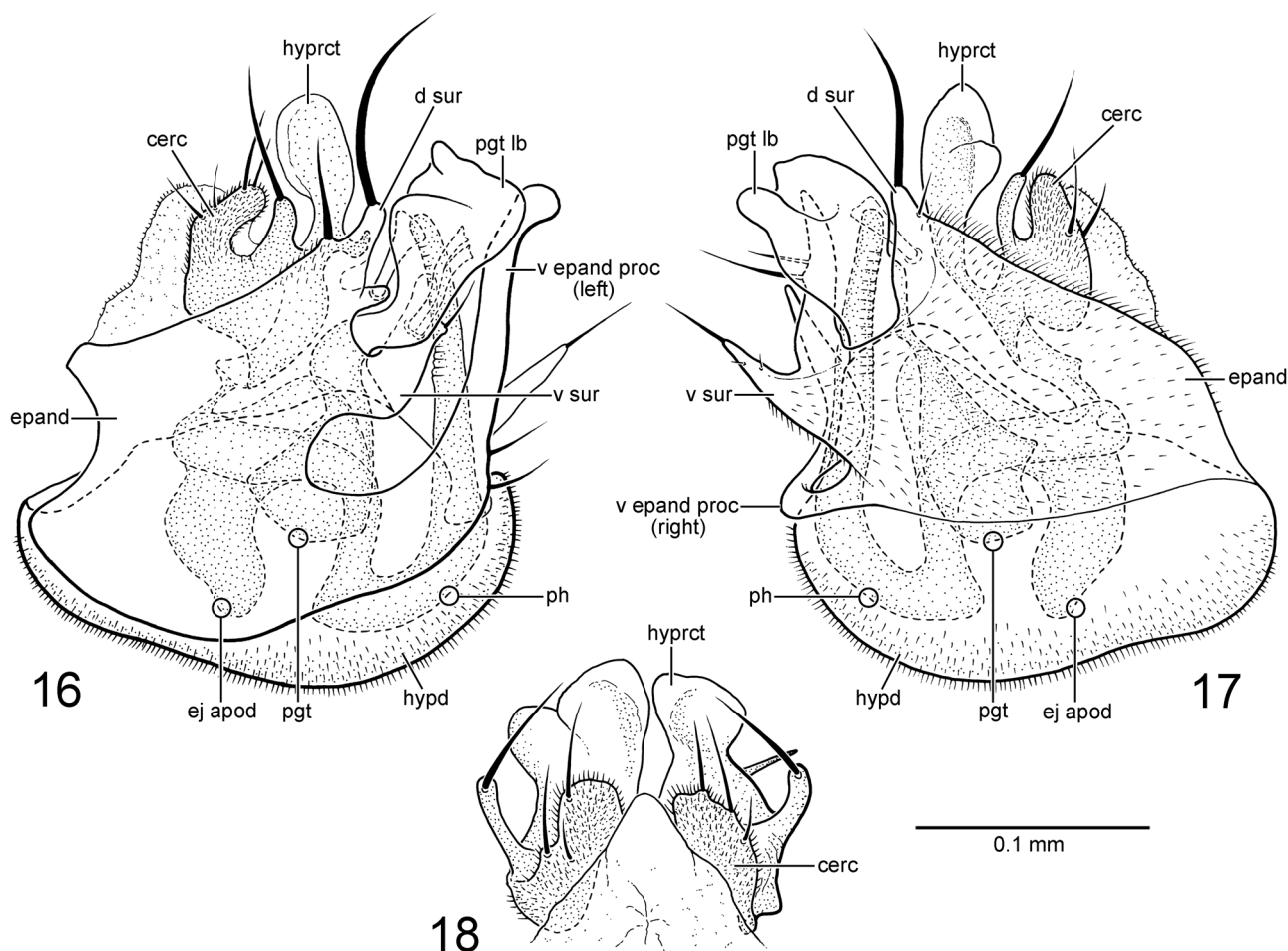
***Neothalassius villosus* sp. nov.**

(Figs 5–8, 11, 12, 19–21, 23)

Type material. **HOLOTYPE** ♂ labelled: “CHILE: Aconcagua,/ Algarrobo, rocky coast, 23/ Nov 2006, S.A. Marshall,/ debu00283188”; “HOLOTYPE/ *Neothalassius villosus*/ Brooks & Cumming” [red label] (MNHN). **PARATYPE:** CHILE: Tarapacá, Cuya [ca. 19°11'S 71°17'W], 26.ix.1957, on sea rocks, G. Kuschel (1♂, USNM).

Diagnosis. Males of *N. villosus* sp. nov. are easily distinguished from those of *N. triton* sp. nov. by the characters listed in the key above. Additional diagnostic features include the following: antennal postpedicel gradually tapered and narrowed in distal half (Fig. 12); mid femur not swollen basally, with sparse ventral setae; mid tarsomere 1 slightly swollen in basal third with dense setulae below swelling; hind tarsus with short setae, tarsomere 1 not swollen; hypopygium (Fig. 20) with right ventral epandrial process bearing pointed basal projection, apical portion claw-like, directed posteriorly with pointed apex; hypandrium elongate-reniform in lateral view; proctiger (cerci + hypoproct) strongly asymmetrical, right lobe of hypoproct much larger than left lobe (Fig. 21).

Description. Male: Body length 2.0 mm, wing length 1.8–1.9 mm. Body (Figs 5, 6) mainly dark grey in ground colour with greyish pruinosity, with faint bluish-green and bronze metallic tinges visible at certain angles; legs with pruinosity slightly less dense, mainly dark grey; major bristles of head (i.e., fronto-orbitals, anterior ocellars, postocellars, verticals) and thorax (i.e., dorsocentrals, supra-alars, notopleurals, post-alars, scutellars)



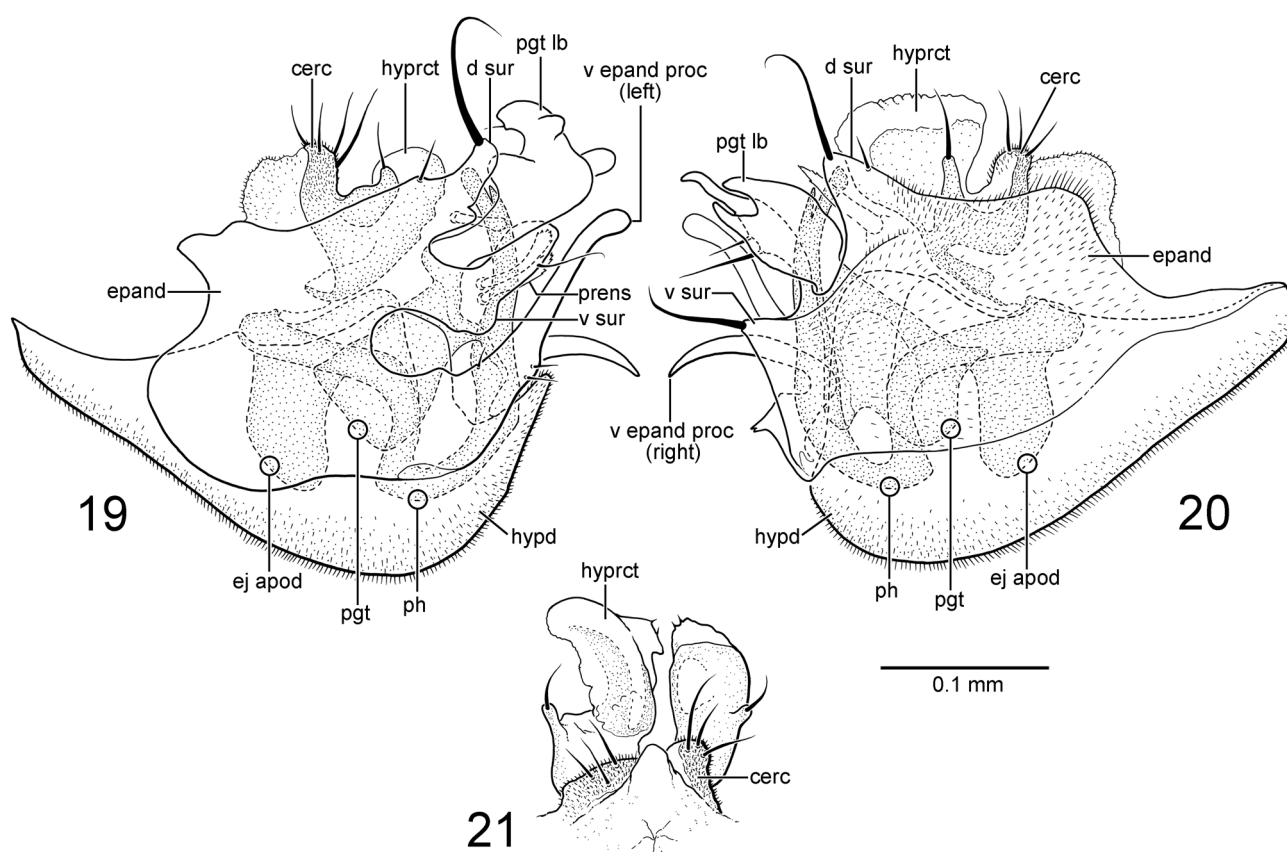
FIGURES 16–18. *Neothalassius triton* sp. nov., male terminalia. 16. Hypopygium, left lateral view. 17. Hypopygium, right lateral view. 18. Proctiger, dorsal view. Abbreviations: cerc—cercus; d sur—dorsal lobe of surstylus; ej apod—ejaculatory apodeme; epand—epandrium; hypd—hypandrium; hypcrct—hypoproct; pgt—postgonite; pgt lb—postgonite lobe; ph—phallus; v epand proc—ventral epandrial process; v sur—ventral lobe of surstylus.

black, other smaller setae pale unless otherwise noted. **Head** (Figs 11, 12): Rounded in lateral view (Figs 5, 12) shorter than broad in anterior view (Fig. 11), mainly grey with compound eye dull red. Occiput flat on upper median part above occipital foramen, with dark brown pruinosity. Frons about 1.5X broader than high. Face (including parafacial plates) narrower than distance between posterior ocelli, moderately protruding in lateral view. Face and parafacial plates grey. Clypeus grey. Gena moderately produced. Postgena broad in lateral view bearing short setae on upper part and long setae below. Antenna (Fig. 12) entirely dark brown; postpedicel rounded in basal half, gradually tapered and narrowed in distal half; arista-like stylus shorter than postpedicel. Mouthparts with proboscis (including labrum and hypopharynx) apparently straight (Fig. 12); palpus largely concealed, grey, clothed with fine setae. **Thorax:** Dark grey, with faint bluish-green and bronze metallic tinges visible at certain angles; scutum with dark brown pruinosity on anterior half (Fig. 6); 3 dorsocentral bristles and 1 presutural supra-alar bristle present, per side. Halter pale brownish. **Wing:** Veins brown. R_1 reaching costa near middle of wing, almost in line with termination point of M_4 . **Legs:** *Foreleg:* Coxa with short black spine-like setae on entire anterior surface (Fig. 5), trochanter and base of femur with similar spine-like setae; femur slightly longer than tibia; tarsus subequal in length to tibia; tarsomere 1 slightly shorter than combined length of tarsomeres 2–5, with large basiventral swelling, medial surface with dense field of black spine-like setae; tarsomere 2 weakly sclerotized on lateral surface; tarsomeres 2–4 decreasing slightly in length apically; tarsomere 5 subequal in length to tarsomere 2. *Midleg:* Femur subequal in length to tibia, not swollen basally, with sparse ventral setae; tarsus slightly shorter than tibia; tarsomere 1 slightly shorter than combined length of tarsomeres 2–5, slightly swollen in basal third with dense setulae below swelling; tarsomeres 2–4 decreasing slightly in length apically; tarsomere 5 subequal in length

to tarsomere 2. *Hindleg*: Femur slightly longer than tibia; tibia with short setae; tarsus shorter than tibia, with short setae; tarsomere 1 not swollen, slightly shorter than combined length of tarsomeres 2–4; tarsomeres 2–4 decreasing slightly in length apically; tarsomere 5 slightly longer than tarsomere 2. **Abdomen**: Dark grey to greyish-brown. Sternite 1 with long, spine-like process on anterior margin projecting anteriorly between hind coxae (Fig. 7). Sternite 8 enlarged and cleft along posterior margin, bearing eyelash-like row of long black setae on each side of cleft (Fig. 8). *Hypopygium* (Figs 19–21): Longer than high in lateral view. Left ventral epandrial process with 2 weak ventral setae near base (Fig. 19). Right ventral epandrial process with pointed basal projection, apical portion claw-like, directed posteriorly with pointed apex projecting and visible in lateral view (Fig. 20). Ventral lobe of right surstylus with ventral portion broad (Fig. 20). Hypandrium elongate-reniform in lateral view. Phallus not ribbed along dorsal surface, apex bifurcate. Hypoproct (Fig. 21) with right lobe larger than left lobe, left lobe lacking ventrolateral process. Cercus (Fig. 21) with lateral tubercle short, right and left cercus distinctly asymmetrical. **Female**: Unknown.

Etymology. The specific epithet is derived from the Latin *villus*, meaning hairy, in reference to the distinctive pair of eyelash-like rows of elongate setae on sternite 8 of the male terminalia (Figs 6, 8).

Distribution. *Neothalassius villosus* sp. nov. is currently known to occur on rocky seashores along the Chilean coast from Cuya in the northern Tarapacá Region (Region I), south to Algarrobo in the Valparaiso Region (Region V) (Fig. 23).



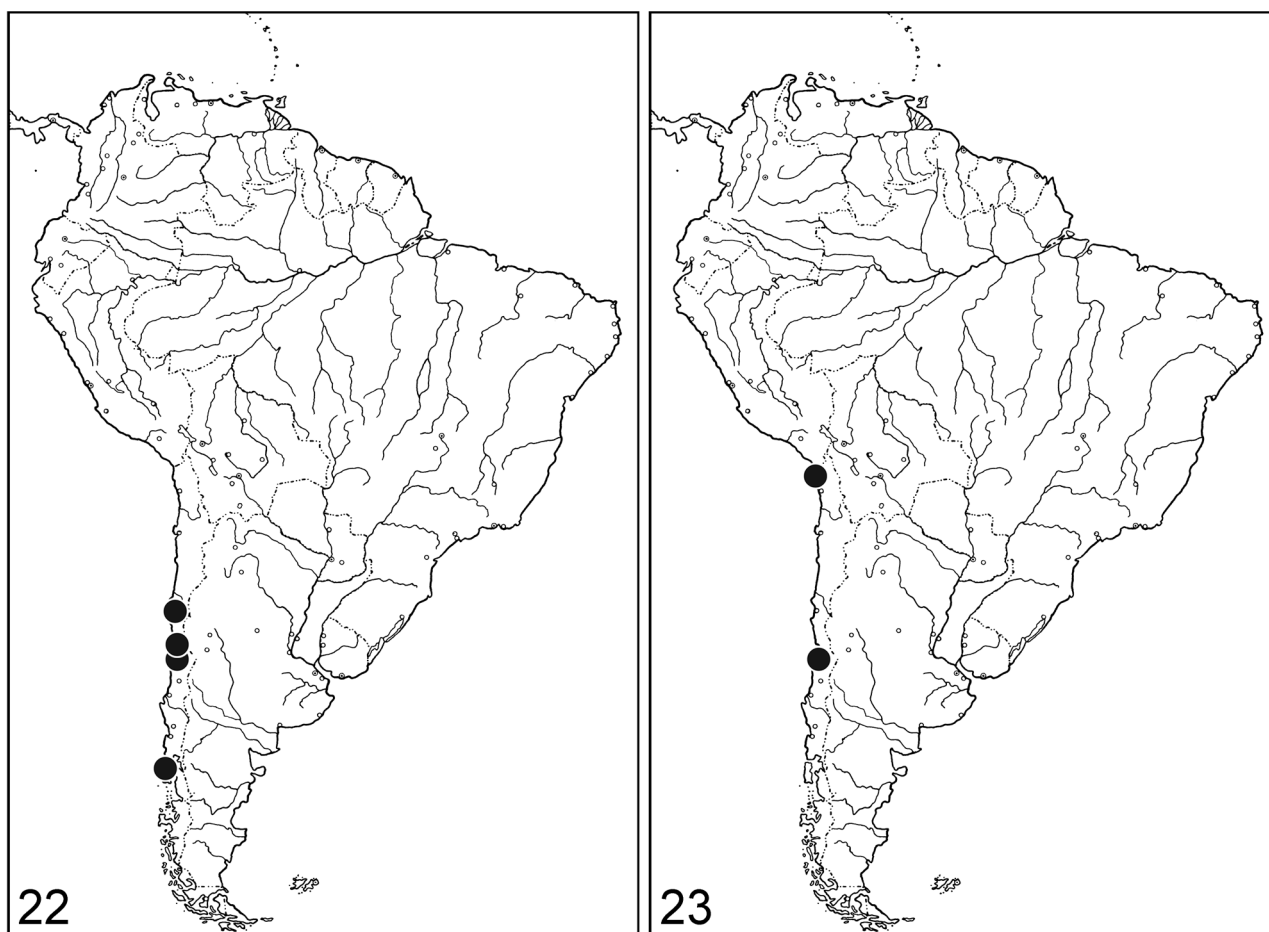
FIGURES 19–21. *Neothalassius villosus* sp. nov., male terminalia. **19.** Hypopygium, left lateral view. **20.** Hypopygium, right lateral view. **21.** Proctiger, dorsal view. Abbreviations: cerc—cercus; d sur—dorsal lobe of surstylus; ej apod—ejaculatory apodeme; epand—epandrium; hypd—hypandrium; hypcrct—hypoproct; pgt—postgonite; pgt lb—postgonite lobe; ph—phallus; prens—prensiseta; v epand proc—ventral epandrial process; v sur—ventral lobe of surstylus.

Discussion

As a result of this study, the Parathalassiinae now currently comprise eight genera and 41 described species. Although a rigorous phylogenetic analysis of the subfamily still remains to be undertaken, our preliminary

investigation (Brooks & Cumming 2010) indicates a possible sister group relationship between *Neothalassius* and *Chimerothalassius*, based on the synapomorphic loss of crossvein dm-m and vein M₂ (Fig. 13) and the possession on all legs of a dorso-medial projection on tarsomere 5 (Fig. 4). As discussed by Brooks & Cumming (2011), the *Neothalassius* + *Chimerothalassius* lineage appears to be the sister group to the *Microphorella* genus group, which includes *Eothalassius*, *Microphorella* and *Thalassophorus*. The Holarctic genus *Parathalassius* may be the sister to the *Neothalassius* + *Chimerothalassius* + *Microphorella* genus group clade, and the South African genera (*Amphithalassius* Ulrich + *Plesiothalassius* Ulrich) together appear to form the sister group to the entire lineage that includes *Parathalassius* plus the other genera.

Although the monophyly of some of the included parathalassine genera is questionable (i.e., *Microphorella*, see discussions in Brooks & Cumming 2011, 2012), the monophyly of *Neothalassius* is supported by the broad flat palpus, posteriorly directed mouthparts, strongly projecting gena (Figs 3, 5, 9–12), spinose fore coxa (Fig. 5) and medial projection on the anterior edge of abdominal sternite 1 (Fig. 7). Oddly however, we have also seen this same suite of characters exhibited in certain species of the unrelated seacoast-inhabiting, hydrophorine dolichopodid genus *Aphrosylus* Haliday. This observation suggests that the above listed features may be adaptations for coastal living, which could also be associated with the mode of predation employed by these flies and the types of prey taken.



FIGURES 22–23. Distribution of *Neothalassius* gen. nov. 22. Known distribution of *Neothalassius triton* sp. nov. 23. Known distribution of *Neothalassius villosus* sp. nov.

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