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corner extending most of the way to the lateral humeral edge. The principal difference between C. burnetta and C. pluriseta is size, (2.8 v. 2.4mm PE length, respectively) along with the probably correlated longer legs of C. burnetta. Also in C. burnetta, the metasternal disk is densely and contiguously punctate throughout, while in C. pluriseta all specimens show some impunctate space, and are often entirely smooth at sides.

DESCRIPTION. L: 2.74; W: 1.03; E/Pn L: 1.67; E/Pn W:1.43; Pn W/L: 1.39; E L/W: 0.83; Pr/Py: 1.11; Sterna: 0.75, 0.22, 0.90; Tibiae: 1.37, 1.50, 1.74. Body elongate, dark rufescent, mostly reticulate above, and with sparse elongate setae (a few bundles of setae) nearly throughout. Frons about as wide as long, sides rounded, anterior margin very slightly outwardly arcuate; disk deeply reticulate, with a few conspicuous setae; labrum rounded, reticulate; antennal scapes mesatively flattened slightly; apex, reticulate, setose; antennal club of female about as wide as long, sides rounded, anterior labrum rounded, reticulate; antennal scapes widest near base, sides margined, sinuate to front; antennal margins with approximately evenly spaced, prominent bundles of setae; pronotal disk depressed behind anterior margin and just in front of scutellum, otherwise strongly convex; acutely produced at middle, bearing scattered setal bundles.

Prosternum with deep anterior marginal groove, margin sinuate and acutely projecting on each side; prosternal keel narrowed posteriorly, emarginate at apex, convex; prosternal disk reticulate and with scattered setae.

Elytra about 1.5 x as wide as pronotum, parallel sided, narrowed in basal one-sixth and apical one-fourth; elytra convex in most of apical two-thirds (depressed in posteralateral corners) transversely depressed in basal one-third, this depression with low transverse carina bearing large bundle of setae close to elytral suture; humeral trichomes prominent, anterior aspect nearly vertical (in lateral view); anterior and posterior elevations of trichome separated by shallow lateral furrow which is continuous with mesal opening of trichome; opening of trichome nearly rectangular, widest transversely but offset about 30° from horizontal (towards anterior corners); mesal fringe of trichome dense and erect but very short; anterior elevation with nearly straight superficial groove, extending from anterior corners of elytra to anterior corners of rectangular trichome opening, and with several prominent setal bundles near apex; elytral disk reticulostrigose and with scattered setae except within basal depression.

Mesosternum 2.2 × as wide as long; anterior margin acutely projecting at middle; disk deeply reticulate; mesometasternal suture deeply impressed; metasternal disk and 1st abdominal sternite uniformly densely punctate (though slightly less densely than mesosternum). Legs elongate, slender, about one-fifth of metafemoral length projecting above elytra when held vertically; femora slightly clavate; outer margins of tibiae angulate at about their midpoint.

Propygidium about as long as pygidium along midline, slightly depressed along basal margin, but otherwise strongly convex; pygidium convex; both propygidium and pygidium strongly reticulate, with sparse elongate setae.

REMARKS. This species takes it name from the watershed (Burnett River) encompassing the type locality.

Chlamydopsis zborowskii sp. nov.
(Figs 16A, 17A, 18)


DESCRIPTION. L: 2.40; W: 0.90; E/Pn L: 1.66; E/Pn W: 1.41; Pn W/L: 1.41; E L/W: 0.83; Pr/Py: 1.06; Sterna: 0.72, 0.19, 0.81; Tibiae: 1.09, 1.15, 1.34. This species and the following are very similar to the preceding species and are only described to the extent that they differ from it. Setal patch of humeral trichome larger, extending laterally to the side of the humeral dorsum; inner apex of posterior elevation of trichome more protuberant dorsally and anteriorly, nearly closing the mesal opening above; strigosity of pronotum and elytra finer (narrower and more elongate), and on elytra less deeply impressed, some individuals (especially the females) almost impunctate behind trichomes; legs less elongate, metafemur barely projecting above elytra when held vertically; punctures of metasternum confined to middle portion of disk, sides
impunctate; lateral portion of 1st visible abdominal sternite also less punctate, with no punctures within postmetacoxal depression.

REMARKS. It is unusual to have two such similar and obviously related species as this and the following collected at the same locality, over several of the same trapping periods. Yet both forms are known from both sexes, and the differences between them are absolutely consistent among all specimens. It would be very interesting to know if they share hosts. This species is named in honor of Paul Zborowski, collector of this type, as well as many other interesting chlamydopsines.

**Chlamydopsis pluriseta** sp. nov. (Figs 16B, 17B, 18)


**DESCRIPTION.** L: 2.31; W: 0.87; E/Pn L: 1.64; E/Pn W: 1.32; Pn W/L: 0.85; Pr/Py: 1.00; Sterna: 0.69, 0.22, 0.81; Tibiae: 1.09, 1.12, 1.34. See *C. burnetta* above to separate this species and the preceding two from all other *Chlamydopsis*. This species differs from *C. burnetta* in only a few characters: size smaller, (2.4mm v. 2.8mm PE length); legs less elongate, tips of metafemora not or barely projecting above elytral dorsum when held vertically; inner edge of posterior elevation of trichome projecting further forward, nearly closing trichome opening mesally; metasternal disk with fewer punctures at sides, often entirely impunctate.

**REMARKS.** The name of this species refers to the conspicuous setae on most body surfaces (which it shares with most of this subgroup).

**Chlamydopsis contorta** sp. nov. (Figs 16C, 17C, 18)


**DESCRIPTION** (compared with *C. burnetta*, described in full above). L: 2.62; W: 0.87; E/Pn L: 1.64; E/Pn W: 0.85; Pn W/L: 1.48; E L/W: 0.83; Pr/Py: 1.00; Sterna: 0.69, 0.22, 0.81; Tibiae: 1.12, 1.21, 1.46. Body broader, reticulation generally less deeply impressed; body setae fewer and single (no bundles of setae, with one exception noted below); lateral margins of pronotum mostly straight, convergent to near apex, then expanded around antennal fossae, without lateral marginal setae; oblique groove between antennal fossa and circumcoxal stria absent (though a faint vestigial furrow can be seen); prontal disk not as strongly convex, with slight indication of transverse medial carina in two of four specimens, with a few single setae near middle, but lacking prescutellar setae (seen in both *C. burnetta* and *C. pilosipes*); humeral trichomes not at all rectangular, almost 'V'-shaped in dorsal view (the bottom of the 'V' directed anteriorly), the outer arm of the 'V' continuous with a rather deep lateral furrow; anterior elevation of trichome divided by anterior superficial groove, the outer half more strongly produced, more or less acute in lateral view; bundle of setae along mediobasal transverse carina more extensive, occupying the entire apex of the carina; metasternum and 1st visible abdominal sternite almost entirely impunctate, each with only a few shallow punctures along anterior margin; legs not as elongate, angle of outer margin of tibiae nearer basal third than midpoint.

**REMARKS.** The name of this species refers to the sinuate contours of the humeral trichome.

**Chlamydopsis pilosipes** sp. nov. (Figs 16D, 17D, 18)


**DIAGNOSIS.** *Chlamydopsis pilosipes* is the most distinctive species of this subgroup. The opening of the humeral trichome is entirely different from the others, consisting mainly of a small, but quite deep dorsal pit, continuous anteriorly with the superficial humeral groove, and almost concealed above by an acute, leaflike, posteriorly directed projection from the inner edge of the anterior humeral elevation. Additionally the setal bundles of the mediobasal elytral carinae consist of only a few setae, and the legs are covered with fairly dense decumbent setae, whereas those of the other species have sparser, mostly erect setae.

**DESCRIPTION.** L: 2.43; W: 0.93; E/Pn L: 1.60; E/Pn W: 1.53; Pn W/L: 1.27; E L/W: 0.83; Pr/Py:
1.38; Sterns: 0.62, 0.22, 0.69; Tibiae: 1.06, 1.03, 1.15. Body elongate, subquadrate, rufescent, reticulostrigose throughout, most surfaces (except for posterior two-thirds of elytra) with long, prominent setae or bundles of setae; frons about as wide as long, sides rounded, anterior margin straight, with about 6 prominent setae; labrum rounded; mandibles bearing a couple setae on outer surfaces; antennal scape widest near middle, faintly tapered to rounded apex, with a few setae.

Prothorax about one-third wider than median length, sides unmargined, sinuate, widest near base, narrowing anteriorly, then abruptly widened around antennal fossae; anterior margins of pronotum elevated, anterolateral portions strongly raised, rounded, interrupted by groove extending from edge of antennal fossa posteriorly just to supracoxal hypomeral groove; medial portion of anterior pronotal margin not as strongly elevated as anterolateral portions but more or less continuous with them; anterior and lateral pronotal margins with prominent bundles of setae; pronotal disk depressed behind anterior margin, otherwise strongly convex, subacutely produced at middle, prescutellar region slightly depressed; pronotal disk with numerous conspicuous setae, their arrangement not quite symmetrical; one especially prominent pair of conspicuous setae just in front of scutellum.

Prosternum with anterior margin strongly grooved, sinuate, acutely projecting on either side; prosternal keel narrowed posteriorly, not elevated, reticulate and sparsely setose.

Elytra about 1.5× width of pronotum, sides more or less parallel, narrowed in apical one-third and basal one-fourth; transversely depressed in mediobasal one-third, with low, setose, transverse carinae within depression; humeral trichomes prominent, with conspicuous bundles of setae on anterior and lateral surfaces; anterior elevation of trichome divided by deep superficial groove, prominent and acutely produced on either side of this groove, the inner portion tapered, leaflike, extending posteriorly to cover much of dorsal opening of trichome, the small, depressed opening apparently lacking a marginal fringe of setae; posterior elevation of trichome as high as anterior ones, but merely convex above; elytral disk entirely reticulostrigose, but this texture less strongly developed at middle; apical elytral margin with fringe of conspicuous setae.

Mesosternum about 2.2× as wide as median length, acutely projecting at middle, densely reticulopunctate and sparsely setose; mesometasternal suture finely impressed; metasternum densely punctate anteriorly and laterally but less so posteromedially, with punctures rounder, shallower and separated by about one-half their widths; 1st visible abdominal sternite almost uniformly punctate, the punctures separated by slightly less than their widths, those of the anterior and posterior margins more closely spaced; Legs elongate slender, the meso- and metafemora slightly clavate, outer margins of all tibiae angulate near middle; outer surfaces of meso- and metatibiae smooth near bases but increasingly striose towards apices; all legs densely setose, most or all setae single (not in bundles).

Propygidium about one-fourth longer than pygidium, slightly depressed just along basal margin, but otherwise strongly convex; pygidium convex; both propygidium and pygidium strongly reticulate, with sparse elongate setae.

REMARKS. The name of this species refers to its conspicuously setose legs.

**Chlamydopsis bifovaecollis** (Oke, 1923) (Figs 16E, 17E, 18, 29A)

*Orectoscelis bifovaecollis* Oke, 1923: 159; New Combination; MATERIAL. HOLOTYPE probable, N. York, 1923; MVM, examined, 2000.

**DIAGNOSIS.** This species and the following three represent a distinctive clade, which may or may not belong in the *ectatommae* group. They are highly distinctive, having an anterolateral pronotal groove extending from the posterior edge of the antennal cavity posteriorly to conspicuous pits on the pronotal dorsum (Fig. 29A). Placement of these species in the present group is based primarily on the (questionable) assumption of homology between these grooves and the oblique grooves of the other members of the *ectatommae* group. The shape of the humeral trichome is also similar to that of some other *ectatommae* group species (particularly *C. lucifer*). The anterior prosternal groove, on the other hand, would be somewhat unusual for this group. This marginal groove is well impressed, and divergent from the margin at the sides, but it does not curve directly back to meet the circumcoxal stria; it meets the pronotal/prosternal suture somewhat anteriorly to it. In appearance this condition is intermediate between the state
observed in *C. setifera* and *C. burnetta*, and that of the rest of the *ectatommae* group. *Chlamydopsis bifovaecollis* (known only from the female holotype) itself is unique among members of the group in having the elytral dorsum smooth rather than reticulopunctate. In body shape, and especially trichome shape, this species and *C. lepida* sp. nov. are otherwise quite similar.

REMARKS. This species was placed originally in *Orectoscelis* 'with some slight doubt' (Oke, 1923). However, despite some general similarity in body shape, this species lacks any of the characteristics of *Orectoscelis* or related genera. Most notably, the scutellum in *bifovaecollis* is fully exposed. The species was reported from near nests of *Euponera lutea* and a small black *Iridomyrmex*, under a log.

**Chlamydopsis nielseni** sp. nov.  
(Figs 16F, 17F, 18)

**DIAGNOSIS.** This species is the most distinctive of the four placed in this subgroup. It is about 1.5 times the size of any of the others, with the body darker and more coarsely sculptured. Its pronotal pits are deeper and located immediately behind the upturned pronotal margin. The humeral trichomes also differ somewhat, with a very limited mesal arc of setae, which themselves are quite elongate, extending downward and then posteriorly for a short distance along the elytral dorsum.

**DESCRIPTION.** L: 2.46; W: 0.87; E/Pn L: 1.82; E/Pn W: 1.36; Pn W/L: 1.57; E L/W: 0.85; Pr/Py: 1.05; Sterna: 0.75, 0.12, 0.81; Tibiae: 0.97, 1.03, 1.09. Body subquadrate, nearly black, very slightly rufescent, reticulostrigose throughout. Frons about as wide as long, sides rounded, surface reticulate, glabrous, apical margin slightly rounded; labrum arcuate; antennal scape widest near middle, slightly narrowed to rounded apex, reticulate, glabrous; antennal club retracted (full length not visible).

Prothorax 1.7 times as wide as median length; sides margined, sinuate, shorter, ending anteriorly where anterolateral margin is strongly elevated above antennal fossae; anterolateral margin oblique, arcuate, interrupted near sides by groove extending from edge of antennal fossa to a very conspicuous anterolateral pronotal pit, this pit about half the diameter of the exposed antennal fossa (in dorsal view), and immediately behind the raised anterolateral margin; medial portion of pronotal margin elevated less strongly than lateral portions, but not separated from them; pronotal disk depressed anteromedially and posteriorly from pits, otherwise broadly convex, subacute at middle.

Prosternum with anterior margin strongly grooved, sinuate, acutely projecting on either side, the anterior groove curving posteriorly at sides joining circumcoxal stria; prosternal keel narrowed and elevated posteriorly, emarginate at apex; entire disk finely reticulate.

Elytra about 1.5 times pronotal width, parallel sided, narrowed to base and apex; convex in apical two-thirds, flat to slightly depressed in basal third between humeral trichomes; trichomes widely separated, only slightly elevated, subacute, with an apical bundle of
elongate setae which descend the posteromedia
edge of elevation, then curving posteriorly where
they meet the elytral surface; anterior aspect of
trichome with fine superficial groove arising
inward about one-eighth from lateral corner,
extending to the apex of the trichome at the base
of the setal bundle; elytral surface entirely
reticulostrigose, mostly glabrous with a few short
setae near apex.

Mesosternum short (<1/8 median length of
metasternum) with anterior margin projecting at
middle, disk reticulate; mesometasternal suture
strongly impressed at sides but not at middle;
metasternal disk with single row of punctures
along anterior and posterior margins, but disk
otherwise impunctate, strongly convex ('raised'
relative to metasternum and abdominal
sternites); 1st visible abdominal sternite
punctate along anterior and posterior margins,
but disk otherwise impunctate, strongly convex
('raised' relative to metasternum and abdominal
sternites); 1st visible abdominal sternite
punctate along anterior margin, more sparsely
so behind.

Legs slender and moderately elongate; profemur
shallowly punctate on lower surface, tibiae, and
meso- and metafemora with distinct
microsculpture but impunctate; outer margin of
protibia angulate near basal one-third; meso-
and metatibiae bluntly angulate.

Propygidium about one fourth longer than
pygidium, slightly depressed along basal margin,
but mostly strongly convex; pygidium flat at sides,
weakly convex at middle; propygidium and
pygidium uniformly reticulate, with sparse, short
setae.

REMARKS. It must be noted that this and the
following two closely related species were all
collected at virtually the same locality, and some
share sampling dates as well. This species and the
following are both known from males only, while
*C. lepida* sp. nov. is known only from females. It
is conceivable that some of these should be paired
(C. australis sp. nov. and *C. lepida* are the
most similar), but this cannot be determined with
available material. The species is named in
honour of the late Ebbe Nielsen, collector of the
type, and noted lepidopterist and biodiversity
advocate.

**Chlamydopsis australis** sp. nov.
(Figs 16G, 17G, 18)

**MATERIAL.** HOLOTYPE ♂: 34.19S 139.30E SA,
Brookfield Con. Pk., 20 Feb.-31 Mar. 1992, A.Calder,
W.Dressler, F.I.T. #1; in ANIC.

**DIAGNOSIS.** This species’ elytral strigosity is
sufficient to distinguish it from *C. bifovaecollis*.
The shape and size of the humeral trichome will
separate it from *C. lepida* sp. nov., below. Those
of the present species are much smaller, in fact
rather inconspicuous from above, while those of
*C. lepida* are prominent, occupying much of the
outer half of the anterior one-third of each elytron.

**DESCRIPTION** (compared to the preceding,
fully described, species). L: 1.78; W: 0.62; E/Pn
L: 1.85; E/Pn W: 1.39; Prn W/L: 1.55; E L/W:
0.86; Pr/Py: 1.23; Sternal: 0.50, 0.09, 0.59; Tibiae:
0.65, 0.65, 0.72. Body lighter, rufescent, more
elongate, body more rounded, most surfaces with
very fine sparse setae; antennal club visible,
about 1.5× length of scape; pronotum very
different, groove from antennal fossa to pronotal
pit well defined, delimiting rather than
interrupting the anterolateral portion of pronotal
margin; pronotal pit oblong, situated at middle of
pronotal side, near margin (posterolaterally
relative to that of *C. nielseni*), with lateral
pronotal margin elevated and slightly curved
around its outer edge; medial portion of anterior
pronotal margin not elevated; pronotal disk
depressed near posterior margin, but posterior
margin itself raised, carinate, especially towards
sides; middle of pronotal disk simply convex, not
subacutely projecting. Prosternal keel not
elevated relative to mesosternum, slightly
depressed between procoxae; metasternum and
1st abdominal sternite distinctly microsculptured
throughout. Elytra about one-third wider than
pronotum, with sides slightly arcuate; humeral
trichomes situated more medially, very weakly
elevated, with semicircular dorsal opening, the
mesal fringe of setae directed downward,
partially obscuring cavity beneath; depression
between trichomes with blunt postscutellar
protuberance; elytral surface entirely reticulo-
strigose, with uniform microsculpture. Legs
shorter, broader; outer margins of tibiae angulate
about one-fourth from base. Propygidium
uniformly reticulate and with uniform
microsculpture; pygidium reticulate only in basal
one-fourth, microsculptured throughout.

**REMARKS.** The name of this species refers to
the southerly position of the type locality.

**Chlamydopsis lepida** sp. nov.
(Figs 16H, 17H, 18)

**MATERIAL.** HOLOTYPE ♀: 34.19S 139.30E SA,
Brookfield Con. Pk., 3 Jun.-28 Aug. 1993, S. Williams,
F.I.T. #1; in ANIC. PARATYPE : SA: 34.21S 139.31E,
Brookfield Con. Pk., 31.iii-29.iv.1992, EN, FIT; in ANIC.

**DIAGNOSIS.** See diagnoses for *C. bifovaecollis*
and the preceding species.
DESCRIPTION. L: 1.68; W: 0.62; E/Pn L: 1.70; E/Pn W: 1.43; Pn W/L: 1.50; E L/W: 0.79; Pr/Py: 1.14; Sterna: 0.44, 0.09, 0.53; Tibiae: 0.53, 0.56, 0.62. As mentioned above, this species possibly represents the female of the preceding species. The two differ substantially in trichome shape, with those of *C. lepida* much larger (Figs 16G, H). The elytral discs are also less strongly strigose in the present species (a frequent sexual difference in *Chlamydopsis*), the setae of pronotum and elytra, although fine, are more conspicuously scale-like, and the overall body size is slightly smaller. Otherwise, the two are very similar. An additional feature worth noting is the antennal club. Its outer surfaces are largely sclerotised, with only the oblique apex and a smaller subapical patch tomentose.

REMARKS. The name of this species refers to its scale-like dorsal setae.

**EPIPLEURALIS GROUP**

The *epipleuralis* group is a rather heterogeneous group of mainly temperate species. The group is primarily characterised by trichome characters. The setal fringes of both anterior and posterior humeral elevations tend to have separate inner and outer origins. The inner and outer origins of the anterior elevation are divided at the entry point of the anterior humeral groove. In most species, the inner apices of anterior and posterior humeral elevations nearly meet, with their respective setal fringes opposing and separating the mediobasal elytral depression from a dorsally open, rounded lateral cavity. The setal fringe of this lateral cavity may be continuous, interrupted at an epipleural incision, or, rarely, absent. All members of this group have a well-developed anterior marginal prosternal opening, setose on at least its anterior (and often the entire) edge. *Chlamydopsis convexa* is somewhat similar to these in its general trichome shape. But its anterior superficial humeral groove is displaced laterally, with the anterior trichome elevation strongly convex mesal to the groove, and the outer circular opening of the trichome lacks setae. *Chlamydopsis epipleuralis* and *C. sculptus* differ from each other mainly in pronotal sculpture, with the punctures of *epipleuralis* extremely shallowly impressed, those of *sculptus* being much more conspicuous, and even with intermingled finer punctures. The trichomes also differ slightly, most notably in the anterior superficial groove, which has its outer edge carinate and distinct in *epipleuralis*, but rounded, indistinct in *sculptus*.

REMARKS. Not all of the above specimens have been studied, and some may refer to *C. sculptus* (below), as several such misidentifications have been found. Oke’s (1923) host record of *Iridomyrmex gracilis* refers to a valid species, but several subspecies are now recognised. The nominate subspecies, occurring in coastal Victoria, is likely the proper one.

**Chlamydopsis epipleuralis** Lea, 1912

(Figs 161 171, 21, 30A)

*Chlamydopsis epipleuralis* Lea, 1912: 68; MATERIAL. HOLOTYPE: *epipleuralis* Lea Type, Hornsby/14673. *Chlamydopsis epipleuralis* N. S. Wales, Type; mounted with two host ants; SAM, examined. *Chlamydopsis epipleuralis var. mastersi* Lea, 1912: 68; Mazar, 1984: 110.


DIAGNOSIS. L: 2.43; W: 0.90; E/Pn L: 1.69; E/Pn W: 1.30; Pn W/L: 1.48; E L/W: 0.88; Pr/Py: 1.15; Sterna: 0.59, 0.22, 0.69; Tibiae: 1.03, 1.18, 1.31. *Chlamydopsis epipleuralis* is one of the most common and widespread species of the group. It is very closely related to *C. sculptus* Oke, and the two are difficult to separate. Together they are most easily recognised by the form of the humeral trichome. The anterior surface is nearly flat, and incised by a moderately deep, straight superficial groove. The inner anterior and posterior elevations of the trichomes nearly meet, and are pointed apically so as to meet at opposing, setose triangular faces. Lateral to these inner elevations is a nearly circular opening, setose on at least its anterior (and often the entire) edge. *Chlamydopsis convexa* is somewhat similar to these in its general trichome shape. But its anterior superficial humeral groove is displaced laterally, with the anterior trichome elevation strongly convex mesal to the groove, and the outer circular opening of the trichome lacks setae. *Chlamydopsis epipleuralis* and *C. sculptus* differ from each other mainly in pronotal sculpture, with the punctures of *epipleuralis* extremely shallowly impressed, those of *sculptus* being much more conspicuous, and even with intermingled finer punctures. The trichomes also differ slightly, most noticeably in the anterior superficial groove, which has its outer edge carinate and distinct in *epipleuralis*, but rounded, indistinct in *sculptus*.

REMARKS. Not all of the above specimens have been studied, and some may refer to *C. sculptus* (below), as several such misidentifications have been found. Oke’s (1923) host record of *Iridomyrmex gracilis* refers to a valid species, but several subspecies are now recognised. The nominate subspecies, occurring in coastal Victoria, is likely the proper one.

**Chlamydopsis sculptus** Oke, 1923

(Fig. 21)

*Chlamydopsis sculptus* Oke, 1923: 158; Lectotype, hereby designated: Macedon, Victoria, 23.4.21, L. Oke/Chlamydopsis sculptus Oke. Type/ Presented by C. G. Oke/902 Type; MVM, examined, 2000. Paralectotype, hereby designated: Bendigo, V., 1.10.21, C. Oke/Chlamydopsis sculptus, Oke. Co-Type/903 Paratype; AMS. An additional specimen of this species was found bearing a type label Bendigo, 4.10.24 [Vic]. However, the
collection apparently postdates the description, and the type label should be disregarded.


DIAGNOSIS. L: 2.55; W: 1.00; E/Pn L: 1.56; E/Pn W: 1.30; Pn W/L: 1.38; E L/W: 0.88; Pr/Py: 1.26; Sterna: 0.69, 0.19, 0.78; Tibiae: 1.0, 1.0, 1.12. See diagnosis under C. epipleuralis, above.

REMARKS. Reported from nests of Iridomyrmex sp. (Oke, 1923).

Chlamydopsis convexa sp. nov. (Figs 19A, 20A, 21)


DIAGNOSIS. This species is similar to the previous two in general body and trichome shape. The most pronounced difference is that the inner anterior elevation of this species' trichome is uniquely convex (rather than flat) and displaces the anterior superficial groove (and the reduced outer portion of the anterior elevation) laterally. Its body is also somewhat narrower overall. Other differences include: glabrous dorsum, weak to indistinct elytral strigosity, and lack of setae lining the outer opening of the trichome.

DESCRIPTION. L: 2.12; W: 0.78; E/Pn L: 1.72; E/Pn W: 1.23; Pn W/L: 1.60; E L/W: 0.88; Pr/Py: 1.29; Sterna: 0.56, 0.12, 0.65; Tibiae: 0.72, 0.75, 0.78. Body orangeish brown, appearing largely smooth and glabrous; punctures on many surfaces extremely shallow, appearing granulate within; frons about as wide as long, sides parallel at middle, narrowed to base and apex, anterior margin straight, disk nearly flat, glabrous, very sparsely and shallowly punctate; labrum rounded, impunctate with numerous short apical setae; antennal scape with outer margin forming a blunt 90° angle near basal one-third, apex rounded, disk microsculptured and finely setose; antennal club of male 1.2 × as long as scape; that of female 0.6 × as long a scape.

Pronotum about 1.7 × as wide as long, margined laterally, sides weakly outwardly arcuate, widest near middle, distinctly but not strongly elevated; anterior margin elevated, with medial and lateral portions continuous with each other and with elevated pronotal sides; disk convex at middle, with sparse, inconspicuous punctures, separated by slightly more than their widths.

Prosternum with anterior margin deflexed, deeply grooved, sinuate and acutely projecting on either side, marginal groove curving posteriorly at sides and merging with circumcoxal stria; prosternal disk depressed behind anterior margin, narrowed posteriorly; apex of keel shallowly emarginate; prosternal disk faintly punctate, without grooves along the proleg depressions.

Elytra about one-fifth wider than base of pronotum; humeral trichomes prominent; inner edges of anterior and posterior elevations broad, strongly convex, their opposing edges with dense fringes of very short setae, nearly meeting; outer edges of humeral elevations less prominent, displaced laterally, a thin outer wall between them closing the trichome laterally; trichome opening round, its cavity deeper than floor of mediobasal elytral depression; outer edge of rounded opening finely carinate, without setae; anterior humeral groove large, deep, extending from humeral corners to anterior edge of lateral trichome opening; mediobasal depression with setose, blunt, transverse tubercles; elytral disk flat to weakly convex posteriorly, with very fine setae throughout, a few shallow, elongate punctures posteriorly; posterior elytral margin finely carinate, this carina continuous with blunter ridge extending forward to outer edge of trichome; epipleuron stigose, stigiae converging to trichome.

Mesosternum short, about 5 × as wide as median length, bluntly projecting at middle, more acutely projecting at sides, in front of mesocoxae; disk sparsely punctate and finely setose; mesometasternal suture impressed; median metasternal suture very finely elevated; metasternal disk sparsely and finely punctate; 1st abdominal sternite similar in texture. Legs short, rather broad, impunctate, with minute setae; outer surface of profemur with well developed oblique carina; meso- and especially metafemora with margins arcuate; tibiae angulate at basal one-third; tarsi laterally compressed.
Propygidium about 1.2 × as long as pygidium, shallowly depressed along anterior margin, otherwise evenly convex, with sparse, very shallow punctures, finely setose; pygidium nearly flat, weakly depressed posterolaterally, faintly punctate.

REMARKS. The name of this species refers to striatella.

Chlamydopsis striatella Westwood, 1869
(Figs 19B, 20B, 21)

Chlamydopsis striatella Westwood, 1869: 318; Type locality ‘Swan River’ [WA]; type specimen not located, sought at Oxford in 2001.

REMARKS. It is extremely unfortunate that the identity of this species, the type of the genus, seems terminally uncertain. Westwood’s type specimen seems to be lost. Although the species was illustrated by Westwood, not all diagnostic characters are clearly visible. The only clues we have to its identity come from a debate in the literature (Lea, 1912, responding to Lewis, 1910). Lewis removed C. striatella and C. formicicola King from synonymy, and offers characteristics for separating them from each other and from C. inquiline Lewis. Lea agreed with removing the two species from synonymy, but goes further to suggest that Lewis is incorrect concerning the identity of C. striatella. Lea cited specimens of C. striatella from only Western Australian localities (Swan River [1912], and Fremantle [1910]), and apparently bases his identification on the fact that Swan River is the published type locality of C. striatella. Lewis’s C. striatella, on the other hand, has only been reported from the southeastern part of the continent. Geography would seem to favor Lea’s concept. However, I have studied specimens from both authors’ collections, and Lewis’s determination (as a species close to C. formicicola) is a much better match to Westwood’s figure than is Lea’s determination; the Fremantle specimen cited above, housed at SAM, though lacking prothorax and head is identifiable as a member of the ectatommae species group, and shares no obvious similarities with Westwood’s figure. Ultimately, as neither author makes reference to having studied a type of any kind, this identity may be unknowable. But for the present, Lewis’s conception is considered more likely correct. That being said, I have been unable to discern any differences between Lewis’s specimens of C. striatella and C. formicicola King (and cite his specimens under the latter species).

Chlamydopsis formicicola (King, 1869)
(Figs 19C, 20C, 21)

Chlamydopsis formicicola King, 1869: 74; Lectotype, hereby designated: Byzenia formicicola R.L.K., ants nests, Liverpool, NSW./ K26343; AMS, examined, 2001; 2 paratype specimens, same data as type: AMS.

Chlamydopsis formicicola var. darwinensis Lea, 1918: 85; Mazur, 1984: 110.


DIAGNOSIS. L: 2.74; W: 1.00; E/Pn L: 1.75; E/Pn W: 1.13; Pn W/L: 1.66; E/L: W: 0.93; Pr/Py: 1.10; Sterna: 0.69, 0.16, 0.75; Tibiae: 1.06, 1.21, 1.40. This species is similar and closely related to C. dispersa sp. nov., described in full below. The most diagnostic difference is in the shape of the humeral trichome. In C. formicicola, its dorsal opening is larger, occupying most of the apex of each elevation (rather than just the inner half). The anterior superficial groove is deeper, and the anterior surface of the elevation is flat on each side of this groove, and shallowly inclined toward it. A small tubercle present in this groove in C. dispersa is not evident in C. formicicola. In addition the pronotal disk of formicicola is less densely punctate, although the punctuation is still rather dense, and the apices of the elytra are fringed with setae. (In the Queensland specimen, much of the body is sparsely setose; other specimens are otherwise bare).

REMARKS. King (1869) originally described this species in the Byrrhidae. The reported host, Camponotus aeneopilosus remains a valid species, but with two subspecies, both apparently within the range of C. formicicola. There is some possibility that the following species represents the male of C. formicicola; see Remarks below.

Chlamydopsis dispersa sp. nov.
(Figs 19D, 20D, 21, 29G)


RECORDS (assuming the identity asserted above holds). WAM: NSW: Tahmoor.

Chlamydopsis formicicola (King, 1869)
(Figs 19C, 20C, 21)

REMARKS. The anterior convexity of the humeri.

Chlamydopsis striatella Westwood, 1869
(Figs 19B, 20B, 21)

DIAGNOSIS. See under C. formicicola, above.

DESCRIPTION. L: 2.68; W: 1.03; E/Pn L: 1.61; E/Pn W: 1.19; Pn W/L: 1.58; E L/W: 0.85; Pr/Py: 1.26; Sterm: 0.75, 0.16, 0.81; Tibiae: 1.03, 1.15, 1.31. Body dark rufescent, subquadrate; most surfaces densely punctate, with dense microsculpture between punctures; frons about 1.2 x as long as wide, sides nearly straight, narrowed abruptly at antennal insertions and gradually to apex; clypeolabral suture straight; disk densely punctate, with both large and intermingled smaller punctures, ground texture between punctures somewhat granulate; labrum rounded; antennal scapes widest about one-third from base, abruptly narrowed to base, gradually narrowed to rounded apex; antennal club of male 1.5 x as long as scape.

Prothorax about 1.5 x as wide as long, sides margined, widening slightly towards front; anterior pronotal margin strongly elevated, triripitate, with the lateral portions angled back obliquely from transverse medial portion, lateral portions slightly arcuate; pronotal disk strongly depressed behind anterior margin, convex in posterior half, strongly elevated, subacute at middle; disk densely and uniformly punctate, the punctures somewhat convergent toward scutellum.

Prosternum with anterior margin strongly grooved, this groove curving posteriorly at sides and continuous with circumcoxal stria; anterior margin slightly deflexed, sinuate, acutely projecting on each side of middle; prosternal keel narrowed posteriorly, subacute at middle; disk densely and uniformly punctate, the punctures somewhat convergent toward scutellum.

Pronotum with anterior margin strongly grooved, this groove curving posteriorly at sides and continuous with circumcoxal stria; anterior margin slightly deflexed, sinuate, acutely projecting on each side of middle; prosternal keel narrowed posteriorly, acutely emarginate at apex; prosternal disk densely punctate throughout.

Elytra together about as wide as long, sides rounded, widest behind middle; humeral trichomes prominent, occupying outer two-thirds of each elytron; anterior elevation broadly raised, anterior surface transversely concave, with oblique superficial groove from anterolateral corner; superficial groove with very small tubercle anterior to where the groove widens around mesal opening of trichome; mesal opening nearly circular, with setose fringe which continues straight down inner edges of anterior and posterior elevations; trichome with conspicuous lateral notch as well, this (in lateral view) bent obliquely posterad; outer edge of posterior elevation continuous with low marginal carina which continuous around posterior elytral margin; elytral disk strongly depressed between trichomes, impunctate within depression, with low arcuate carina from elytral suture to base of trichome opening; disk elsewhere densely punctate (stigrose near middle) and microsculptured in the intervening space, except smooth on trichome elevations, particular the anterior.

Mesosternum about 3 x as wide as median length, anterior margin sinuate, projecting medially; anterior and lateral margins subcarinate; disk raised along longitudinal midline, finely but densely punctate; mesometasternal suture impressed; metasternum convex, with small punctures separated by slightly more than their widths throughout, but denser along midline and posteriorly; 1st visible abdominal sternite densely punctate anteriorly, more sparsely so posteriorly, the more posterior punctures each bearing minute seta; legs slender, elongate; pro- and mesotibiae bluntly angulate about one-third from base; metatibial margin simply rounded; outer surfaces of all legs more or less uniformly covered with setigerous punctures, the tibiae more finely microsculptured toward outer margins.

Propygidium about one-third longer than pygidium along midline, weakly depressed along anterior margin, otherwise strongly convex; pygidium flat to slightly convex; propygidium and basal half of pygidium densely punctate and microsculptured, the apical half of pygidium very sparsely punctate.

REMARKS. The two Queensland specimens of this species are markedly broader than those from Northern Territories, but differ in no other obvious characters. The entire type series consists of males, while, where checked, the few C. formicicola specimens examined have all been females. Their known distributions nearly abut in central Queensland, prompting the possibility that the two species are sexes of the same species. However, the differences between them would not correspond to any other known Chlamydopsis dimorphisms. The name of this species alludes to its relatively broad distribution.
Chlamydopsis weiri sp. nov.
(Figs 19E, 20E, 21)

MATERIAL. HOLOTYPE \( \delta \): 12.39S 142.42E Qld, 4km NE Batavia Dns. 16 Sept.-24 Oct. 1992, FIT, P. Zborowski & T. Weir; in ANIC.

DIAGNOSIS. This species is similar to the preceding two, sharing an upturned anterior (but not lateral) pronotal margin and fairly simple, rounded, mesally open trichomes, the anterior elevations of which are broad and more or less flat. The outer border of the trichome opening is subacutely elevated in the present species, and smooth on its outer surface, whereas in the preceding two, while the trichome is closed laterally, a shallow groove extends laterad from the trichome opening to a deep epipleural invagination.

DESCRIPTION. L: 2.62; W: 0.97; E/Pn L: 1.71; E/Pn W: 1.28; Pn W/L: 1.61; E L/W: 0.83; Pr/Py: 1.17; Sterna: 0.75, 0.16, 0.87; Tibiae: 0.97, 1.06, 1.18. Body rufescent brown; frons slightly wider than long, with sides broadly arcuate, slightly elevated relative to disk, acutely projecting near antennal insertions, disk coarsely reticulopunctate, glabrous; apical frontal margin shallowly emarginate; labrum rounded, shallowly punctate, with numerous very short setae along apical margin; antennal scapes strongly angulate one-third from base, basal portion of outer margin inwardly arcuate, apical portion mostly straight, narrowed to rounded apex; antennal club of male about 1.5 \( \times \) as long as scape.

Pronotum 1.75 \( \times \) as wide as long, narrowest at base, widening slightly to intersection with lateral portions of anterior pronotal margin; sides margined, disk slightly depressed along margin; anterior margin strongly elevated, the medial portion interrupted by a notch at middle and at sides; lateral portions projecting forward slightly beyond medial portion, arcuate to sides; disk convex, with very short, faint transverse median carina densely punctatostrigose, with minute setae interspersed, the striae converging toward scutellum.

Prosternum with anterior margin deflexed, deeply grooved, sinuate and bluntly projecting on either side of middle, the marginal groove curving posteriorly at sides and merging with circumcoxa stria; prosternal disk transversely depressed behind anterior margin, and somewhat longitudinally depressed between procoxae; edge of proleg depression strongly carinate, and with deep groove along inner margin of this carina from apex of keel around to sides; keel narrowest between procoxae, slightly widened to apex, emarginate apically; prosternal disk densely punctate throughout.

Elytra about 1.4 \( \times \) as wide as base of pronotum, sides more or less parallel, evenly narrowed to base and apex; humeri strongly elevated, particularly at sides, with lateral 'wall' slightly overhanging trichome opening; trichome open mesally, anterior and posterior edges parallel, outer edge more rounded, lined with nearly continuous fringe of setae (though anterior, lateral, and posterior fringes are interrupted underneath overhanging side), those of the inner anterior corner and outer edge longest; anterior humeral grooves, nearly straight, extending from humeral corner to anterolateral corner of trichome opening; mediobasal elytral depression occupying slightly less than basal half, smooth, with prominent, arcuate, transverse carinae; elytral disk outside of depression densely punctatostrigose, slightly elevated near posterolateral corners; apical elytral margin...
carinate, carina diverging from margin at sides, and extending forward about one-fourth of elytral length.

Mesosternum about 4 x as wide as long, raised along midline, depressed at sides, acutely projecting at middle, disk punctate; meso-metasternal suture strongly impressed, crenulate, continuous at sides with postmesocoaxal line; longitudinal metasternal suture shallowly impressed, complete; metasternal disk uniformly but sparsely covered with small punctures, interstices microsculptured, faintly alutaceous; 1st abdominal sternite similarly sculptured, though punctures smaller. All legs short, slender; tibiae angulate near basal one-third; outer surfaces of profemur and tibia sparsely punctate, meso- and metafemora and tibiae with smaller punctures, most with minute setae.

Propygidium depressed along anterior margin, strongly convex along midline, depressed at sides, disk coarsely reticulopunctate; pygidium slightly convex, densely punctate in basal one-half, more sparsely apically.

REMARKS. This species is named in honour of Tom Weir, who collected the type and has offered considerable assistance during this study.

**Chlamydopsis crowcrofti** sp. nov.


DIAGNOSIS. This and the following five species form a relatively distinctive grouping (referred to here informally as the ‘latipes subgroup’), united by humeral trichome shape. In all the inner edges of the anterior and posterior elevations of each trichome are well separated from each other, but have opposing bundles of setae which nearly or actually touch, while laterally the trichome is flat, broadly rounded, bearing an arc of marginal setae projecting mesally above an internal ‘shelf’, which variously conceals the opening of the trichome. In addition, all have the pronotum at least slightly acutely tuberculolate, the anterior pronotal margin (but not the lateral) elevated, and metatibiae moderately to markedly elongate. The present species is distinguished from the others principally by the form of the anterior superficial groove of the trichome, which is slightly ‘undercut’ toward the outside, such that the outer edge of the groove is strongly carinate, while its inner edge is nearly flat and noncarinate. The sparse dorsal setae are more conspicuous, particularly on the posterior portions of the elytra, than in any other species in this group.

DESCRIPTION. L: 2.71; W: 1.00; E/Pn L: 1.72; E/Pn W: 1.26; Pn W/L: 1.78; E L/W: 0.76; Pr/Py: 1.24; Sterna: 0.78, 0.28, 0.93; Tibiae: 1.21, 1.43, 1.74. Body rufescent, somewhat rounded, almost entirely densely reticulately punctate, with sparse, elongate setae throughout; frons about as long as wide; sides rounded, gradually narrowed to apex, abruptly narrowed at antennal bases; apical margin very slightly sinuate; frontal disk reticulate, bearing ~5 irregularly placed long setae; labrum rounded, nearly semicircular, reticulate, with anterior fringe of shorter setae; outer basal surfaces of mandibles reticulate; antennal scape with inner margin arcuate, outer margin angulate, widest about one-third from base, reticulate; antennal club of male 1.3 x as long as scape.

Prothorax 1.5 x as wide (at base) as median length; sides margined, parallel in basal two-thirds, abruptly widened in apical third, with sparse setal fringe; anterior pronotal margin strongly elevated, the lateral thirds arcuate, oblique to medial third and slightly projecting forward of it where they meet; median portion not quite as high as lateral, distinctly notched at middle; pronotal disk shallowly depressed behind anterior margin, convex posteriorly, weakly acutely produced at middle; disk entirely reticulopunctate, the postmerional reticulae slightly more elongate, converging toward scutellum; disk with sparse elongate, though mainly decumbent, setae.

Prosternum with anterior margin deflexed, deeply grooved, sinuate and bluntly projecting on either side of middle, the marginal groove curving posteriorly at sides and merging with circumcoaxal stria; prosternal disk transversely depressed behind anterior margin, convex posteriorly between procoxae; prosternal keel narrowed to between coxae, then slightly widened to apex, apex deeply emarginate; entire prosternal disk reticulate.

Elytra approximately 1.5 x wider than base of prothorax; sides of elytra slightly sinuate, slightly wider anteriorly, rounded to apex; humeral trichomes prominent, their openings nearly circular, broadly open mesally (and beneath), with a lateral arc of dense, erect setae, and separate opposing dense bunches of setae on the
inner edges of the posterior and anterior elevations; shelf above opening where lateral trichomatal setae are inserted open in lateral view; anterior elevation subacutely produced, with deep, almost straight superficial groove extending from anterolateral elytral corner to outer edge of trichome opening, this groove slightly undercut toward the outside such that its outer edge is overhanging; basal elytral depression with two arcuate carinae from elytral suture behind scutellum to anterior edge of opening of trichome; posterior half of elytra unevenly convex, surface undulated in posteralteral corners; posterior elytral margins carinate, these carinae diverging from margin at posterolateral corners and extending about one-fifth around the side before diminishing.

Mesosternum about 3 × as wide as median length; anterior margin sinuate, projecting at middle; mesosternal disk depressed in anterior corners, elevated at middle, uniformly reticulate; mesometasternal suture crenulatedly impressed; metasternum only very sparsely and finely punctate, with faint alutaceous microsculpture; postmesofemoral line ending short of metepisternum; 1st visible abdominal sternite with conspicuous row of small punctures along anterior margin, but more sparsely punctate behind; postmetafemoral line not well developed, ending behind coxa; femora widened to apex, exposed surfaces densely punctate, with setae along anterior and posterior margin; protibia slender, angulate about one-third from base, densely punctate on outer surface, approximately equal in length to profemur; meso- and especially metatibiae conspicuously (about one-sixth in the latter case) longer than their respective femora, widened, with dense punctures only along edges; mesotibia angulate one-third from base; metatibia rounded, only bluntly angulate near middle.

Propygidium 1.3 × longer than pygidium, slightly depressed along anterior margin, otherwise strongly convex, reticulopunctate, sparsely setose; pygidium convex, densely punctate in basal half, punctures slightly more widely spaced in most of apical half.

REMARKS. This species is named for renowned mammologist Peter Crowcroft, in recognition of his role in establishing Brookfield Conservation Park, type locality of this and several other Chlamydopsis species. Although his primary concern at the time was the southern hairy nosed wombat *Lasiorhinus latifrons*, numerous additional species benefit from his efforts.

**Chlamydopsis latipes** Lea, 1919
(Figs 19G, 20G, 24)

_Chlamydopsis latipes_ Lea, 1919: 176; **HOLOTYPE** ♀: _latipes_ Lea Type, Mt Henry/ _Chlamydopsis latipes_ Lea, W. Australia Type, 10675; mounted with 2 hosts, reportedly Dolichoderus (Hypoclinea) scabridus (Lea, 1919); SAM, examined, 2000.

**MATERIAL.** WAM: WA: 2.36; W: 1.40; E/Pn L: 1.58; E/Pn W: 1.59; Pn W/L: 1.29; E L/W: 0.77; Pr/Pr: 1.19; Sterna: 0.93, 0.37, 1.21; Tibiae: 1.74, 2.12, 2.55. See above to diagnose the _latipes_ subgroup. Within this group _C. latipes_ itself is unique in having the elytra behind the trichomes virtually impunctate. While faint strigosity is detectable, it is inconspicuous at lower magnifications. However, apart from this character and its larger body size, _C. latipes_ is very similar to the following, and there is a chance that they are sexes of the same species. There is precedent for this sort of dimorphism within _Chlamydopsis_ (see _strigicollis_ group above). But the two are known from no identical localities, and from too few specimens to be able to do more than suggest their identity.

**REMARKS.** As currently delimited, the ant Dolichoderus scabridus does not occur in Western Australia. This host record may refer to what is now called _D. ypsilon ypsilon_ as a Western Australian species with _D. ypsilon ypsilon_ itself is unique in having the elytra behind the trichomes virtually impunctate. While faint strigosity is detectable, it is inconspicuous at lower magnifications. However, apart from this character and its larger body size, _C. latipes_ is very similar to the following, and there is a chance that they are sexes of the same species. There is precedent for this sort of dimorphism within _Chlamydopsis_ (see _strigicollis_ group above). But the two are known from no identical localities, and from too few specimens to be able to do more than suggest their identity.

**Chlamydopsis macmillani** sp. nov.
(Figs 19H, 20H, 24)

**MATERIAL.** **HOLOTYPE** ♀: Perth, John Forrest National Park, Darling Range, Western Australia, Sept. 1974, GH. Lowe/ in nest of Rhytidoponera violaceum — in midst of ants/ Western Australian Museum Entomology Reg no. 27236/ Chlamydopsis, is close to _C. latipes_, Det. R.F McMillan; in WAM.

**DIAGNOSIS.** See above for group diagnosis of the _latipes_ subgroup. This species is distinguished by having the lateral portion of the humeral trichome broadly rounded, and with relatively inconspicuous internal shelf, such that
nearly the entire lumen of the trichome is visible from above. The smaller size and reticulostrigose elytra of *C. macmillani* distinguish it from *C. latipes*. Its evenly impressed superficial humeral groove, and glabrous pygidium and posterior elytral disks distinguish it from *C. crowcrofti*.

**DESCRIPTION.** *L*: 2.83; *W*: 1.06; *E/Pn L*: 1.68; *E/Pn W*: 1.47; *Pn W/L*: 1.50; *E L/W*: 0.76; *Pr/Py*: 1.09; *Sterna*: 0.78, 0.28, 1.00; *Tibiae*: 1.37, 1.46, 1.81. As for *C. crowcrofti*, above, except: dorsum with few setae on pronotal disk, lateral pronotal margins, and on anterior surfaces of humeri, otherwise glabrous; sides of pronotum inwardly arcuate, nearly as wide at apex as at base. Humeral trichomes with openings C-shaped, open mesally, with opposing dense bundles of short setae closing the ‘C’, outer fringe of setae occupying most of lateral arc, with arcuate groove above and lateral to fringe, and short, inconspicuous inner shelf beneath it; floor of trichome lumen smooth, glabrous, continuous between trichomes; superficial humeral groove of humeral trichome evenly incised, with inner and outer edges carinate. Metasternal disk with sparse but conspicuous small punctures, these denser along posterior half of longitudinal metasternal suture; punctures of 1st visible abdominal sternite not appreciably concentrated along anterior margin, but fairly evenly distributed, separated by 1-2 × their widths; meso- and metatibiae not longer than their respective femora, outer meso- and metatibial punctures largely confined to basal one-third of their lateral margins. Propygidium and pygidium glabrous.

**REMARKS.** This species is named in honor of Peter McMillan, a long-time chlamydopsine collector and enthusiast, who recognised that this species was undescribed.

### Chlamydopsis nullarbor sp. nov.

(Figs 191, 201, 24, 29F)

**MATERIAL.** HOLOTYPE ♂: 32.08S 126.18E, 231 cm ESE of Cocklebiddy WA, 25.x.1977, J.F.Lawrence/berlesed from leaf litter; in ANIC.

**DIAGNOSIS.** This member of the *latipes* subgroup is most easily distinguished by characters of the humeral trichome. The lateral arc of setae arises in a discrete single row, with conspicuous flat, impunctate shelves both mesal and lateral to it. Approximately the outer half of the lumen of the trichome is obscured by this inner shelf, but no carina arises from the transverse elytral depression to close the lumen medially (as is the case in the following two species). The most similar known species is *C. latipes*, which may be immediately distinguished by its impunctate elytra.

**DIAGNOSIS.** *L*: 3.18; *W*: 1.15; *E/Pn L*: 1.76; *E/Pn W*: 1.52; *Pn W/L*: 1.51; *E L/W*: 0.76; *Pr/Py*: 1.19; *Sterna*: 0.93, 0.34, 1.18; *Tibiae*: 1.50, 1.65, 2.02. As for *C. crowcrofti*, above, except: posterior half of elytra, and propygidium and pygidium lacking setae; pronotum barely notched at middle; most setae of pronotum actually bundles of two setae; humeral trichome broadly rounded, slightly narrowmed, with anterior and posterior bundles of mesal setae meeting; outer arc of setae projecting inward above curved shelf, concealing slightly more than outer half of lumen of trichome; also with impunctate shelf outside of outer setal arc, delimited laterally by an elevated outer margin; transverse basal elytral depression glabrous across middle, with a few punctures beneath inner edge of trichome opening; posterior half of elytral disk reticulostrigose; metasternal disk evenly punctate along anterior and posterior margins, and along median longitudinal suture, lateral portions of disk much more sparsely and finely punctate; 1st visible abdominal sternite sparsely punctate at middle, more densely so towards metacoxae; pygidial punctures smaller but no less dense toward apex.

**REMARKS.** This species name is the region of the type locality. Latin reference to the lack of tall trees in the area.
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Continuous with the trichome lumen, and not separated from it by a carina. The meso- and meta-tibiae of these two species are also not as distinctly widened as those of any of the above species. Chlamydopsis rotunda is distinguished from C. latipennis by the former's: lack of strigosity in the posteromedial half of the pronotum, more lightly strigose elytra, lack of propygidial and pygidial discal setae, and densely granulose (rather than reticulopunctate) pygidia.

DESCRIPTION. L: 3.55; W: 1.25; E/Pn L: 1.85; E/Pn W: 1.41; Pn W/L: 1.65; E L/W: 0.80; Pr/Py: 1.20; Sterna: 0.93, 0.34, 1.21; Tibiae: 1.37, 1.56, 1.84. Body dark rufescent, broadly subquadrate; sculpture varied from shallowly and finely strigose (elytra) to coarsely reticulostrigose (anterior half of pronotum); frons as wide as long, sides rounded, deeply reticulostrigulate, with two prominent setae near anterior margin (number may vary in other individuals); labrum rounded, punctate; antennal scape arcuate, outer margin sinuate; antennal club of female two-thirds length of scape.

Prothorax 1.6 × wider than median length, sides margined, very slightly narrowed anteriorly; anterior pronotal margin elevated, the inner half of supra-antennal portions most strongly, less so at middle and at sides; pronotal disk depressed behind anterior margin, particularly strongly behind junction of median and lateral portions of margin, acutely projecting at middle and faintly convex behind middle; disk deeply reticulostrigose in anterior half, more shallowly so posteriorly, nearly smooth in much of posterior half.

Prosternum with anterior margin deeply grooved, this groove curved posteriorly and joining circumcoxal stria at sides; margin acutely projecting on either side of middle; prosternal keel narrowed posteriorly, acutely emarginate at apex; carina separating disk from protibial depressions prominent; disk densely and coarsely punctate.

Elytra 1.3 × as wide as pronotum, sides parallel, approximately equally rounded to base and apex; humeral trichomes low, transversely ovoid, close to lateral margins, the opening itself limited to a short longitudinal notch, largely concealed; trichome with setose fringe around outer half of edge, this fringe nearly meeting elytral margin; inner edges of trichome elevations with small bundles of obliquely opposing setae (which do not meet in type); basal elytral depression broad, with transverse carina connecting anterior elevations of both trichomes; elytral disk undulated in posterolateral corners, coarsely strigose in anterolateral corners, much more finely strigose elsewhere; posterior margins of elytra not carinate.

Mesosternum projecting at middle, elevated along midline, anterior and lateral edges raised, otherwise depressed, coarsely punctate; meso- and metasternal suture crenulately impressed; metasternum mostly smooth, very finely and sparsely punctate, with faintly alutaceous microsculpture, mesofemoral line complete to metepisternum; 1st visible abdominal sternite similar in texture to metasternum, metafemoral line ending behind coxa; legs slender, not unusually elongate; outer surfaces of all femora impunctate; protibia angulate at basal third, punctate along outer margin; meso- and metatibiae moderately broad, bluntly angulate, margins rounded, with faint setigerous punctures along outer margin, otherwise impunctate.

Propygidium 1.25 × length of pygidium, shallowly depressed along anterior margin, otherwise strongly convex; pygidium flat along posterior margins, but convex at middle; both propygidium and pygidium unusually textured, rather granulately rugose, the median apical third of the pygidium slightly smoother, both with fine erect setae.

REMARKS. The name of this species refers to its rotund body shape.

Chlamydopsis latipennis Lea, 1912
(Figs 22B, 23B, 24)

Chlamydopsis latipennis Lea, 1912: 67; Lectotype, hereby designated: NW Aust/ On permanent loan from Macleay Museum University of Sydney/ Chlamydopsis latipennis Lea, Type, N.W. Australia, ANIC; examined, 2000.

RECORDS. ANIC: SA: Brookfield Con. Pk., 3-12.ix.1991, site 1 JL,TW&Dressler, pitfalls. This specimen is about 1.5 × the size of the type, but is otherwise very similar.

DIAGNOSIS. L: 3.40; W: 1.25; E/Pn L: 1.73; E/Pn W: 1.48; Pn W/L: 1.53; E L/W: 0.77; Pr/Py: 1.28; Sterna: 0.93, 0.34, 1.12; Tibiae: 1.50, 1.62, 1.93. See diagnosis under the preceding species.

Chlamydopsis carinota sp. nov.
(Figs 22C, 23C, 24)

DIAGNOSIS. This species is easily distinguished by the strongly upturned anterior pronotal margin, ubiquitous setae, punctatorugose metasternal disk, and prominent trichomes, which at their apices project laterally beyond the epipleuron.

DESCRIPTION. L: 2.80; W: 1.06; E/Pn L: 1.65; E/Pn W: 1.39; Pn W/L: 1.65; E L/W: 0.72; Pr/Py: 1.20; Sterna: 0.84, 0.25, 0.90; Tibiae: 1.31, 1.50; [metatibia missing]. Body light rufescent brown, all surfaces conspicuously and relatively densely setose; frons as long as wide, sides rounded, their widths, the punctures larger and sparser decumbent setae.

Prothorax 1.6 × as wide as median length; sides rising from base, continuous with the strongly elevated anterior margin, the upper edges finely crenulate and setose; pronotal disk depressed behind anterior margin and at sides, convex along midline, more broadly so posteriorly, depressed medially, with a small prescutellar tubercle; disk more or less evenly covered with setiferous punctures separated by about 3 × their widths, the punctures larger and less widely separated in anterior corners.

Prosternum with anterior margin strongly grooved, deflexed, sinuate, projecting on each side; marginal groove curving away from margin at sides and joining circumcoxal stria; prosternal disk depressed behind anterior margin, slightly elevated above procoxae, narrowed posteriorly, acutely emarginate at apex, densely reticulopunctate and with sparse decumbent setae.

Elytra widest at humeri, with prominent, rounded humeral trichomes; opening of trichome oval, slightly oblique, transverse, open mesally, lined with fringe of setae; superficial groove of anterior elevation close to margin, with outer edge prominent, slightly undercut, inner edge poorly defined; trichome closed laterally, with outer edge folded over, projecting laterally beyond epipleuron; basal elytral depression broad, confined to less than basal half, low transverse carinae within; posterior half unevenly convex, undulating at sides, densely reticulostrigose and setose; posterior elytral margin finely carinate, slightly elevated.

Mesosternum 3 × wider than median length, anterior margin flat, projecting at middle, disk more or less flat, reticulopunctate, setose; mesometasternal suture finely impressed, largely obscured by punctures; metasternal disk rather convex, densely punctate; mesofemoral line complete to, and continued on, metepisternum; 1st visible abdominal sternite entirely densely punctate, metafemoral line ending just behind metacoxa, not reaching side; legs all apparently elongate, rather slender (both metathoracic legs missing in unique type), densely punctate and clothed with long setae on outer surfaces; tibiae thickened along longitudinal axis, but abruptly thinner towards outer edge on exposed side (closely mirroring the tarsal groove on the concealed side).

Propygidium slightly longer than pygidium, depressed along basal margin but convex elsewhere.

REMARKS. The name of this species refers to its prominent, upturned anterior pronotal margin.

Chlamydopsis inquilina Lewis, 1885
(Figs 22D, 23D, 27)

Chlamydopsis inquilina Lewis, 1885: 472; ?Type: Labelled: ‘Liverpool N.S. Wales (ants’ nests)’. The type locality cited here is from a specimen labelled as Lewis’ type in the NHM. However the original description noted only ‘Australia (Duboulay)’ as a type locality. Lea (1919) notes that a later citation of the type from NSW (Lea, 1912) is likely in error, and that F.H. du Boulay’s specimens all originated from Western Australia. Thus it is not certain that the NHM specimen labelled as type was in fact part of the original type series.


DIAGNOSIS. L: 3.05; W: 1.18; E/Pn L: 1.58; E/Pn W: 1.35; Pn W/L: 1.37; E L/W: 0.86; Pr/Py: 1.35; Sterna: 0.78, 0.25, 0.87; Tibiae: 1.46, 1.53, 1.74. Several characters distinguish this isolated species: The pronotal and elytral disks lack impressed punctures, but the conspicuously alutaceous ground texture is peppered with small, round, untextured ‘pseudopunctures’; the lateral pronotal margin appears ‘doubled’ by an unusually prominent, carinate circumcoxal stria; the outer wall of the humeral trichome is deeply incised and lacking a dense setal fringe; the medial portions of the pronotal and elytral disks are glabrous (except on the humeral trichomes) but bear long golden setae around their margins; the dense setae of the propygidium and pygidium...
are much more conspicuous in this than any other species of the *epipleuralis* group.

**REMARKS.** Only one definite male of this species has been studied. At least that specimen was unusual among *Chlamydopsis* in lacking an elongate antennal club. It would be very interesting to determine whether this otherwise ubiquitous chlamydopsine dimorphism is truly lacking in this species. This male also possessed small dentiform metasternal processes near the posterior midline not observed in any other *Chlamydopsis*.

**Chlamydopsis detecti** Lea, 1914

(Figs 22E, 23E, 27)

*Chlamydopsis detecti* Lea, Dawson R. / *Chlamydopsis detecti* Lea Queensland Type, 15575; SAM, examined, 2000.

**DIAGNOSIS.** *Chlamydopsis detecti* and the following two new species form a distinctive and closely related group. All are larger than average for the genus, and share several characters: strongly and continuously upturned anterior and lateral pronotal margins bearing conspicuous marginal setae; carinate and elevated posterior elytral margins which continue anteriorly along the lateral margin (in *C. storeyi* sp. nov. all the way to the trichome); humeral trichomes very prominent, dominated by rather narrow, strongly elevated inner edges, which meet at a vertical mesal cleft; mediobasal elytral depression large, extending beyond middle of elytra. *Chlamydopsis matthewsi* sp. nov. is the most distinctive of these, being deep red in color and entirely glabrous dorsally (except along elytral and pronotal margins). *Chlamydopsis detecti* and *C. storeyi* are easily separated from each other by the shape of the pronotum (Fig. 22E vs 22F), which in the former is proportionally shorter, and rounded (rather than angulate) where the lateral and anterior margins meet. *Chlamydopsis storeyi* also bears prominent setae on the inner anterior elevation of the humeral trichome which are entirely lacking in *C. detecti*. However, it should be noted that *C. storeyi* is quite sexually dimorphic in surface setation and sculpture, while *C. detecti* is known from only one (undetermined) sex.

**DESCRIPTION.** A few additional characters of this species are noteworthy. Body rufescent, not yellow; frons granulose, without reticulate sculpture, with scattered setae; antennal scape with few setae (or small setal bundles); pronotal margins elevated, the anterior margin mostly evenly rounded but shallowly notched at middle; pronotal and elytral surfaces granulate; humeral trichomes bare on anterior surface of inner elevation; anterior and posterior inner elevations rather broad, leaning slightly toward the outside (in anterior view), arcuate around mediobasal depression; outer elevations laterally carinate, with ‘V’-shaped setose incision; anterior superficial humeral groove very deeply impressed, close to lateral margin, edges bare; mediobasal depression large, with rounded, setose basal tubercles; elytra with setae along posterior half of suture; posterior elytral margin strongly carinate, the carina continuous forward along posterior one-fourth of lateral margin.

**REMARKS.** The type specimen was collected from a nest of ‘*Iridomyrmex detectus*’, which has since been split into several species, three of which (*I. purpureus* (Smith), *I. sanguineus* Forel, and *I. viridaeneus* Viehmeyer) apparently occur in the range of *C. detecti*. This species is known only from the holotype.
Chlamydompsis storeyi sp. nov.
(Figs 22F, 23F, 27)


DIAGNOSIS. See diagnosis above under C. detecti.

DESCRIPTION. L: 3.36; W: 1.34; E/Pn L: 1.51; E/Pn W: 1.37; Pn W/ L: 1.40; E L/W: 0.79; Pr/Py: 1.39; Sterna: 0.87, 0.22, 0.84; Tibiae: 1.25, 1.34, 1.37. Body light yellow-orange, with legs, trichome apices, and most major carinae darker, rufescent; most normal body striae exaggerated, carinate; female with pronotum and elytral disks largely glabrous, with setae only around margins and toward apices of trichomes; male with pronotum and elytral disks sparsely but evenly setose; frons slightly wider than long, sides rounded, narrowed gradually to apex and abruptly at base, anterior margin slightly rounded; disk convex, slightly projecting at bases of antennae, irregularly reticulopunctate and with sparse, elongate setae; labrum semicircular, with several setae; outer bases of mandibles reticulopunctate and setose; antennal scapes arcuate, widest about one-third from base, but only slightly narrowed to rounded apex, disk coarsely punctate on outer edges, but only faintly punctured, micro-sculptured medially; antennal club of both male and female 0.6 × length of scape.

Prothorax 1.3 × as wide as median length, sides margined, widening towards the front; lateral and anterior margins continuously and strongly elevated, the lateral posteriorly diminishing in height, joining posterior margin which is finely carinate; anterior margin sinuate, notched at middle, subacute on either side of notch; pronotal disk strongly depressed behind margins, convex in posterior mediolateral half, shallowly punctate on inner surfaces of marginal elevations as well as along anterior one-third of midline, elsewhere smooth; pronotum of female glabrous except for a few setae along lateral and anterior margins, that of male with sparse but conspicuous setae on entire disk, most of them curled over, forming a loop at their apices.

Propyroglidium 1.3 × median length of pygidium, both nearly flat, vertical, only very slightly convex, with inconspicuous fine setae.

REMARKS. The dimorphism in setation of the pronotum and elytra in this species is unique among Chlamydompsis, although the preceding and the following species are closely related, and may be found to share it when both sexes of these
are known. This species is named in honor of Ross Storey, who collected and provided a substantial fraction of the material for this study.

**Chlamydopsis matthewsi** sp. nov.
(Figs 22G, 23G, 27, 29H, 30C)

**MATERIAL. HOLOTYPE ♀:** Australia N.S.W., Sturt Nat. Pk., 21 km W Fortville, P.J.M.Greenslade, 22/11/79, sand dune, in SAM.

**DIAGNOSIS.** See diagnosis under *C. detecti*, above. This is the largest species of *Chlamydopsis* known. Its size and its deep red color are highly distinctive. The preceding species is closely related and generally similar, but in addition to the color difference, it possesses epipleural tubercles and setae near the apices of the inner upper edges of the humeral trichomes, which *C. matthewsi* lacks completely (at least in the female).

**DESCRIPTION.** L: 4.36; W: 1.56; E/Pn L: 1.80; E/Pn W: 1.38; Pn W/L: 1.54; E L/W: 0.85; Pr/Py: 1.47; Sterna: 1.06, 0.31, 1.03; Tibiae: 1.46, 1.62, 1.65. Body dark red, large; frons 1.4X as wide as long, sides broadly rounded, gradually narrowed to apex, abruptly narrowed at antennal bases; frons acutely projecting on each side medial to antennal insertions, shallowly depressed at sides, and elevated along anterior margin; disk sparsely punctate, slightly rugose at sides, with sparse, elongate setae; labrum rounded, glabrous; antennal scapes arcuate, widest near middle, faintly punctate, bearing scattered conspicuous setae, outer margin bluntly angulate; antennal club retracted and barely visible in type.

Prothorax 1.4X as wide as long, lateral and anterior margins strongly and continuously elevated; anterior margin somewhat uneven, shallowly notched at middle, bearing sparse fringe of curled setae; outer edge of supracoxal groove visible from above outside of dorsal margin; pronotal disk strongly depressed at sides, convex along midline, slightly more prominently so posteriorly; disk finely and shallowly punctate, with a few larger punctures towards the front.

Mesoscutum about 4X as wide as median length, anterior margin sinuate, roundly projecting at middle, grooved along anterior, lateral and posterior margins, the groove broad in anterolateral corners; mesosternal disk very finely punctate; central part of metasternum delimited on all edges by fine, continuous groove, the mesofemoral lines defining the anterolateral boundary; mesofemoral lines reaching metepisternum, but continued on it only by low, blunt ridge; median longitudinal metasternal suture complete but not strongly impressed; metasternal disk finely punctate; 1st visible abdominal sternite with fine, but deeply impressed anterior marginal groove, this groove continuous at sides with metafemoral lines, nearly reaching epipleuron; legs as in the preceding species.

**REMARKS.** This species is named in honor of Eric Matthews, who has provided valuable material and information throughout the course of this study.

**Chlamydopsis cavicollis** Lea, 1912
(Figs 22H, 23H, 27)

DIAGNOSIS. While its continuous, elevated lateral and anterior pronotal margins ally it with the preceding three species, this species is very distinctive. The body shape (Fig. 22H) is unusual, with the pronotum very small relative to the elytra, and the elytra narrowing from the humeri to the apex. The epipleural cleft of the trichome is unique, forming a long, narrow, posteriorly curving incision. Additional unusual characters include: anterior and lateral pronotal margins lined with prominent setal bundles; anterior and posterior elevations of humeral trichomes each with two separate bundles of setae; posteriormedial elevation of trichome only weakly elevated; inner edge of anterior humeral groove not well developed, the outer prominent, scooplile; marginal epipleural carina not arcuate over metathoracic leg; legs elongate and very slender; elytral dorsum and pygidia with numerous discal setae.

REMARKS. This species is known only from the holotype, which has suffered some dermestid damage, and is missing most of its legs.

INCERTAE SEDIS

The following three species are not obviously related to any of the preceding species groups and are left unaffiliated.

**Chlamydopsis tuberculata** Lea, 1912
(Figs 231, 25A, 27)

*Chlamydopsis tuberculata* Lea, 1912: 54; Type (♂): *tuberculata* Lea Type, Ballarat/14670, *Chlamydopsis tuberculata* Lea, Victoria, mounted with separate card, originally with two host individuals, only part of one individual remaining; SAM; seen 2000.


DIAGNOSIS. *Chlamydopsis tuberculata* is easily separated from all other *Chlamydopsis* by the pronotum. It not only bears a prominent, blunt, transverse tubercle, but is more strongly and continuously elevated along anterior and lateral margins than any other species. The shape of the pronotum, widening posteriorly (in dorsal view), is also distinctive. Additional distinguishing characters include the position of the humeral trichomes, situated very close to the anterolateral elytral corners, the very shallow, indistinct reticulation of the elytra, and the rather slender but marginally rounded tibiae.

REMARKS. With regards to this species' phylogenetic affinities, one of the more significant characters is the lack of marginal prosternal groove (plesiomorphy), which excludes it from the *epipleuralis* and *ectatommae* groups. There is some similarity in trichome with species in the *striatipennis* group. However, subtle differences have prevented the recognition of these as potential synapomorphies. No genitalia have been examined due to the rarity of specimens. The ovipositor will likely reveal additional clues as to the relationships of the species.
**Chlamydopsis mareeba** sp. nov.  
(Figs 25B, 26A, 27)


DIAGNOSIS. This species, although difficult to place phylogenetically, is very distinctive. The combination of prosternal marginal groove, deeply transversely incised humeral trichome bearing near continuous setal fringe, and impunctate, plurisetose elytra are sufficient to separate it from other known species. It should be noted, however, that the unknown male may not conform to this diagnosis.

DESCRIPTION. L: 2.55; W: 0.93; E/Pn L: 1.73; E/Pn W: 1.18; Pn W/L: 1.63; E L/W: 0.90; Pr/Py: 1.16; Serna: 0.65, 0.19, 0.69; Tibiae: 0.87, 1.00, 1.03. Body rufescent, quadrate, dorsal surface mostly impunctate, with numerous elongate setal bundles; frons about as long as wide, sides rounded, disk uniformly convex, with broad shallow punctures slightly separated by faintly microsculptured areas, with a couple small setal bundles; labrum rounded, weakly punctate, glabrous; antennal scape bluntly angulate near its outer midpoint, abruptly narrowed to base, more gradually to apex; surface of scape with elongate, shallowly impressed punctures, a few setal bundles; antennal club of female about two-thirds length of scape.

Pronotum 1.5× as wide as median length; sides margined, widened and slightly elevated towards front; anterior margin elevated, median and lateral portions continuous, and continuous with lateral margins; disk depressed behind anterior margin, convex posteriorly, nearly smooth at middle, very faintly reticulopunctate at sides and front; anterior and lateral margins, and to a lesser extent the disk with conspicuous punctures bearing bundles of elongate setae.

Prosternum with anterior margin deeply grooved, sinuate and acutely projecting on either side, marginal groove curving posteriorly at sides and merging with circumcoxal stria; prosternal keel narrowed posteriorly, widening slightly behind procoxae, apex bluntly emarginae, with

![Collecting records for species of Chlamydopsis epipleuralis group and unplaced species.](image-url)
deeply impressed marginal stria along edges of leg depressions and posterior margin of keel; prosternal disk with shallow punctures separated by about their widths, faintly alutaceous between, with sparse, irregularly scattered bundles of setae.

Elytra together about 1.2 × as wide as base of pronotum, more or less parallel-sided, narrowed more gradually to apex than to base; humeris strongly, narrowly elevated, the posterior elevation extending back about two-thirds from the elytral base; elevations deeply incised transversely by trichome opening, setal fringe consisting of anteriorly and posteriorly directed tufts from inner edges of opening, these barely discontinuous with outer fringe, which extends from apices of elevations continuously around lateral incision; apices of anterior and posterior elevations both emarginate above opening, with the setal fringe following emargination; anterior elevation strongly convex, its anterior surface nearly vertical, anterior superficial groove rather shallowly impressed, extending from humeral corner slightly inwardly to apical emargination of anterior elevation; mediobasal depression large, with transverse carinae, from suture arching posteriorly to beneath trichome; dorsal portion of elytral disk almost entirely impunctate, with only faint punctures posteriorly, with numerous elongate setae, most in bundles of 2-4 setae; epipleuron strigose, with strigae converging to trichome opening.

Mesosternum about 4 × as wide as median length; slightly elevated along midline, depressed at anterior corners; texture like that of prosternum; mesometasternal suture deeply impressed, continuous with postmesocoxal groove; longitudinal metasternal stria not impressed, barely detectable; metasternal disk with alutaceous microsculpture, with sparse, deep setigerous punctures, otherwise impunctate; 1st abdominal sternite with denser, but smaller, punctures than metasternum, most setae single; legs short, slender with sparse, elongate punctures interspersed with smaller setigerous ones, most setae in bundles; pro- and mesotibiae acutely angulate near basal one-third, metatibia more rounded.

Propygidium convex, with slightly elongate punctures separated by about their widths interspersed with sparser deeper punctures bearing bundles of setae; pygidium similarly textured in basal half, punctures fewer in apical half.

REMARKS. Although superficially similar to the females of *C. monteithi* and *C. setifera* in the *strigicollis* group above, the vertical superficial humeral groove and deeply grooved anterior prosternal margin of this species argue against a close relationship. Discovery of the male would be very helpful in placing it. Its name refers to the Queensland town close to the type locality.

**Chlamydopsis parallelus** sp. nov.
(Figs 25C, 26B, 27)


DIAGNOSIS. The elongate body form is very distinctive. Its body length is slightly over twice its width across the humeri, and the median pronotal length is just about equal to its basal width. In characters of phylogenetic significance, however, the species is not particularly remarkable. The anterior marginal prosternal groove is well developed, diverging to meet the circumcoxal stria at the sides. The humeral trichomes are moderately well developed, with laterally discontinuous, otherwise nearly circular setal fringe. The carinae of the mediobasal depression are unusual, forming laminate transverse peaks, rising steeply from along the elytral suture behind the scutellum, but extending only about two-thirds of the way to the humeral trichome.

DESCRIPTION.

L: 1.84; W: 0.65; E/Pn L: 1.81; E/Pn W: 1.25; Pn W/L: 1.14; E L/W: 1.27; Pr/Py: 1.36; Sterna: 0.50, 0.12, 0.44; Tibiae: 0.47, 0.50, 0.53. Body narrow, elongate, light rufescent brown; frons about as wide as long, weakly convex, sides rounded, disk shallowly punctate, the punctures larger and more conspicuous nearer the anterior frontal margin, appearing granulate within each puncture; anterior frontal margin slightly outwardly arcuate, labrum rounded, with a few small punctures; outer margin of antennal scape bluntly angulate just basal of midpoint, abruptly narrowed basally, more gradually to apex, surface microsculptured but impunctate, very finely setose; antennal club of female two-thirds length of scape, sclerotised over much of its surface, with only a couple small tomentose patches on outer surface near apex.

Pronotal median length equal to basal width, sides unmarginated, inwardly arcuate, similar in width basally and apically, narrowest about one-third from front; anterior margin weakly elevated, very shallowly emarginate across
middle, more deeply so above antennal cavities; disk depressed in anterior corners, strongly convex along midline, somewhat transversely elevated in posterolateral corners; disk shallowly, but more or less evenly punctate, the punctures toward the sides slightly elongated.

Prosternum with anterior margin deeply grooved, sinuate and acutely projecting on either side, marginal groove curving posteriorly at sides and merging with circumcoxal stria; prosternal keel narrowed posteriorly, widening slightly behind procoxae, apex weakly emarginate, with fine marginal stria; prosternal disk with shallow punctures separated by slightly less than their widths, with very fine interspersed setae.

Elytra 1.2× as wide as pronotum, with sides approximately parallel, though slightly sinuate at middle; humeral trichomes moderately elevated, close to humeral corners, trichome broadly open dorsally, nearly circular, slightly wider than long, fringed with short, dense setae which do not completely obscure the opening, this fringe briefly interrupted at sides, and, weakly, at the junction with the anterior superficial humeral groove; humeral groove well impressed, its edges rounded, extending from humeri to inner apex of trichome; mediobasal elytral depression confined to basal one-third, with prominent, slightly oblique transverse basal carinae, these bluntly triangular, laminate; elytral disk evenly convex in apical half, apical margin not carinate; disk shallowly and sparsely strigose, with scattered fine setae.

Mesosternum about 3× as wide as median length, anteriorly weakly projecting, with faintly impressed lateral and anterior marginal stria, disk with large shallow punctures, and smaller ones interspersed; mesometasternal stria shallowly impressed; longitudinal metasternal suture very fine, barely visible; metasternal disk finely and sparsely punctate, with scattered minute setae; 1st abdominal sternite similarly textured to metasternum. Legs short, broad; meso- and metatibiae nearly half as wide as long; protibia bluntly angulate just beyond basal one-third; outer margins of posterior tibiae, only faintly angulate, very nearly rounded; all legs impunctate, with fine setae; tarsi laterally compressed.

Propygidium strongly convex, faintly alutaceous, with sparse, shallow punctures, fine setae; pygidium weakly convex, faintly alutaceous, with weak punctures only in basal one-third.

REMARKS. One specimen from Western Australia '14.26S, 126.38E, CALM Site 13/4 12km S of Kalumburu Mission’ [ANIC] is closely related to this species, and possibly the same. However, its body is broader and less elongate. Given the geographic distance, it seems likely that this difference will be bridged by intervening forms. Its status will need to reassessed when additional material can be studied. The name of this species refers to its elongate, nearly parallel-sided body form.

SUMMARY OF KNOWN SPECIES AND SPECIES GROUPS OF CHLAMYDOPSIS

**striatipennis** group
1. C. striatipennis Lea
2. C. leai Oke
3. C. compressipes Lea
4. C. pallida Lea
5. C. rana sp. nov.
6. C. antennata sp. nov.
7. C. trichonota sp. nov.

**strigicollis** group
8. C. reticulata Lea
9. C. dimorpha sp. nov.
10. C. strigicollis Oke
11. C. mormolyce Lea
12. C. monteithi sp. nov.
13. C. setifera sp. nov.
14. C. lawrencei sp. nov.

**pygidialis** group
15. C. pygidialis Blackburn
16. C. carinicollis Lea
17. C. serricollis Lea
18. C. setipennis Oke
19. C. convergens sp. nov.
20. C. coronis sp. nov.
21. C. erupta sp. nov.
22. C. transversa sp. nov.

**longipes** group
23. C. longipes Lea
24. C. inaequalis Blackburn
25. C. agilis Lea

**ectatommae** group
26. C. ectatommae Lea
27. C. kununurra sp. nov.
28. C. acutricha sp. nov.
29. C. myrmecophila sp. nov.
30. C. variolosa Lea
31. C. mallee sp. nov.
32. C. pecki sp. nov.
33. C. loculosa Lea
34. C. degallieri sp. nov.
35. C. papuae Lewis
36. C. jayawijaya sp. nov.
37. C. lucifer sp. nov.
38. C. bataviae sp. nov.
Male characters in this study. The matrix of patterns and apical curvature, insufficient genitalia has been observed (primarily in setal aberration). While some variation in male selection of other Chlamydopsinae, as well as some characters of "Stictostix frontalis" Caledonian species, to be formally described in preparation, including one recently discovered New Guinea (new genus3). The relationships of this species are unclear but it appears to be outside of "Chlamydopsis".

**PHYLOGENY**

This analysis is based on external morphological variation as well as some characters of the ovipositor. While some variation in male genitalia has been observed (primarily in setal patterns and apical curvature), insufficient dissectable males were available to include any male characters in this study. The matrix of female genitalic characters does contain substantial missing data, but the states were much more distinctive and obviously informative. This analysis includes all known species of "Chlamydopsis", including one recently discovered New Caledonian species, to be formally described elsewhere. The outgroups represent a broad selection of other Chlamydopsinae, as well as three non-Chlamydopsine histerids. These are: "Stictostix frontalis" Lea (Tribalinae), a new Malaysian genus near "Peploglyptus" (Onthophilinae; description in preparation), "Onthophilus flohri" Lewis (Onthophilinae) and the chlamydopsines "Pheidolipha minuta" Lea, "Orectoscelis dumogae" Caterino, "Orectoscelis obliquus" Caterino, "Ceratohister" sp., "Eucurtia comata" (Blackburn), "Ectatommiphila opaca" (Lea), representatives of two undescribed genera close to "Orectoscelis", and a representative of one undescribed genus of obscure affinities. The complete data set contains 82 taxa and 46 characters.

**CHARACTERS.**

1. Frons: 1. without prominent tubercles; 2. with single broad protuberance; 3. with multiple (usually 6) protuberances.

2. Labrum, apical margin: 1. evenly rounded, nearly semicircular; 2. broader, nearly straight for some distance at middle.

3. Antennal insertion: 1. at the middle of the frons; 2. at the top of the frons near the top of the eye. This character is generally considered the defining synapomorphy of Chlamydopsinae.

4. Antennal club: 1. identical in length in both sexes, generally less than twice as long as wide; 2. more elongate in ψ, usually three or more times as long as wide. The strongly dimorphic antennal club, with that of the ψ extremely elongated, is nearly ubiquitous in Chlamydopsinae. However, in one species, a ψ with a short antennal club has been seen. The small number of specimens examined leaves some doubt that this represents more than an aberration.

5. Medial portion of anterior pronotal margin: 1. flat, neither thickened nor elevated; 2. distinctly elevated, with some anteriorly exposed surface below margin.

6. Anterior pronotal margin: 1. median transverse and lateral oblique portions continuous; 2. interrupted between median and lateral portions, either by notch or by a carina. State two encompasses considerable diversity that could perhaps be more finely divided. In some of these species the median segment of the anterior pronotal margin (that portion above the vertex of the head) is elevated separately from the lateral portions (those above the antennal cavities). In others the median and lateral portions meet, but the inner apex of the lateral portion extends for a very short distance anteriorly beyond the median portion. Grouping these conditions together as a state suggests that the origin of discontinuity, in whatever form, was the significant change, with diversity arising after.

7. Pronotum: 1. without a stria behind elevated lateral portion of anterior margin; 2. with an oblique stria extending along posterior base of lateral portion of (usually) elevated anterior margin. This stria, when present, extends from the lateral pronotal margin, behind lateral portion of anterior margin, to the anterior margin between its lateral and median portions.

8. Anterior pronotal margin, median portion: 1. even at middle, whether elevated or not; 2. notched at middle.


10. Pronotum: 1. lateral margins flat, not elevated; 2. lateral margins elevated, angulately continuous with lateral portions of anterior margin; 3. lateral and anterior margins indistinguishable, forming a single oblique carina from anterior midpoint to each posterolateral pronotal corners. State three applies only to single unusual species from New Guinea (new genus3). The relationships of this species are unclear but it appears to be outside of "Chlamydopsis."
11. Pronotal trichomes: 1. absent; 2. present (Figs 1E-G). Pronotal trichomes occur in only a few Chlamydopsis, and, although somewhat similar, they are not identical in form in those species possessing them. Nonetheless, due to their rarity, they are considered potentially homologous where they occur.

12. Anterior marginal or near marginal processes of pronotal disk: 1. absent; 2. present as two distinct swellings (or single bifid process) at or near anterior margin. This character as scored mainly separates Chlamydopsis from chlamydopsine outgroups, most of which possess some form of paired marginal pronotal processes.

13. Single median pronotal tubercle: 1. absent; 2. present. This character had previously been combined with the preceding character. However, although not observed it appears possible for anterior marginal and median processes to co-occur.

14. Median pronotal tubercle: 1. absent; 2. simple; 3. expanded laterally to form transverse carina. This character is dependent on the presence of a pronotal tubercle in the preceding character.

15. Pronotum: 1. without longitudinal carina; 2. with longitudinal carina along midline in anterior half (sometimes also with postero-lateral extensions).

16. Anterolateral groove from antennal cavity to pronotum: 1. absent; 2. present, simple, merging with prosternal circumcoxal stria at side (Fig. 28D). 3. present and leading to dorsal pronotal pit (Fig. 29A). State 2 indicates a groove running from the upper edge of the antennal cavity upward, intersecting the lateral portion of the anterior pronotal margin, thence extending posteriorally to the lateral pronotal margin below which it meets the circumcoxal stria. The groove exhibited in state 3 is potentially homologous with this one (although this is not asserted by the present coding scheme). However, in those taxa exhibiting state 3 the groove extends straight back from the antennal cavity and terminates in conspicuous dorsal pronotal pits. This state is diagnostic of the bifoveacollis subgroup of the ectatommae group.

17. Prosternal disk: 1. length anterior to profemoral carina less than that posterior to carina; 2. length anterior to carina equal to or greater than length posterior to carina. State 2 is characteristic of a large section of non-Chlamydopsis chlamydopsines.

18. Anterior marginal stria of prosternal lobe: 1. not deeply grooved (Fig. 28A); 2. deeply grooved, the groove running along margin all the way to side, not continuous with the circumcoxal stria (Fig. 28B); 3. deeply grooved, departing from margin at sides and curving posteriorly to meet the circumcoxal stria (Fig. 28C). This character has proven one of the most useful for sorting out preliminary affinities within Chlamydopsis. These grooves would appear to constitute some kind of conduit system on the beetles' surface. In several species these grooves meet eutrochal grooves to form a continuous series extending all the way to the humeral eutrochal trichomes. Perhaps these serve to disperse recognition substances from a site of origin to elsewhere on the body.

19. Prosternal disk: 1. without transverse striae behind anterior margin; 2. Prosternum with transverse stria just behind anterior margin. This stria, when present, is reminiscent of the 'presternal stria' of many non-chlamydopsine Histeridae, and may conceivably be homologous, being present in a couple of the outgroups.

20. Scutellum: 1. visible dorsally; 2. hidden. This character is informative only with respect to outgroups.

21. Humeral eutrochial trichome: 1. absent; 2. present. This character and the following several characters refer to the structure of the humeral trichome, or 'epaulette' of most previous authors. This structure is extremely varied, and unquestionably informative at some levels. However, it is very difficult to determine homologies among the various components. Some of the characters below are admittedly interdependent, and other scoring schemes could be justified, but no wholly satisfactory schemes have yet been found.

22. Position of humeral trichome: 1. absent; 2. behind humeri; 3. limited to humeri; 4. trichome largely posthumeral, but extending forward mesally to anterior eutrochal margin or even to humerus. The position of the trichome is primarily informative with respect to non-Chlamydopsis outgroups. However, in a few Chlamydopsis the degree to which the trichome extends forward toward the anterior eutrochal margin may be informative.

23. Anterior superficial groove of trichome: 1. with anterior groove up the middle of the anterior elevation, approximately evenly dividing it into inner and outer prominences (Figs 29A-B, E-G); 2. with anterior groove oblique or horizontal, entering the lumen of the trichome at its mesal base (Figs 29C-D); 3. without any visible groove on anterior elevation of trichome (Fig. 29I); 4. with anterior groove displaced laterally, forming a lateral margin of the anterior eutrochal corner (Fig. 29H). This groove, nearly always present in Chlamydopsis, is quite varied in form. Its absence in a few species is almost certainly due to loss, as in most cases it can be seen in apparent relatives. The orientation of this groove, when present, varies considerably. It may appear almost perfectly longitudinal, forming a marginal groove and entering the trichome laterally (e.g. C. detecti and relatives). Or it may take the opposite extreme, being directed strongly medially, in some cases
lying nearly parallel to the anterior elytral margin (e.g. C. mormolyce and other members of the strigicollis and pygidialis groups), entering the opening of the trichome from its inner side. These changes of position may be viewed as the results of differential development on either side of a (putatively) symmetric plesiomorphic state (state 1).

24. Setal fringe of humeral trichome: 1. as a single continuous marginal fringe, usually encircling fairly simple trichome opening (e.g. C. bifovaecollis; Figs 29A-C); 2. with anterior marginal and posterior marginal fringes, discontinuous laterally and mesally (Figs 29D-E); 3. with three distinct origins, semicircular fringe along outer edge separated from anterior and posterior inner bunches of setae (Fig. 29F-H); 4. trichome setae arising from two origins, one in an elongate (usually sinuate) fringe along the inner edge of the dorsal 'roof' of the trichome, and one within the small mesal opening of the trichome, mostly hidden by the dorsal fringe (Fig. 29I; inner fringe not visible in figure); 5. with a single small setal origin on the mesal surface of incurred anterolateral trichome elevation (e.g. C. pallida); 6. trichome absent, character inapplicable. Although this character focuses on the origin points of the trichome setae, it in fact captures much of the variation in overall shape of the trichome itself.

25. Inner edges of anterior and posterior trichome elevations: 1. well developed but not meeting, the lumen of the trichome open to mediobasal depression (Figs 29A-D, I); 2. well developed and nearly or fully meeting, closing trichome mesally (full closure may be achieved by setal fringes on their opposing surfaces; Figs 29E-H); 3. inner edges joined by a thin lamina, closing trichome mesally (e.g. C. pallida); 4. trichome unelevated or absent, character inapplicable.

26. Outer edges of anterior and posterior trichome elevations: 1. not closing the trichome laterally; 2. meeting, closing trichome laterally (a notch may be present as long as it is not continuous with trichome lumen as in, e.g. C. myrmecophila); 3. trichome unelevated or absent, character inapplicable. Sexual dimorphism is responsible for the one scored polymorphism in this character (in C. mallee). Other species, once both sexes are discovered, may need to be rescoring for this character.

27. Trichome lumen: 1. lumen (central cavity) broadly open dorsally; 2. lumen covered dorsally, with only a small mesal opening leading to internal cavity (detectable via a 'window' of thin cuticle on trichome's lateral surface; see, e.g. C. striatipennis; Figs 29C, I); 3. trichome absent, character inapplicable.

28. Carinae of midbasal elytral depression: 1. absent; 2. bare or sparsely setose; 3. bearing dense bundles of setae (Fig. 29E). This character refers to a specialisation of the preceding.

29. Carinae of midbasal elytral depression: 1. absent; 2. continuous along elytral suture; 3. absent at least along suture.

30. Elytral marginal stria: 1. continuous along elytral suture; 2. absent at least along suture.

31. Elytron: 1. apical margin flat; 2. with apical marginal carina (which is separate from marginal stria); 3. with apical marginal carina extending forward along lateral edge to humeral trichome.

32. Elytra of ♂ and ♀: 1. identical in surface texture; 2. differing substantially in texture such that females are smooth and males are reticulostrigose.

33. Prosternal/mesosternal junction: 1. mesosternum projecting, prosternum emarginate; 2. prosternum posteriorly truncate to rounded, projecting over anterior margin of mesosternum.
34. Meso- and metatibiae: 1. without grooves for retraction of tarsi; 2. with grooves for retraction of tarsi. This character is only informative with respect to outgroups.

35. Ventral cavities for retraction of legs: 1. poorly developed, not margined all the way around; 2. well developed, completely delimited by carinae (femoral lines). This character is related to character 38, below, in that elongate legs tend to be accompanied by loss of well-defined cavities.

36. Mesofemur: 1. not clavate, less than twice as thick at apex as at base; 2. clavate, twice as thick or more at apex than base. This and the following character, as defined, pertain mainly to the *longipes* group, although there is a tendency towards the femora becoming clavate with increasing length throughout the group.

37. Metafemur: 1. not clavate, less than twice as thick at apex as at base; 2. clavate, twice as thick or more at apex than base.

38. Metatibia: 1. short, slender, outer margin angulate; 2. short, broad, outer margin angulate; 3. short, broad, outer margin rounded; 4. elongate (in practical terms, extending above epipleuron when held vertically); 5. short, slender, outer margins even.

39. Metatibia, if elongate: 1. not elongate; 2. broad, angulate; 3. broad, round; 4. slender

40. Tarsal claws: 1. evenly curving to apex (particularly note inner edge); 2. inner edge straight for approximately basal two-thirds, then curved just at apex; 3. short, nearly perpendicularly bent at base, then straight in apical two-thirds; 4. long, thin, nearly straight throughout.

41. Propygidium: 1. flat to convex, at least in δ; 2. with transverse carina or series of protuberances in both sexes.

42. Body setae: 1. simple; 2. scale-like; 3. absent; 4. simple, in bundles. There is considerably more variation in setal types in chlamydopsine outgroups. Within *Chlamydopsis* this character is mainly informative with respect to whether the simple setae are borne singly or in ‘bundles’ of multiple setae.

43. Gonocoxite of ovipositor: 1. less than half as long as valvifer (Figs 30A, C); 2. coxite half or more as long as valvifer (Fig. 30B).

44. Gonocoxite of ovipositor: 1. apex bidentate (Figs 30A-B); 2. apex untoothed, simple, scooplike (Fig. 30C).

45. Gonostyle of ovipositor: 1. small, linear, not projecting beyond apex of coxite (Fig. 30A,C); 2. elongate, frequently clavate, projecting beyond apex of coxite (Fig. 30B).

46. Struts of 9th sternite: 1. divergent towards base; 2. convergent towards base.

PHYLLOGENETIC METHODS. Analysis of this large dataset relied heavily on heuristic parsimony approaches. PAUP* (Swofford, 1998) was used for all tree searches, with characters treated as unordered throughout. An initial search saved no more than 50 shortest trees for each of 500 random taxon addition replicates. Restricting tree number and increasing addition replicates allowed a substantial amount of treespace to be explored preliminarily. This restricted search resulted in 800 trees (i.e. 16 of the 500 replicates found trees of equal, shortest length), which were then used as the basis of unrestricted branch-swapping. This unrestricted search was allowed to proceed for several hours, but was terminated due to memory restrictions when trees in memory hit 76,000, with nearly 20,000 trees still to swap. No trees shorter than the initial 800 were found.

The smaller set of 800 trees was used as the basis for character reweighting, according to character rescaled consistency indices. A single reweighted search was carried out, with the restriction of 50 trees described above implemented. Although for both equally weighted and reweighted searches additional equally parsimonious arrangements might lead to a slight reduction in resolution of the consensus trees presented here, this search strategy should ensure that no shorter trees will be found. Decay indices were calculated (with all characters weighted equally) using the program TreeRot (Sorenson, 1999).

RESULTS. Two trees are presented from these analyses, the strict consensus of 76,000 trees resulting from the equally weighted, unrestricted search (C.I. = 0.2906, R.I. = 0.7593; Fig. 31), and the strict consensus of 10762 trees resulting from the reweighted, unrestricted search (Fig. 32). These two trees offer a relatively consistent picture of the broadest relationships in *Chlamydopsis*. At the basalmost levels of the tree, monophyly of Chlamydopsinae is strongly supported (6 decay steps). Within Chlamydopsinae a clade comprising *Chlamydopsis*, *Eucurtia*, and *Ectatommiaphila* is supported by 2 decay steps, with an unusual, as yet undescribed, species from New Guinea as its sister group. Monophyly of *Chlamydopsis* itself is supported by a single decay step, with *Ectatommiaphila* as its sister group. Relationships within *Chlamydopsis* are mostly supported by
| Character | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 |
|-----------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Stenurus frenalis | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Stenurus peltatus | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Ortholophus floridus | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| new genus? | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| new genus? | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**TABLE 2.** Character state data and consistency indices (calculated over the unweighted tree topology). a = 1,2; B = 1,3.
FIG 31. Strict consensus of 76,000 equally parsimonious trees based on equally weighted analysis.

single decay steps, with a few species pairs and trios supported more strongly.

The species groups of Chlamydopsis proposed above are only roughly recovered. The striatipennis group is recovered in the equally weighted analysis, but in the reweighted analysis, the invariably monophyletic longipes group appears within it. In the equally weighted analysis the longipes group arises from within a mixed strigicollis group (partial) + pygidialis group clade. These two groups resolve together in both trees, with the pygidialis group constituting a distinct clade only in the reweighted analysis. Three species tentatively suggested as related to the strigicollis group (C. monteithi, C. setifera, and C. lawrencei) do not resolve with this group in either analysis, but instead appear within the ectatommae group, in
FIG. 32. Strict consensus of 10,762 equally parsimonious trees based on reweighted analysis.

the reweighted analysis as sister group to the four species of the *bifovaecollis* clade. While this alternative obviously merits closer investigation, it does require the loss of some significant features on the branch leading to these three, notably the divergent prosternal groove and the anterolateral pronotal groove. The *ectatommae* group itself appears as a coherent lineage in both equally weighted and reweighted trees (apart from, in both, the inclusion of the three *strigicollis* group species mentioned above). It is also worth noting that this clade includes the *bifovaecollis* subgroup (the inclusion of which here was suggested with some reservation).

A large clade, comprising most members of the *strigicollis* group, and the *striatipennis*, *longipes*,
and *pygidialis* groups, is recovered in both analyses, with several unplaced and *epipleuralis* group species at its base. The species designated as *epipleuralis* group are not recovered as a clade in either analysis. This group is scattered, with the *latipes* subgroup and a few others as a grade basal to the *ectatommae* group, and the remainder as a grade basal to nearly all other *Chlamydopsis*. Of the species not placed in groups above, no relationships to other particular groups are strongly supported. *Chlamydopsis parallellus* and *C. mareaeb* are resolved (sequentially) at the very base of *Chlamydopsis*, while *C. tuberculata* and the New Caledonian species appear near the base of the 

\[
\text{(strigicollis + pygidialis + longipes + striatipennis group)} \]

**DISCUSSION**

The forty new species of *Chlamydopsis* described in this treatment more than double the known species diversity, and greatly increase the known morphological and geographical range of the group. There are now 69 described species of *Chlamydopsis*, with representatives from every Australian state and both Papuan and Irian New Guinea (and New Caledonia). The species diversity in Queensland has emerged as clearly exceeding any other region, whereas species from near the populated areas of Victoria and New South Wales previously predominated. It is important to note, however, that while Queensland harbours the bulk of species diversity, phylogenetic diversity is more evenly distributed, with several species groups occurring primarily elsewhere (e.g. *longipes* group, *bifoveacollis* subgroup, *latipes* subgroup).

The previously unappreciated sexual dimorphism in *Chlamydopsis* is very interesting. Obvious sexual dimorphisms are generally rare in histerids. Those that have been documented have been primarily attributed to courtship (Caterino, 2002). The antennal club dimorphism (male antennal club twice or more the length of the female's — apparently first noted by Oke, 1923), nearly ubiquitous in *Chlamydopsinae*, obviously must have some olfactory significance. But it is impossible to say whether this relates to mate location, ant nest location (and perhaps differing dispersal tendencies between males and females), or some other factor. The significance of elytral and other textural dimorphisms is even more obscure. Body texture in *myrmecophiles* is often attributed to Wasmannian mimicry (Wasmann, 1889), in which guests’ surface sculpturing (and, in some, shape and color) mimics that of the host, presumably a tactile disguise. Accepting that the underlying causes of this similarity have been controversial (Wilson, 1971), it is nonetheless observed in many species of *Chlamydopsinae*. Regardless whether this mimicry is directed at the hosts or at potential predators (McIver, 1987), the fact that intersexual morphological differences are observed in some *Chlamydopsinae* suggests that some differences in host relationships or activity patterns exist between them.

Outlines of the phylogeny of *Chlamydopsis* have begun to emerge from this study. Several apparently monophyletic groups of species have been identified, and although relationships among them need additional study, relationships within them are relatively consistent across analyses. Outgroup relationships to *Chlamydopsis* are in greatest need of additional analysis. The exact relationships of *Chlamydopsis* to *Eucurtia* and *Ectatommmiphila*, in particular, are unclear. It was considered initially likely that *Chlamydopsis* would prove paraphyletic with respect to these other two genera. However, with existing data, the monophyly of *Chlamydopsis* is supported. The relationships among more distant outgroups yield additional uncertainty with respect to relationships within *Chlamydopsis*. Apart from the New Guinean species (‘new genus3’), all of the *chlamydopsine outgroups* here almost certainly constitute a clade (lacking a dorsally visible scutellum, and having a substantially elongated prothorax). It is unclear why these were not resolved as such in either analysis, and what effect this might have on resolutions elsewhere in the tree.

While the phylogenetic results obtained here do not justify a great deal of evolutionary exploration, one character reconstruction, especially, merits some discussion. These trees agree in reconstructing a deep prosternal groove, which departs from the margin laterally, as basal within *Chlamydopsis*. This groove is then subsequently weakened and lost in various other groups. This well developed and divergent groove is one of the most distinctive and unusual characters in *Chlamydops*, primarily of the *epipleuralis* group, and its evolution according to this scenario would be very surprising. This single result casts a shadow of doubt over much of the basal resolution in these trees.

One of the primary impediments to resolving relationships here has been the representation of so many species by only a single sex (or in some
TABLE 3. Published host records for species of *Chlamydopsis*. Only valid host species names are listed. See Table 1 for equivalence with originally published host names. Letters refer to literature cited: a = Lea, 1910; b = Lea, 1912; c = Lea, 1914b; d = Lea, 1918; e = Lea, 1919; f = Lea, 1925; g = Oke, 1923; h = King, 1869; i = this study. The previously reported host has been split into these three species potentially sympatric with the beetle. Lea reports that this species was collected in the vicinity of three species of ant; it was not possible to determine which was the host: *Myrmecia pyriformis, Ectatomma metallicum, Pheidole conficta.* These records were reported for the now synonymised *C. excavata* Lea.

<table>
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<tr>
<th>Host subfamily</th>
<th>Ponerinae</th>
<th>Dolichoderinae</th>
<th>Formicinae</th>
<th>Myrmeiciniae</th>
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cases, perhaps, the inability to associate males with females). The sexual dimorphism in integumental texture, and, in some, trichome morphology, may prove to be important phylogenetic markers. But at present too many species have had to be scored as 'unknown' for them to have had much positive effect. Ovipositor morphology, likewise, shows interesting variation, but is missing in too many taxa to be as informative as it might. The fact that many species remain known only from types (which I have rarely risked to dissect) contributes further ambiguity to the dataset and results.

A summary of known host associations is presented in Table 3. These represent a broad phylogenetic range of ants, with hosts from four different subfamilies. Hosts in the Ponerinae predominate (13 species of *Chlamydopsis*), with Dolichoderinae a close second (9 species). It is perhaps surprising to note that several beetles use multiple hosts, even hosts in different subfamilies (e.g., *C. striatipennis* with *Rhytidoponera* and
Iridomyrmex; C. latipes with Rhytidoponera and Dolichoderus; C. carinicollis with Rhytidoponera and Aphaenogaster). Some of this may reflect local differentiation, and the host identifications given in the literature, for the most part, cannot be verified, but it appears that host specificity may be low for some species. This would have obvious implications in terms of chemical and behavioural integrating mechanisms. Similarly, little in the way of phylogenetic structure is evident with respect to host use, with apparently closely related species (e.g., C. striatipennis, C. leai, C. pallida) ranging across multiple host species and subfamilies. One possible phylogenetic distinction worth noting is the lack of host records for the ant Pheidole. Species of this ant genus are the preferred hosts for several species of Pheidolephilidae, and this may represent a deep divergence between these two, broadly sympatric chlamydopsine genera.

While more large scale surveys will undoubtedly turn up additional interesting species of Chlamydopsis, the most pressing need at this stage is for more specific collecting. Locating these species in their natural environments will allow identification of hosts (known now for only a small fraction of species), facilitate association of sexes, and allow preservation of specimens for molecular work. At present only a single specimen of Chlamydopsis adequate for DNA study has been obtained. It is unlikely that full phylogenetic resolution for the group will be achieved without combining morphological and molecular data. These ambiguities and limitations notwithstanding, the study of Chlamydopsinae is advancing rapidly. This is a fascinating and wonderful group of insects, and undoubtedly their continued study will yield many evolutionary insights.

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LITERATURE CITED


1874. Thesaurus Entomologicus Oxoniensis, or, Illustrations of New, Rare, and Interesting Insects, for the Most Part Contained in the Collections Presented to the University of Oxford by the Rev. F.W. Hope, M.A., D.C.L., F.R.S., Oxford. XXIV, 205.