Review of the New Zealand endemic family Cyclaxyridae, new family (Coleoptera: Polyphaga)

Matthew L. GIMMEL1,2, Richard A. B. LESCHEN3 & S. Adam ŚLIPIŃSKI4

1) Department of Entomology, 404 Life Sciences Building, Louisiana State University AgCenter, Baton Rouge, Louisiana, 70803, USA
2) Corresponding author, e-mail: phalacrid@gmail.com
3) New Zealand Arthropod Collection, Landcare Research, Private Bag 92170, Auckland, New Zealand
4) CSIRO Entomology, GPO Box 1700, Canberra, ACT 2601, Australia

Abstract. In this paper we review the endemic New Zealand cucujoid beetle family Cyclaxyridae, fam. nov., which includes only the genus Cyclaxyra Broun, 1893. One new species is described (Cyclaxyra jelineki sp. nov.) and one new synonymy is established (C. politula (Broun, 1881) = C. impressa Broun, 1915, syn. nov.), resulting in the recognition of two valid species in the family. Lectotype of C. politula is designated. Larvae are described and illustrated and phylogenetic relationships and biology are discussed.

Keywords. Coleoptera, Cucjoidea, Cyclaxyridae, Phalacridae, taxonomy, new species, sooty mold, sooty mould, fumagine fungus, New Zealand

Introduction and Taxonomic history

Cyclaxyra is an historically enigmatic genus of New Zealand endemic Cucuyoidea with a long, convoluted taxonomic history out of proportion to its prominence in collections. Adults of the genus are readily distinguished from almost all other Coleoptera by the possession of a single pair of deep elytral epipleural foveae lined with stiff setae (Fig. 3), except for the New Zealand leiodid Baeosilpha rufescens Broun, 1895, which possesses a reduced antennomere 8 and other characters typical of Leiodidae. The foveae of adult Cyclaxyra Broun, 1893 are often filled with a white solid substance of waxy appearance and unknown composition (Fig. 4). In the New Zealand Arthropod Collection, Auckland (NZAC), three species were identified in the collection, and one series from Mt Domett in Northwest Nelson was labeled as a new species by the late coleopterist Charles Watt. Because of the importance of this group as an endemic family, and one that is strictly associated with sooty moulds (Klimalzewski & Watt 1997; Leschen et al., in press), we carried out an intensive study to verify the number of species and place the taxonomy of the family on a sound foundation.
Cyclomorpha was erected by Broun (1881: 667) as a genus in the family Nitidulidae to accommodate a new species, *C. politula*, described from Tairua, New Zealand. This name is a junior homonym of *Cyclomorpha* Pease, 1871 (a genus of mollusce) and was subsequently given the replacement name *Melanochroa* by Broun (1882a, reprinted in Broun 1882b). Broun (1893) redescribed the genus and, in an apparent oversight, gave it the replacement name *Cyclaxyra* with the comment “This species was formerly named *Cyclomorpha*, but, as I find the name had been used before, I have substituted *Cyclaxyra*” (p. 1077). He later described the species *Cyclaxyra impressa* Broun, 1915, from Greymouth, New Zealand. The name *Melanochroa* Broun has not been used as valid since its original publication, and additionally it is the senior homonym of *Melanochra* Roeder, 1886, a genus of Diptera, and *Melanochra* Yoshiyasu, 1985, a genus of Lepidoptera. Watt & Crowson (1986) successfully petitioned for conservation of the name *Cyclaxyra* Broun, 1893, and suppression of the name *Melanochra* Broun, 1882 (ICZN 1988).

Crowson (1955: 99) removed *Cyclaxyra* from Nitidulidae and provisionally referred it to the family Sphindidae based on similarity to the genus *Aspidiphorus* Ziegler in Dejean, 1821, but admitted that *Cyclaxyra* may not belong here since it, unlike all other Sphindidae, has open procoxal cavities (p. 102). Sen Gupta & Crowson (1966: 62), without explanation, included the genus in a modified key to families of Clavicornia as “Phalacridae, genus *Cyclaxyra* Broun” and noted at the end of the key that the position of the genus deserves a more thorough discussion. Crowson (1967, 1968) implied that the genus should be included in the family Phalacridae, since it exhibits the “essential larval features of this group,” but admitted the adults differed in a number of characters. This classification was followed in Crowson (1981: 607) and Lawrence (1982: 529). Lawrence & Newton (1995), recognizing two subfamilies of Phalacridae (Phalacrinae and Phaenocephalinae), included *Cyclaxyra* as Phalacridae incertae sedis. Crowson (1984: 259), in a review of Ascomycete-associated beetles, referred to “Phalacridae-Cyclaxyrinae” in relation to sooty mold fauna but gave no further mention of this taxon. Watt & Crowson (1986) indicated that a new family was to be established for this genus in “Crowson & Sen Gupta, in press” but this work was not completed before Crowson’s death. Klimaszewski & Watt (1997), in a review of the family-group taxa of New Zealand Coleoptera, erected the subfamily Cyclaxyrinae in Phalacridae to accommodate the genus, but this is a nomen nudum as it was not accompanied by a formal description or diagnosis and does not satisfy article 13.1 for establishment of a new name (ICZN 1999). Lawrence et al. (1999a), in a CD-ROM (which precludes having any standing in nomenclature), elevated the group to family rank, citing a lack of adult or larval characters to support placement in Phalacridae. This arrangement was followed by Lawrence & Leschen (2003) and Leschen et al. (2005), but neither of these provides a formal description or diagnosis. Here we formally name the family-group in Cucujoidea.

**Materials and methods**

Genitalia were drawn with the aid of a camera lucida attached to an Olympus BX50 microscope. Dissected genitalia were mounted in a drop of dimethyl hydantoin formaldehyde (DMHF) on a small rectangle of cellulose acetate pinned beneath the specimen. Pronotal
length was taken along the midline, elytral length is postscutellar along the suture, and total length is the sum of the head length (along midline, including clypeus), pronotal length, and elytral length. Two-letter area codes were used for specimen localities according to Crosby et al. (1998). These are decoded below:

<table>
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<th>AC</th>
<th>Auckland</th>
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<td>Marlborough</td>
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<td>MC</td>
<td>Mid Canterbury</td>
<td>SI</td>
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<td>Taranaki</td>
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<td>WD</td>
<td>Westland</td>
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Depositories:

AMNZ Auckland Museum, Auckland, New Zealand;
ANIC Australian National Insect Collection, Canberra, Australia;
BMNH The Natural History Museum, London, United Kingdom;
CAS California Academy of Sciences, San Francisco, CA, USA;
FMNH Field Museum of Natural History, Chicago, IL, USA;
JNIC John Nunn Collection, Dunedin, New Zealand;
LSAM Louisiana State Arthropod Museum, Baton Rouge, LA, USA;
LUNZ Entomology Research Museum, Lincoln University, Christchurch, New Zealand;
NZAC New Zealand Arthropod Collection, Landcare Research, Auckland, New Zealand.

Taxonomy

Cyclaxyridae, fam. nov.

Cyclaxyrinae Klimaszewski & Watt 1997: 49, as subfamily of Phalacridae Leach, 1815. Nomen nudum.
Cyclaxyridae Lawrence et al. 1999a. Unavailable name.

Type genus. Cyclaxyra Broun, 1893.

Adult description. Length 2.00–2.76 mm. Body (Fig. 1) 1.4–1.5 times as long as wide, nearly circular, very convex; dorsal surface smooth, shiny; vestiture of extremely sparse, inconspicuous, recumbent hairs. Head (Fig. 5) about 1.15 times wider than long, frons usually punctate, punctures coarse to fine (Figs. 19–21); mouthparts anteriorly oriented; head not constricted behind eyes, transverse vertexal line absent; stridulatory file absent, temples about twice as long as eyes. Tentorial arms moderately separated at base, extending posteriorly from epistome to behind level of posterior margin of eye, slightly diverging, corpotentorial bridge narrow and median tendon absent. Frontoclypeal suture absent; clypeus extending well in front of antennal insertions, subrectangular at apex, sides arcuately emarginate above antennal insertions. Eyes moderately large, subcircular, prominent anteriorly, moderately coarsely faceted, without interfacetal setae. Antennae (Fig. 6) 11-segmented with a distinct 3-segmented club; antennal insertions exposed from above; genae with deep antennal grooves, genae not projecting. Gular sutures well separated. Cervical sclerites apparently absent. Labrum visible, broadly rounded. Mandible about 1.15 times as long as wide at base, bent abruptly mesally, with slight dorsal concavity, not setose; apex tridentate; mola well
developed and transversely ridged; prostheca consisting of a wide membrane and brush of setae. Maxilla with galea 3–4 times as wide as lacinia; apex of lacinia with a pair of spines; terminal maxillary palpomere about 3 times as long as wide, widest just proximal to middle. Mentum transverse; apical labial palpomere about twice as long as wide, cylindrical. Pronotal length 0.40–0.56 mm, about 2.25 times wider than long, base as wide as elytral base; sides evenly arcuate, with distinct lateral bead; lateral carina sharp, complete, feebly explanate; anterior angles acute, protruding; anterior edge with margin, margin obsolete near midline; posterior edge strongly posteriorly arcuate, weakly margined; disc with sparse, irregularly
spaced punctures. Prosternum (Fig. 7) short in front of coxae, about half as long as coxal cavity; male with medial rounded setiferous sex patch; prosternal process broad, not extended posteriorly beyond level of procoxae, sides expanded laterally at apex, apical edge straight; apicomedian process (not visible in ventral view) articulating with notch on mesoventrite. Notosternal suture complete. Procoxae not projecting. Procoxal cavities slightly transverse, with narrow lateral extension, externally broadly open behind, internally narrowly open behind; trochantins exposed. Mesoventrite short, convex, with vertical anterior procoxal rests. Mesocoxal cavities subcircular, separated by about their diameter, open laterally (partly closed by mesepimera), with exposed trochantins. Metaventrite about 1.5 times wider than long, convex, discrimen absent. Metepisternum long and narrow, about 6 times longer than wide.
Metendosternite with broad, hyaline stalk, long arms, with long S-shaped ventrolateral projections arising from middle of arms. Metacoxae strongly transverse, subcontiguous, reaching metepisternum. Scutellum slightly wider than long, rounded posteriorly, almost semicircular, impunctate. Elytral length 1.22–1.70 mm, 1.72–1.74 times as long as wide and about 3 times as long as pronotum, humeri well developed, slightly obtuse; disc strongly and evenly convex, punctuation very fine and sparse, punctures not in distinct rows. Epipleura (Fig. 8) complete, wide anteriorly, abruptly narrowed about midway to apex, with a deep longitudinal fovea in anterior half containing moderately dense, stout, erect setae. Hind wings reduced to short pads or fully developed; apical field more than 0.5 times wing length; radial cell present but reduced and somewhat oblique; linear sclerite present just beyond radial cell; r3 very short and r4 incomplete; basal portion of RP very short to moderately long, with vaguely indicated long apical extension; medial spur straight and not reaching wing margin; medial field with 4 free veins (sometimes with remnant of a fifth) and no medial fleck; wedge cell absent; anal notch deep. Legs moderately long, slender; trochanterofemoral joint oblique; femur inflated near middle; tibiae weakly compressed, slightly expanded at apex, not spined; tibial spurs weak, paired, equal in length. Tarsi 5-5-5 in female and 5-5-4 in male; penultimate tarsomere slightly lobed beneath; protarsomeres 1–4 subequal; mesotarsomere 1 about 1.5 times as long as 2, mesotarsomeres 2–4 subequal; metatarsomere 1 about twice as long as 2, penultimate and antepenultimate metatarsomeres subequal; pretarsal claws simple; empodium small, not projecting between claws. Abdomen with 5 free ventrites, ventrite I not much longer than II, without postcoxal lines; intercoxal process acute. Abdominal spiracles present on segments I–V. Sternite VIII in male without anterior strut, sternite IX in male apically membranous, basally with anterior strut (spiculum gastrale, Figs. 25, 29). Aedeagus (Fig. 9) uninveted, with tegmen dorsal to penis; tegmen (Figs. 22, 26) with anterior strut; parameres free, contiguous at base. Penis (Figs. 10, 11) with long basal strut, extending internally to prothorax when retracted; endophallus with long flagellum. Female sternite VIII with well-developed spiculum ventrale. Ovipositor (Fig. 12) about 2 times as long as wide, with two pairs of elongate, slender baculi (dorsal and ventral); gonocoxite, valvifer, and paraproct subequal in length; paraproct with heavily sclerotised internal process on anterior edge; styli well developed, apically attached; spermatheca (Fig. 13) sclerotised, C-shaped, duct with coils (LAWRENCE et al. 1999b; LESCHEN et al., in press).

Larval description (based on *C. politula*). Body (Fig. 2) elongate, more or less parallel-sided and slightly flattened; very lightly pigmented, except for head capsule and tergum IX; dorsal surfaces smooth; vestiture consisting of fine hairs or setae. Head (Fig. 14) prognathous, relatively transverse with strongly rounded sides; posterior edge of head capsule distinctly emarginate. Epicranial stem absent; frontal arms lyriform, contiguous at bases, initially V-shaped then suddenly angled and extending laterally to antennal sockets; frontal arms joined anteriorly by depigmented band; median endocarina absent; paired endocarinae present under V-shaped portion of frontal arms. Stemmata on each side 5. Antennae 3-segmented, less than 0.15 times as long as head width; first two antennomeres transverse, third elongate; sensorium shorter than apical antennomere, conical or palpiform. Frontoclypeal suture absent; labrum fused to clypeus, small, with long, widely separated tormae. Mandibles (Figs. 16, 17)
symmetrical, broad at base and narrow at apex, tridentate, without accessory ventral process; incisor edge with 1 or 2 subapical teeth; mesal surface of mandibular base with 2 to 5 hyaline processes, sometimes joined basally; mola absent. Ventral mouthparts (Figs. 15, 18) protracted; cardo undivided, transverse; stipes wider than long; articulating area absent; mala simple, not cleft, rounded or truncate and setose or spinose; palps 3-segmented. Labium consisting

of prementum and postmentum, which are basally connate with maxillae; ligula shorter than labial palp, simple; palps 2-segmented, separated by more than width of first palpomere. Hypopharyngeal sclerome absent. Hypostomal rods moderately long, subparallel and not extending to posterior of head; ventral epicranial ridges absent. Gular sutures very narrowly separate; gula longer than wide and not separated from labium by suture. Prothorax not longer than meso- and metathorax combined, terga with fine and sparse asperities, especially anteriorly; protergum without sclerotised plates. Prosternum with single, weakly defined sclerite. Legs well developed but relatively short, 5-segmented; pretarsus claw-like with 2 setae; mesocoxae separated by more than 2 basal coxal diameters. Abdomen more than twice as long as thorax; segments I–VII lacking ventrolateral processes, terga and sterna with lateral patches of fine asperities; paired abdominal glands absent. Abdominal segment IX shorter than VIII; tergum extending onto ventral surface but not forming articulated plate; urogomphi absent. Sternum IX simple, not enclosed by sternum VIII. Segment X without paired pygopods; anal region posteroventrally oriented. Spiracles annular-biforous, not placed at ends of spiracular tubes, those on segment VIII about the same size as others on abdomen, facing laterally; accessory chambers about as long as peritreme and facing posteriorly (Lawrence et al. 1999a; Leschen et al., in press).

**Differential diagnosis.** Adults of this family may be distinguished from all other Coleoptera by the highly convex body form, eighth antennomere not significantly reduced in size, ventral antennal grooves present on the head, externally broadly open procoxal cavities, deep elytral epipleural foveae lined with stiff setae, and 5-5-4 tarsal formula in the male. Adults can be further separated from similar-looking Phalacridae by the antennal insertion exposed, lacinial uncus absent, protrochantin exposed, elytral punctuation confused and not seriate, mesocoaxal cavity open laterally, and functional spiracles absent on abdominal segment VII. Among Cucujoidea the larvae of Cyclaxyridae are distinguished by their parallel body without pigmented terga, head capsule posteriorly emarginated, paired endocarinae contiguous at base and anteriorly divergent, lack of urogomphi, protracted ventral mouthparts, mesal surface of mandibular base with hyaline process, inner apical angle of mala rounded or truncate, and labial palpi 2-segmented, pretarsus bisetose, segment X and anal opening posteroventral, and spiracles annular-biforous.

**Composition and distribution.** The family contains only the genus *Cyclaxyra*, with two species (one newly described below) occurring on the North, South, and Stewart Islands in New Zealand. The two species have not been taken at the same site, and *C. politula* appears to be mostly absent from northeastern South Island. A Quaternary fossil identified as *C. impressa* Broun, 1915 has been reported by Marra et al. (2008) from Taranaki.

**Phylogenetic relationships.** In a phylogenetic analysis of 99 larval and adult characters, Cyclaxyridae was placed as sister taxon to the Australian family Tasmosalpingidae by Leschen et al. (2005), a placement that was supported mainly by adult characters, as this sister-relationship is shown by adult-only trees. Possibly, *Cyclaxyra* is more closely related to Lamingtoniidae (Lawrence & Leschen 2003), as suggested in larval-only trees.
Biology. Both larvae and adults are inhabitants of sooty-mould fungi (Ascomycota: Dothideomycetes: Capnodiales), which in south temperate regions form thick black “wefts” of mycelia of up to six different species (Hughes 1972: 226), generally on the surfaces of foliage, branches, tree trunks, and often surrounding rocks and soil. These growths are associated with sugary exudates of leaves or with the “honeydew” produced by sternorrhynochous Hemiptera, primarily in association with Nothofagus, but other plants as well (Klimaszewski & Watt 1997, Carlton & Leschen 2007). Based on examination of gut contents the beetles feed on spores, conidia, and hyphae of the fungus. This habit has evolved in multiple lineages of Coleoptera, and in New Zealand and elsewhere beetles in several genera and families are also associated with sooty moulds (e.g., Nothoderodontus Crowson, 1959 (Derodontidae; found in temperate South America, New Zealand and Australia), Metaxina Broun, 1909 (Metaxinidae; family endemic to New Zealand), Agapytho Broun, 1921 (Agapythidae; family endemic to New Zealand), Hisparonia Kirejtshuk, 2004 (Nitidulidae; genus endemic to New Zealand), Triphyllus Dejean, 1821 (Mycetophagidae; one species associated mainly with sooty moulds), and Doxozilora Broun, 1909 (Melandryidae; genus is endemic to New Zealand); see Johnson et al. 2008).

**Acta Entomologica Musei Nationalis Pragae**, 49(2), 2009 521

*Cyclaxyra* species are active at night and may be collected in large numbers on trunks of trees and larger shrubs where sooty moulds are growing. Mating has also been observed at this time where males mount females on top (not back to back) (Leschen, pers. observ.).

The function of the epipleural foveae remains unknown. We have not observed spores within these, and the structure is not sexually dimorphic.

**Cyclaxyra Broun, 1893**

*Cyclomorpha* Broun, 1883: 667 (junior homonym of *Cyclomorpha* Pease, 1871).

*Melanochroa* Broun, 1882a: 409 (replacement name for *Cyclomorpha* Broun, 1881; senior homonym of *Melanochroa* Roeder, 1886; suppressed by ICZN (1988: 69)).

*Cyclaxyra* Broun, 1893: 1076 (replacement name for *Cyclomorpha* Broun, 1881).

**Type species.** *Cyclomorpha politula* Broun, 1881, by monotypy.

**Diagnosis.** As for Cyclaxyridae fam. nov.

**Key to species of Cyclaxyra**

1. Punctation of frons relatively fine and very dense with punctures separated by 1 diameter (Fig. 19); metaventrite medially densely, finely punctate; brachypterus; tegmen with long basal strut (Fig. 22); penis more elongate, more than 5 times as long as wide (Fig. 24); northeastern South Island. ................................................................. **C. jelineki sp. nov.**

   – Punctation of frons extremely coarse to very weak, sparse to moderately dense with punctures separated by 1–3 diameters (Fig. 20), or nearly absent (Fig. 21); metaventrite medially impunctate or sparsely, finely punctate; brachypterus or macropterus; tegmen with short, tapering basal strut (Fig. 26); penis shorter, broader, less than 4.5 times as long as wide (Fig. 28); widespread throughout New Zealand. ........... **C. politula** (Broun, 1881)

**Cyclaxyra jelineki sp. nov.**

(Figs. 19, 22–25)

**Type material.** **HOLOTYPE.** ♀: “NEW ZEALAND: KA, Mt. Fyffe, Hinau Loop, Kowhai Valley, 17.II.2009, K. Marske & R. Leschen, ex sooty mould at base of tree, night, 42°21.008′S, 173°34.077′E, 200 m, KM314 / HOLOTYPE Cyclaxyra jelineki design. R. Leschen, 2009” (NZAC).

Paratypes (130 spec.): **NEW ZEALAND: KA**: same data as holotype, except KM312 & KM314, 87 (NZAC), 10 (ANIC), 10 (LSAM), and 10 (FMNH); same data as holotype, except 5.IV.2004, RL846, R. Leschen, 2 (NZAC); Oaro, black sooty mould on tree, 20.III.1982, C.A. Muir & R.M. Emberson, 4 (LUNZ); Blue Duck Scientific Reserve, 42°15′S, 173°46′E, leaf litter, 18.XI.1999, RL497, R. Leschen & R. Hoare, 2 (NZAC). **NC**: Front Dismal [near Dismal Valley] (71ha), 42°37′S, 172°21′E, FIT 14 days, forest 64m ground, #1637-014, 11.II.2001, R.K. Didham, 1 (AMNZ); Glentui, Glentui Reserve, 43°12.023′S, 172°15.194′E, under logs, 5.II.2007, RL1284, R. Leschen, T. Buckley, & K. Marske, 4 (NZAC).

**Adult description.** Total length: 2.00–2.58 mm; body colouration of mature specimens usually deep black, teneral specimens often with base of elytra, pronotum anteromedially, and metaventrite darker than rest of integument; appendages rufous, antennal club usually concolourous with funicle; glabrous above; frons (Fig. 19) with fine, dense punctuation, punctures separated by 1 diameter; metaventrite with fine, dense punctuation; hind wings reduced to short pads; pronotal length 0.40–0.56 mm; elytral length 1.22–1.70 mm; tegmen of aedeagus (Figs. 22,
23) with long, curved basal strut, parameres proportionally long; penis (Fig. 24) not including basal strut more than five times as long as wide; spiculum gastrale as in Fig. 25.

**Variation.** The basal strut of the penis is variable in form. The thinly sclerotised posterolateral regions of the tegmen are often flexed inward as a result of clearing, making the tegmen appear narrowed apically.

**Etymology.** The species is named in honor of Dr Josef Jelínek in recognition of his excellent work in Nitidulidae (including New Zealand work) and other microcoleoptera and for his kindness to fellow entomologists.

**Differential diagnosis.** Adults may be distinguished from *C. politula* by the finely, densely punctate frons and metaventrite, and by the characters of the male genitalia noted in the key.
**Distribution.** Known only from the northeastern regions of the South Island, New Zealand, from North Canterbury northward to at least Blue Duck Scientific Reserve. Most specimens were collected at Mt. Fyffe, on the Hinau Loop in Kowhai Valley which is predominantly a broadleaf forest, but other localities consist of stands of *Nothofagus* and broadleaf trees, or a mix of these trees with podocarps.

*Cyclaxyra politula* (Broun, 1881)

(Figs. 1–18, 20, 21, 26–29)

*Cyclaxyra politula* Broun, 1881: 668.
*Cyclaxyra politula*: BROUN (1893: 1077; transfer to *Cyclaxyra* Broun, 1893).
*Cyclaxyra impressa* Broun, 1915: 314, syn. nov.

**Type locality.** *Cyclomorpha politula*: New Zealand, Tairua. *Cyclaxyra impressa*: New Zealand, Greymouth.


The lectotype designation is necessary to fix the identity of this species since another species has been described.


except at night on fumagine fungus, 20.IX.1967, 1 (NZAC); Fell Pk., Richmond Ra., 4250 MB: Marris, 1 (LUNZ); Elie Bay, 11.XI.1949, E.S. Gourlay, 1 (NZAC); Ronga Valley, 28.II.1957, E.S. Gourlay, 2 (NZAC).

Marris, 1 (LUNZ); same data except on bark and trees at night behind homestead, H.M. Harman, 1 (LUNZ); Stewart Island, Mason Bay, Island Hill Homestead, on mossy trees at night coastal forest, 2.II.1991, R.M. Worner, 1 (LUNZ); same data except 3.II.1991, J.W. Early, 1 (LUNZ); same data except 2.II.1991, Rumpf, S.K., 4.II.1991, R.M. Emberson & P. Syrett, 2 (LUNZ); Stewart Island, Mason Bay, on tree trunks at night, 2.II.1991, S.P. Worner, 1 (LUNZ); same data except 3.II.1991, J.W. Early, 1 (LUNZ); same data except 2.II.1991, Rumpf, S.K., 2 (LUNZ); Stewart Island, Mason Bay, Island Hill Homestead, on mossy trees at night coastal forest, 2.II.1991, R.M. Emberson, 1 (LUNZ); same data except on trees and at night behind homestead, H.M. Harman, 1 (LUNZ);

**Adult description.** Total length: 2.22–2.76 mm; body colouration of mature specimens deep black, but with the following regions often rufotestaceous: clypeus, lateral and basal margins of pronotum, scutellum, sutural and basal margins and apex of elytra, metacoxae, abdominal ventrites medially; appendages testaceous to rufous, antennal club usually darker; glabrous

Figs. 26–29. Male genitalia of *Cyclaxyra politula* (Broun, 1881). 26 – tegmen, dorsal view; 27 – tegmen, lateral view; 28 – penis, dorsal view (basal strut omitted); 29 – spiculum gastrale. Scale bar = 0.5 mm.
above; frons (Fig. 20) with coarse to fine, sparse to moderately dense punctation, punctures separated by 1–3 diameters, or with punctation nearly effaced (Fig. 21); metaventrite medially smooth or with very fine, sparse punctation; fully winged or hind wings reduced to short pads; pronotal length 0.48–0.56 mm; elytral length 1.28–1.65 mm; tegmen of aedeagus (Figs. 26, 27) with short, straight basal strut, parameres proportionally short; penis (Fig. 28) not including basal strut less than 4.5 times as long as wide; spiculum gastrale as in Fig. 29.

**Variation.** The punctation is highly variable in strength and distribution on the frons and pronotum (Figs. 20, 21). Approximately 25% of specimens are fully winged, the remainder have the hind wings reduced to short pads. The male genitalia are highly variable with regard to the length of the paired terminal setae on the parameres, formation of the basal strut of the penis, and shape of the apex of the penis. The thinly sclerotised posterolateral regions of the tegmen are often flexed inward as a result of clearing, making the tegmen appear narrowed apically. These differences overlap between North and South Island populations, and therefore we regard *C. impressa* as a synonym of *C. politula*. **Differential diagnosis.** Adults may be distinguished from *C. jelineki* sp. nov. by the coarsely, more sparsely punctate frons (or punctation sometimes almost absent), the medially smooth or finely, sparsely punctate metaventrite and by the characters of the male genitalia noted in the key.

**Distribution.** The species is recorded from throughout the North and South Islands, and from Stewart Island and its surrounding islets, New Zealand. Specimens are mainly collected in *Nothofagus* forests, but may be common in *Leptospermum* and podocarp forests (e.g., Stewart Island where no *Nothofagus* exists). They are rarely collected in the North Island.

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