

12-2000

# Descriptions of the first Chlamydopsinae (Coleoptera: Histeridae) from Wallacea

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DESCRIPTIONS OF THE FIRST CHLAMYDOPSINAE  
(COLEOPTERA: HISTERIDAE) FROM WALLACEA

Caterino, M. S., 2000. Descriptions of the first Chlamydopsinae (Coleoptera: Histeridae) from Wallacea. – *Tijdschrift voor Entomologie* 143: 267-278, figs. 1-21. [ISSN 0040-7496]. Published 1 December 2000.

Collecting in Dumoga-Bone National Park in northeastern Sulawesi during The Royal Geographical Society's 1985 'Project Wallace' expedition resulted in the discovery of the first known Indonesian Chlamydopsinae. Ten new species are described in the genus *Orectoscelis* Lewis, previously known only from the Australian continent. The new taxa are *O. demotus* Caterino sp. n., *O. punctatus* Caterino sp. n., *O. aurolepidus* Caterino sp. n., *O. circularis* Caterino sp. n., *O. dumogae* Caterino sp. n., *O. obliquus* Caterino sp. n., *O. elongatus* Caterino sp. n., *O. hammondi* Caterino sp. n., *O. carinatus* Caterino sp. n., and *O. brendelli* Caterino sp. n. The new taxa were all collected via flight intercept trapping and their natural histories are thus unknown. Their morphology, however, suggests that they are myrmecophilous, like all known species of this subfamily.

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Keywords. – myrmecophily, Wallace's line, Wallacea, Sulawesi, biogeography.

Although sharing a common predaceous habit, members of the family Histeridae are ecologically diverse, with body forms that are well tailored to their preferred habitats. Among these, none exhibit more strikingly specialized morphological features than those that live in the colonies of social insects, the so-called myrmecophiles and termitophiles. While numerous lineages of Histeridae have become adapted for this lifestyle, two of these stand out in particular: the Hetaeriinae and Chlamydopsinae, together comprising over 400 described species (Mazur 1997). Neither subfamily has been particularly well-studied, but the former was the subject of a recent generic revision (Helava et al. 1985). The Chlamydopsinae, however, remain very poorly known.

The Chlamydopsinae is a highly distinctive, undoubtedly monophyletic group of histerids. The primary synapomorphy for the lineage (from which the subfamily name is derived) is the form of the antennal scapes: they are inserted high on the frons and form shield-like plates that cover the eyes when the head is retracted. In addition, most species exhibit remarkable excretory structures on the elytral humeri, referred to in the chlamydopsine literature as 'epaulettes,' due to their position. These structures, more generally known as trichomes, are the hallmarks of myrmecophilous

beetles, and probably serve to disseminate appeasement or recognition substances (Seyfried 1928, Rettenmeyer 1961, Akre 1968, Kistner 1982, Hölldobler & Wilson 1990), although it should be emphasized that the actual interactions of myrmecophiles with their hosts have been studied in few beetles.

Most species of Chlamydopsinae have been described from Australia (Mazur 1997), and the group is clearly centered on the Australian continent, with additional species known from Tasmania, New Guinea, Fiji, India, and Japan. Thus major discontinuities exist in the known distribution of the group. Collections made by the staff of The Natural History Museum during the 'Project Wallace' expedition to Sulawesi in 1985 contained numerous Chlamydopsinae representing the first known records from Indonesia. The species described herein, in addition to several being described separately from Borneo (Degallier & Caterino in prep.), therefore fill an important gap in the knowledge of Chlamydopsinae. This lineage also represents one of few known Australian-centered groups to have apparently spread across Wallace's Line, and into southeast Asia (Knight & Holloway 1990 and references therein).

The higher level classification of the Chlamydopsinae has not been assessed since the works of Lea

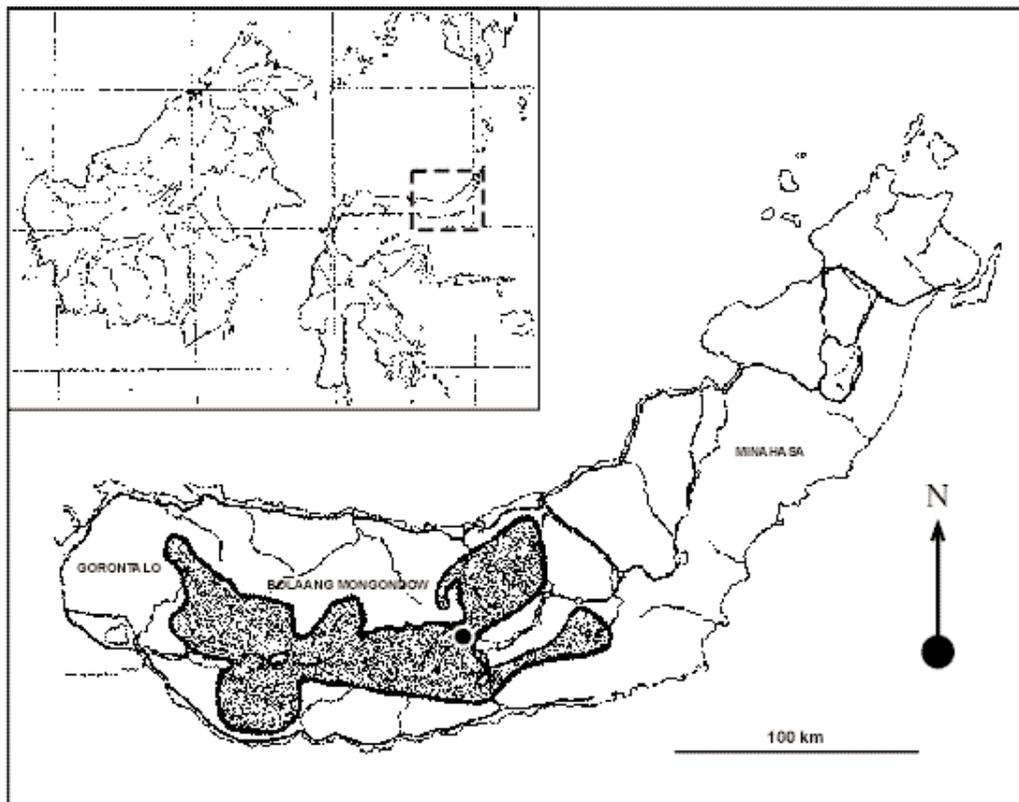


Fig. 1. The shaded area indicates the location of Dumoga-Bone National Park in the northeastern Sulawesi province of Sulawesi Utara. The black circle denotes the base camp at the centre of the park. All collecting localities were within a few kilometres of this site at elevations ranging from 200-1400m.

(1914) and Bickhardt (1916) both of whom dealt exclusively with the Australian species, virtually all that were known at the time. It has generally been assumed that the Chlamydopsinae and Hetaeriinae were sister groups; and this hypothesis was supported by a recent study of the higher phylogeny of the family (Slipinski & Mazur 1999). However, as these authors note, the evidence for this relationship derives mainly from shared adaptations to inquilinous habits. Immature stages have not been described for either subfamily (although a Hetaeriine may have been illustrated in Böving & Craighead, 1931).

Generic placement of the new species is difficult. Genera of Chlamydopsinae have not been properly defined and few species assignments have been made based on explicit, character-based criteria. A phylogenetic analysis of the genera of the subfamily, undertaken to establish such criteria, is in preparation (Caterino & Degallier in prep.). Assignments made

in this paper reflect the results of that forthcoming study. Briefly, *Orectoscelis* Lewis is the oldest available name for species in which the scutellum is hidden by the pronotum and, despite substantial morphological diversity in shape and pilosity, all of the species that exhibit this character retain a similar basic appearance. Morphological terminology used herein follows Wenzel & Dybas (1941) and Caterino (1998). Contrary to the case in numerous Histeridae (e.g. Wenzel 1944, Caterino 1999), the male genitalia do not appear useful in differentiating species in this group and they have not been described or illustrated for these taxa. These species are nonetheless very easily diagnosed on the basis of external characters. All material for this study was collected within Dumoga-Bone National Park (0°34'N, 123°54'E) in northeastern Sulawesi at one or other of five different sites in the Toraut area (fig. 1), designated below as plots A, B, C, 'Edwards camp,' and 'lowland montane forest',

ranging from 200-1400m in elevation. Climate, topography, and general biotic and abiotic environment of the study site are amply discussed in Knight & Holloway (1990; see also Hammond 1990).

All Holotype specimens are deposited in the Museum Zoologicum Bogoriense in Bogor, Java, Indonesia (MBB).

#### TAXONOMY

##### *Orectoscelis demotus* sp. n. (figs. 2, 8)

Material examined. – 9 specimens total. – Holotype male: INDONESIA: SULAWESI UTARA, Dumoga-Bone National Park, Plot C (400m), February, 1985. – Paratypes: Plot A (200m): October, 1985 (1 male); Plot B (300m): April, 1985 (1 male); Plot C (400 m): February, 1985 (1 male), March, 1985 (1 male), April, 1985 (3 males, 1 undetermined sex, missing head and prothorax).

Description. – Length 1.36 mm, width 0.90 mm; body rufescent, densely punctate, all surfaces with short inconspicuous setae. Frons narrow, deeply punctate; antennal scapes similar in punctation to frons; clypeolabral suture indistinct.

Pronotal sides parallel; anterior margin with deep antennal excavations, strongly raised along anterior margin into a bifid, posteriorly concave scooplike projection, this projection glabrous behind (within); posterior margin of pronotum acute, concealing scutellum. Prosternum punctate, posteriorly broad and weakly emarginate.

Elytra subquadrate, slightly rounded laterally, widest two-thirds from base, convex dorsally; marginal stria complete. Humeri swollen, swelling laterally angulate, without any visible opening, trichome absent. Meso- and metasterna densely punctate; metasternal longitudinal suture not evident.

Propygidium slightly depressed along anterior margin, otherwise flat; pygidium also flat.

Femora and tibiae elongate; tibiae angulate and widest at basal third, narrowing to apex; tarsal grooves well defined.

Diagnosis. – This species is among the few chlamydopsines that have no traces of the elytral epaulettes. It shares this characteristic with no other (yet) known Sulawesi species. The scooplike form of the pronotal projection is also unique in the subfamily.

Etymology. – The name *demotus* is a military analogy referring to the loss of epaulettes in this species.

##### *Orectoscelis punctatus* sp. n. (figs. 3, 9)

Material examined. – 2 specimens total. Holotype probably male. INDONESIA: SULAWESI UTARA, Dumoga-Bone National Park, Plot C (400m), May, 1985. – Paratype: 'Edwards camp' (664m): September, 1985 (1, missing head and prothorax).

Description. – Length 1.65 mm, width 1.12 mm; body dark rufescent, punctate, with small scale-like setae on most surfaces; frons deeply punctate; punctures of antennal scape slightly shallower and more widely separated than those of frons; setae of frons and scapes longer and finer than those of most of body; clypeolabral suture indistinct.

Pronotum parallel-sided, raised in the middle with two elevated projections about 1/5 from anterior margin, slightly separated; punctures of pronotum deep and separated by about their widths, short scale-like setae arising between punctures; prosternum punctate as in pronotum, also with scale-like setae; prosternal keel broad, shallowly emarginate posteriorly.

Elytra rounded, widest behind humeri; humeri dorsally swollen, epaulette opening mostly anteriorly, appearing as a narrow semicircular slit around anterior base of humeral swelling, lined with pubescence along dorsal and ventral edges, elytra each with 3 longitudinal subcariniform ridges in the medial half; elytral disc punctate but noticeably less deeply and densely than pronotum, the punctures separated by about 1.5 times their widths, interspersed with short scale-like setae; meso- and metasterna punctate and setose as dorsum; medial longitudinal suture of metasternum impressed and visible.

All femora and tibiae narrow, elongate; tibiae widest at basal one-third, slightly tapered to apex.

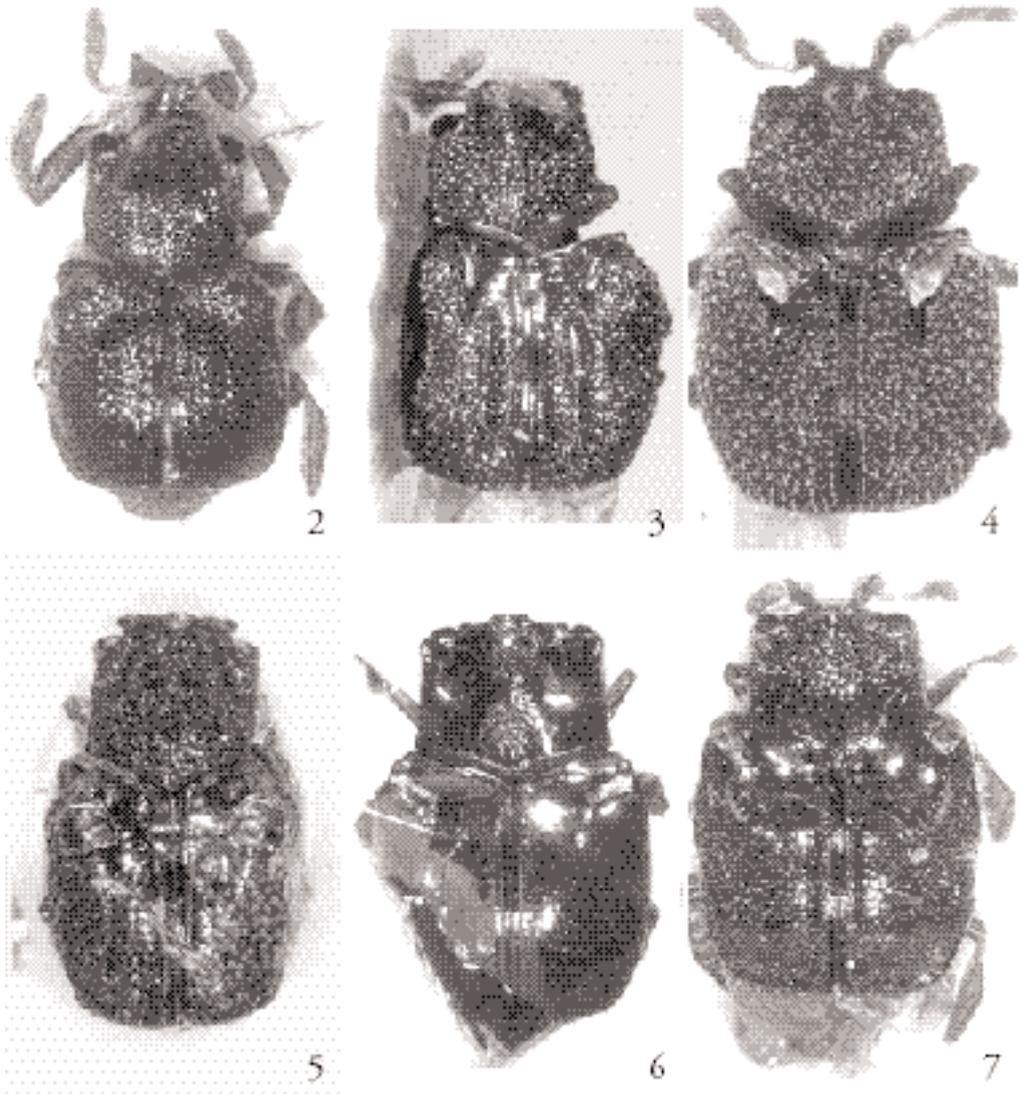
Propygidium slightly depressed at base, otherwise flat; pygidium very slightly convex.

Diagnosis. – Among known Sulawesi chlamydopsines, the longitudinal ridges of the elytra are unique to this species. The anteriorly directed semicircular epaulettes are similar to those of *O. aurilepidus*. In the present species, however, their openings are much narrower.

Etymology. – This species name refers to the dense punctation seen on most visible surfaces.

##### *Orectoscelis aurolepidus* sp. n. (figs. 4, 10)

Material examined. – (13 specimens total): Holotype male: INDONESIA: SULAWESI UTARA, Dumoga-Bone National Park, Plot C (400m), April, 1985. – Paratypes: Plot C: February, 1985 (6 males, 1 missing head and prothorax), April, 1985 (4 males), May,



Figs. 2-7. Dorsal views of new species. – 2, *Orectoscelis demotus* Caterino; 3, *O. punctatus* Caterino; 4, *O. aurolepidus* Caterino; 5, *O. circularis* Caterino; 6, *O. dumogae* Caterino; 7, *O. obliquus* Caterino.

1985 (1 female); 'Edwards camp' (664m): September, 1985 (1 of undetermined sex, missing head and prothorax).

Description. – Length 1.7 mm, width 1.29 mm; body dark rufescent in colour; all body surfaces densely punctate, most surfaces bearing conspicuous

golden scale-like setae; frons narrow, slightly concave; clypeolabral suture evident; labrum rounded; antennal scapes laterally angulate; basal segment of funicle longer than pedicel.

Pronotum with lateral margins straight or slightly convergent anteriorly; pronotal disc shallowly depressed in anterior corners, rising at middle to bifid

peak along anterior margin; posterior margin bisinuate coming to distinct point medially; scutellum hidden; prosternum densely punctate, prosternal process broad, truncate posteriorly.

Elytra rounded laterally, convex dorsally; setae evenly spaced, but not serially arranged except along suture; marginal stria complete, slightly displaced from epipleural margin above metafemora, but not at all above mesofemora; epipleuron glabrous anterior to metafemoral ridge; epaulettes large, curved, occupying lateral two-thirds of each elytron, reaching around edge onto epipleuron; completely fringed with golden setae, these especially dense along posterior margin; meso- and metasterna more sparsely punctate than prosternum, bearing only small (but possibly worn) setae.

Legs with all femora and tibiae elongate, tibiae widest in basal one-third, gradually tapered to apex; tarsal grooves distinct, straight.

Propygidium slightly depressed along anterior margin, entire disc very slightly concave; pygidium weakly convex.

Diagnosis. – This species may be separated from all congeners by its covering of dense scale-like setae. It shares the prominent proclinate semicircular epaulettes only with *O. punctatus*, described above, which has smaller pronotal projections and is more sparsely setose.

Etymology. – The name refers to the golden (auro-) scales (-lepidus), which cover this striking species.

*Orectoscelis circularis* sp. n.  
(figs. 5, 11)

Material examined. – Holotype of undetermined sex: INDONESIA: SULAWESI UTARA, Dumoga-Bone National Park, lowland montane forest (1000-1400m), March, 1985. This species is only known from the Holotype specimen.

Description. – Length 1.54 mm, width 0.97 mm; small, body dark rufescent, densely and deeply punctate all over dorsum, numerous very short setae as well as ubiquitous microsculpture, glabrous only medial to epaulettes; frons and antennal scapes deeply punctate, frons slightly protuberant along midline; scapes with distinct lateral projections in front of antennal cavities; clypeolabral suture distinct.

Pronotum entirely densely punctate; raised and convex at middle and shallowly depressed anterolaterally; medial convexity of disc bears 4 distinct projections, two small ones arising above bases of antennal scapes at the anterior pronotal margin, and two larger ones arising just anterior to midline, these slightly closer together than the small anterior ones. Scutellum concealed by posterior projection of pronotum.

Venter not visible in unique type.

Elytra subquadrate, densely punctate; marginal stria complete around all sides; epaulettes nearly circular, open medially but with well defined ridge encircling them laterally, raised only slightly above level of surrounding elytral disc, bearing a dense setal fringe around entire margin (except medially).

Legs not visible in type.

Propygidium depressed along anterior margin but weakly protuberant posteromedially; pygidium weakly convex.

Diagnosis. – This species is unique among known Sulawesi chlamydopsines in having 2 pairs of dorsal pronotal projections. The circular form of the elytral epaulettes is also distinctive.

Etymology. – This species name, *circularis*, refers to the form of its elytral epaulettes.

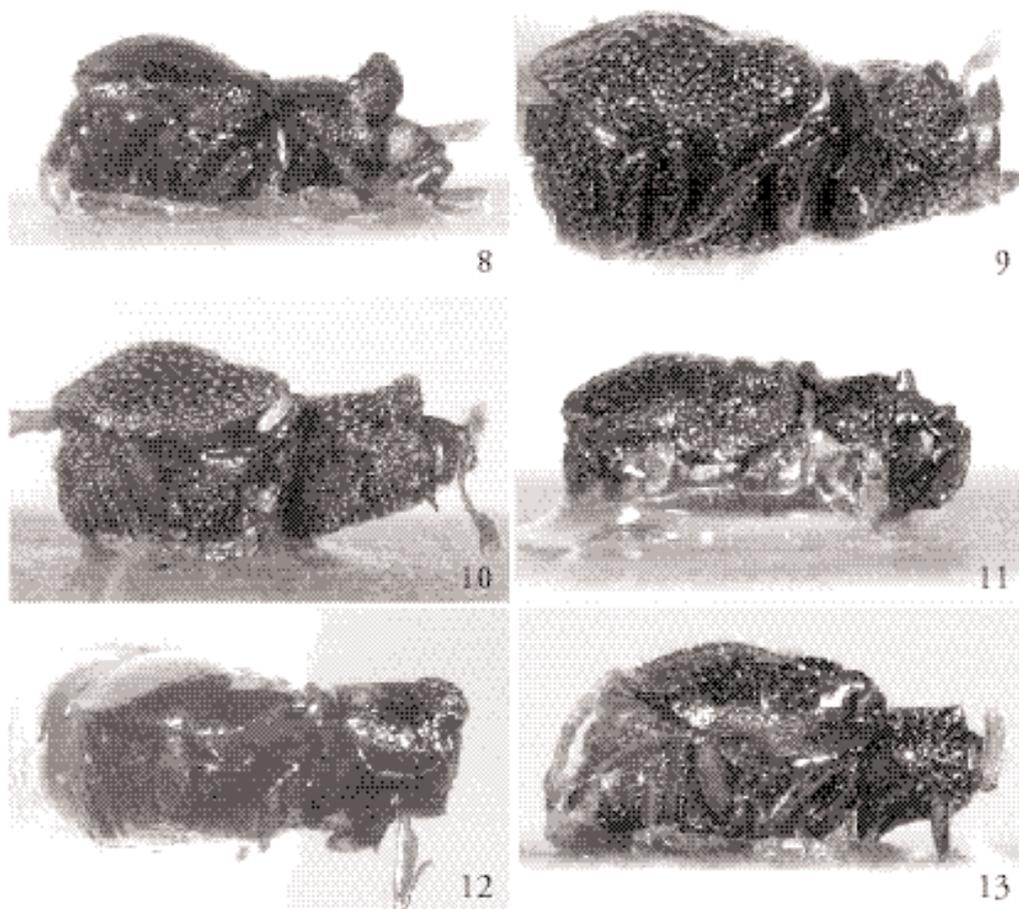
*Orectoscelis dumogae* sp. n.  
(figs. 6, 12)

Material examined. – 6 specimens total. Holotype of undetermined sex: INDONESIA: SULAWESI UTARA, Dumoga-Bone National Park, Plot A (200m), November, 1985. – Paratypes: Plot A: April, 1985 (1 male, 1 of undetermined sex), May, 1985 (1 male), July, 1985 (1 male), November, 1985 (1, missing head and prothorax).

Description. – Length 1.61 mm, width: 1.05 mm; body somewhat pear-shaped, glabrous, sparsely and finely punctate throughout (except as noted). Frons glabrous, with large deep punctures, separated by approximately 2/3 their widths; clypeolabral suture distinct, labrum not punctate but finely rugose; punctures of antennal scape slightly smaller than those of frons.

Pronotum parallel-sided, widening faintly to base and apex, without a distinct lateral margin; anterior margin emarginate on either side above antennal cavities; basal margin posteriorly acute, concealing scutellum; pronotal disc deeply depressed in anterior corners, medially rising to a pair of parallel laminae on apical one-third of disc; laminae dorsally arcuate and densely rugose on dorsal and lateral surfaces. Prosternum rugopunctate medially, punctures finer laterally; prosternal process broad and posteriorly truncate.

Elytra dorsally convex, shallowly and sparsely punctate throughout; lateral margins outwardly arcuate, widest just behind middle; marginal stria complete around elytron, continuous with femoral arcs on epipleuron; elytral punctures slightly more distinct and approximate along medial suture; epaulettes obliquely incised, about 30 degrees off horizontal towards the humeri, occupying nearly one-half the width of each elytron with anterior transverse depressions continu-



Figs. 8-13. Lateral views of new species. – 8, *Orectoscelis demotus* Caterino; 9, *O. punctatus* Caterino; 10, *O. aurolepidus* Caterino; 11, *O. circularis* Caterino; 12, *O. dumogae* Caterino; 13, *O. obliquus* Caterino.

ing nearly to elytral suture; each epaulette with long fringe of setae pointing posteriorly from anterior margin and a denser fringe of shorter setae below, pointing inwards from anterior, lateral and posterior margins. Mesosternum short, with raised anterior margin; metasternal disc very sparsely punctate, with distinct medial longitudinal suture; 1<sup>st</sup> abdominal sternite more densely punctate than metasternum, especially near anterior margin; femoral lines all distinct, carinate, describing depressions for reception of legs; remaining abdominal sterna glabrous, impunctate.

Profemora elongate; protibiae narrow, angulate at basal one-third, tarsal groove straight, distinct; meso- and metafemora slightly more rounded, posterior tib-

iae broader, rounded, less distinctly angulate at base; tarsal grooves well-developed.

Propygidium and pygidium evenly and weakly convex, sparsely punctate.

Diagnosis. – This species can be immediately distinguished from all other known chlamydopsines by the deep depressions in the anterior half of the pronotum (fig. 6). The oblique, narrow elytral epaulettes and rounded medial pronotal projections (in lateral view; see fig. 12) are additional distinguishing characters.

Etymology. – *Orectoscelis dumogae* is named for the National Park in which all of these species were discovered.

*Orectoscelis obliquus* sp. n.  
(figs. 7, 13)

Material examined. – 2 specimens total. Holotype probably male: INDONESIA: SULAWESI UTARA, Dumoga-Bone National Park, Plot C (400m), February, 1985. – Paratype: Plot C: March, 1985 (1 of undetermined sex).

Description. – Length 1.85 mm, width 1.35 mm; body rufescent, with scattered, conspicuous golden setae on nearly all surfaces; frons deeply but sparsely punctate; punctures of scape not as deep as those of frons; clypeolabral suture distinct; labrum setose.

Pronotal sides straight to slightly convergent anteriorly; disc densely punctate in anterior one-half, finer posteriorly, impunctate and nearly glabrous in posterolateral corners; disc shallowly depressed behind antennal cavities, with a pair of acute pronotal projections raised along anterior margin; posterior margin of pronotal disc acute, concealing scutellum. Prosternum densely punctate in anterior half, more finely at base; prosternal keel broad, posterior projection weakly emarginate at apex.

Elytra rounded laterally, widest just anterior to middle; epaulettes prominent, oblique, rising from anterolaterally directed carinae, prominent laterally; setae directed posteriorly from anterior edge of epaulette longer and denser than those arising from posterior edge. Elytra punctate and setose throughout except glabrous in anterior depression between epaulettes; elytral marginal stria complete, barely diverges from margin above mesofemur.

Femora elongate; protibia narrow, angulate at basal one-third; posterior tibiae slightly broader and rounded, widest at basal one-third; all tarsal grooves shallow but distinct.

Propygidium and pygidium both flat, punctate, and densely setose.

Diagnosis. – This species' most distinctive character is the oblique, almost anteriorly directed epaulettes. In the similar *O. dumogae* the epaulettes are more or less oblique but are not partially open anterolaterally as in this species.

Etymology. – The species name refers to the distinctive orientation of this species' elytral epaulettes.

*Orectoscelis elongatus* sp. n. (figs. 14, 18)

Material examined. – Holotype female: INDONESIA: SULAWESI UTARA, Dumoga-Bone National Park, Plot A (200m), March, 1985. This species is only known from the Holotype.

Description. – Length 2.10 mm, width 1.27 mm; body rufescent, elongate, elytra only slightly wider

than prothorax, finely punctate dorsally, covered with scattered fine, curved, golden setae. Frons and scapes deeply punctate; clypeolabral suture distinct; antennal club elongate oval (female), funicle compact.

Pronotal margins parallel basally, very slightly convergent in anterior one-third; disc sparsely punctate, shallowly depressed in anterior corners; two acute dorsal projections rising just behind anterior margin; pronotal disc excavate between these projections; lateral pronotal margins rounded but slightly compressed, subcarinate anteriorly.

Venter not visible in unique specimen.

Elytra quadrate, slightly outwardly arcuate, widest just behind middle; disc sparsely punctate except between epaulettes; epaulettes C-shaped, endpoints of 'C' directed upward and slightly inward, dorsal opening of epaulette equally apparent from lateral and medial perspectives, dense golden setae arising from all inner edges; elytral marginal stria complete, meta-femoral epipleural arc of marginal stria more strongly developed than mesofemoral arc; epipleuron setose all the way to marginal stria, a few setae within meta-femoral arc.

Femora elongate, parallel-sided; all tibiae rounded, not angulate near base; posterior tibiae broader; tarsal grooves distinct.

Propygidium transversely carinate, carina interrupted at middle (a secondary sexual character in other species); pygidium more or less flat.

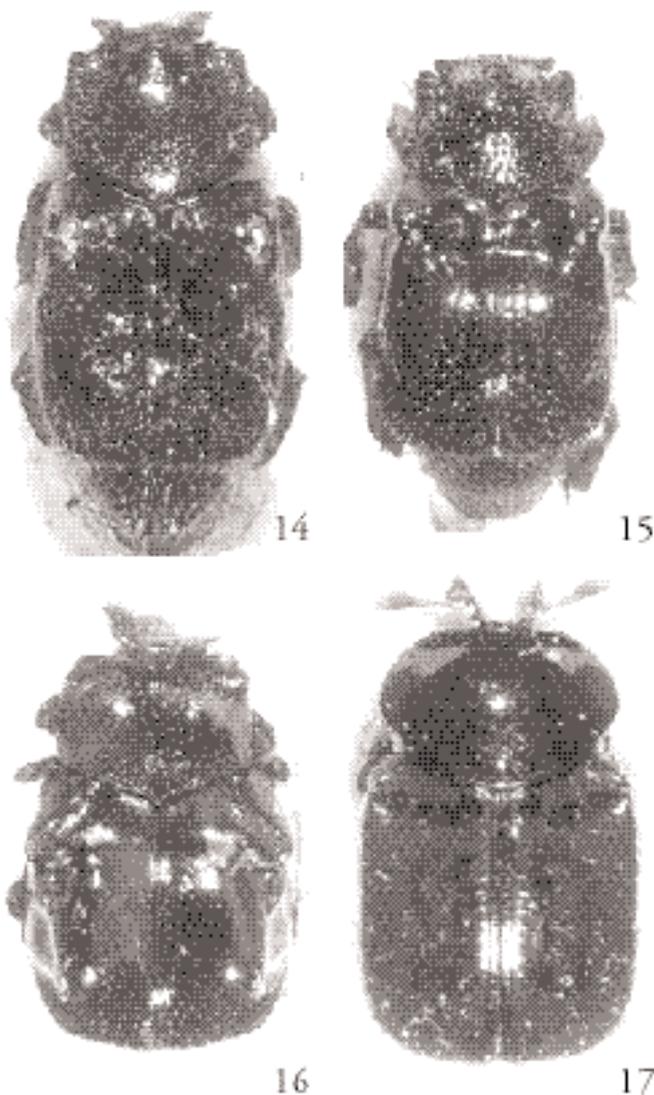
Diagnosis. – This species is most readily distinguished from all others by the form of the epaulettes, being nearly vertical in orientation and deeply incised on the outer and inner faces. It is also somewhat larger than most other *Orectoscelis*. It is most similar to *O. hammondi*, in which the epaulettes are closed laterally and the setae are branched.

Etymology. – The species name *elongatus* derives from the overall body shape relative to most of this species' congeners.

*Orectoscelis hammondi* sp. n.  
(figs. 15, 19)

Material examined. – 4 specimens total. Holotype probably male: INDONESIA: SULAWESI UTARA, Dumoga-Bone National Park, plot A (200m), April, 1985. – Paratypes: Plot C (400m): March, 1985 (1 probably male), April, 1985 (2 probably male).

Description. – Length 1.57 mm, width 0.94 mm; body rufescent, with conspicuous golden setae, many of them obviously branched; frons and scapes with deep irregularly spaced circular punctures and sparse, fine setae arising from between, not within, the punctures; clypeolabral suture distinct, labrum anteriorly rounded.



Figs. 14-17.  
Dorsal views of new species. – 14, *Ortoscelis elongatus* Caterino; 15, *O. hammondi* Caterino; 16, *O. carinatus* Caterino; 17, *O. brendelli* Caterino.

Pronotum densely punctate throughout, parallel-sided or slightly converging anteriorly, convex, raised medially to two distinct setose peaks just behind anterior margin; anterior margin deeply interrupted by dorsal openings of antennal cavities; scutellum concealed by posterior projection of pronotum.

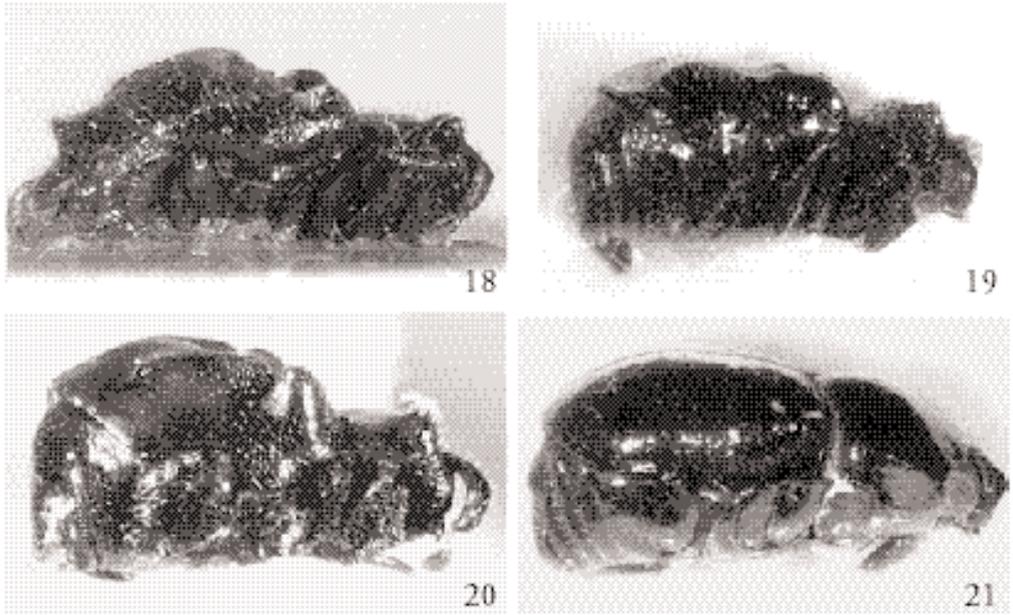
Elytral lateral margins nearly straight, widest near apex, slightly convergent anteriorly, evenly spaced shallow punctures in posterior two-thirds, punctures shallower and more widely separated than those of pronotum; humeral swellings prominent, slightly grooved on anterior surface, this groove apparently continuous with dorsal opening of epaulette; opening

of epaulettes small, round, closed laterally, lined with medially directed setae; small cavity beneath trichome, which is open and glabrous, with low longitudinal carina within; most setae of the elytral dorsum are visibly branched.

All femora narrow, elongate; tibiae bluntly angulate and widest at basal one-third, narrowing gradually to apices.

Propygidium and pygidium punctate, flat to convex, sparsely setose.

Diagnosis. – Among chlamydopsines known from Sulawesi this species is unique in having small epaulettes that are closed laterally. Its pronotal pro-



Figs. 18-21. Lateral views of new species. – 18, *Ortoscelis elongatus* Caterino; 19, *O. hammondi* Caterino; 20, *O. carinatus* Caterino; 21, *O. brendelli* Caterino.

jections are also somewhat more set back from the anterior margin than the other species treated here.

**Etyymology.** – I have named this species for Mr. Peter Hammond of The Natural History Museum, London who was instrumental both in collecting these interesting species and enabling the author's work on them.

***Orectoscelis carinatus* sp. n.**  
(figs. 16, 20)

**Material examined.** – Holotype probably female: INDONESIA: SULAWESI UTARA, Dumoga-Bone National Park, Plot C (400m), April, 1985. This species is only known from the Holotype.

**Description.** – Length 1.85 mm, width 1.40 mm; dark reddish brown; setae of body highly varied, from fine and inconspicuous to clubbed in places; frons impunctate, shining, with about 15 branched setae; clypeolabral suture evident, labrum with several branched setae; antennal scapes impunctate, also with branched setae, slightly denser than those of frons.

Pronotum parallel-sided in apical one-half, expanded at base over protibio-femoral articulation; disc about 1.3 times as wide as long, margined anteri-

orly, the margin deeply emarginate above antennal cavities; pronotal disc with two more or less acute dorsal protuberances rising up just behind anterior margin, these protuberances gradually more densely covered with expanded, branched setae toward apices; anterolateral angles of pronotum slightly protuberant, each bearing tuft of expanded and branched setae; excepting setae of protuberances, pronotal disc bare or with fine decumbent setae, impunctate except in a transverse band in basal one-fourth and also near anterolateral bases (anterior angles of pronotum) of dorsal protuberances, where it is coarsely punctate.

Venter impunctate, with fine decumbent setae except on sternite 7 and exposed surfaces of femora and tibiae, which bear expanded (sternite 7) or branched (legs) setae; prosternum sinuately emarginate anteriorly, margined anteriorly and posteriorly; prosternal keel slightly swollen between procoxae, parallel-sided and truncate posteriorly. Mesosternum short, emarginate anteriorly, margined anteriorly and laterally; mesometasternal and longitudinal metasternal sutures deeply impressed; ventral cavities for reception of legs well developed; exposed surfaces of legs clothed with elongate, branched setae; protibiae angulate at basal one-third, meso- and metatibiae more rounded; tarsi compressed laterally and retracted into

longitudinal grooves in tibiae at rest.

Lateral margins of elytra slightly outwardly arcuate, widest near apex, marginal stria complete, though faint near midpoint of elytral suture; epaulettes strongly developed; anterior elevation of each epaulette rising posterolaterally, with a fine groove on anterior surface; posterior elevation of epaulette continuous with prominent longitudinal carina reaching the posterior three-fourths of each elytron; epaulette in dorsal view transversely ovoid, open medially, clothed within with golden setae, viewed laterally only an acutely incised V-shaped notch is visible between anterior and posterior elevations; elytra entirely impunctate, with fine decumbent setae except near posterior portion of carinae, where a small cluster of setae are clubbed (but not branched) and along posterior margin, where there are also a few clubbed setae.

Pygidia impunctate; propygidium vertical, slightly swollen, with sparse decumbent setae; pygidium with sparse fine decumbent setae basally, but with denser expanded and branched setae near apex.

Diagnosis. – The elytral carinae of this species are highly distinctive. *Orectoscelis punctatus* also exhibits elytral carinae but in that species they are not posterior extensions of the epaulettes and are also not as strongly developed as in *O. carinatus*. In addition no other species of Chlamydopsinae known from Sulawesi exhibits such a diversity of setae. Various species have clubbed, decumbent, or branched setae. But in no others are all three types seen at once.

Etymology. – The name *carinatus* refers to the very distinctive elytral carinae of this species.

*Orectoscelis brendelli* sp. n.  
(figs. 17, 21)

Material examined. – 17 specimens total. Holotype male: INDONESIA: SULAWESI UTARA, Dumoga-Bone National Park, plot A (200m), May, 1985. – Paratypes: Plot A (200m): May, 1985 (1 female), October, 1985 (1 male, 1 female), November, 1985 (1 male); Plot C (400m): February, 1985 (3 females, 1 male), March, 1985 (2 males), April, 1985 (4 males), May, 1985 (1 female); lowland montane forest (1200-1400m): March, 1985 (1 male).

Description. – Length 1.95 mm, width 1.30 mm; body elongate, subquadrate, surfaces smooth, rufescent, sparsely setose. Frons impunctate, with scattered vaguely scale-like setae. Antennal scapes broad, anteriorly arcuate; antennal club setose, sutures indistinct, dimorphic (elongate oval in females, cylindrical in males); clypeolabral junction depressed but suture indistinct; labrum setose, approximately twice as wide as long; eyes large, coarsely faceted; mandibles small, ventral margins lobed.

Pronotum ovate, convex; laterally margined, margins outwardly arcuate, at middle nearly as wide as elytra; anterior margin sinuate, indented above antennal cavities; posterior margin outwardly arcuate, concealing scutellum. Prosternum elongate; prosternal keel punctate between coxae, smoother anteriorly, setose; prominent prosternal ridges anterior to coxae demarcating position of protibia at rest.

Elytra quadrate, parallel-sided, slightly rounded at apices, lacking dorsal and subhumeral striae, with shallow transverse depressions at humeri; lateral aspect of humeral depressions with few fine, golden setae, depression otherwise bare; each elytron with complete marginal stria along all edges, these displaced from margin of epipleurae above the meso- and metafemoral joints, describing the arcs of leg motion. Meso- and metasterna setose; mesosternum short, approximately 4 times as wide as median length; anterior margin of metasternum shallowly depressed and emarginate for reception of prosternal projection; longitudinal metasternal suture distinct; femoral lines of metasternum and 1<sup>st</sup> visible abdominal sternite carinate, outlining depressions for legs in repose. Abdominal sterna each with single transverse series of setae.

Legs with pro- and mesofemora elongate, metafemur oval; tibiae broadly rounded, with uninterrupted margins, lacking marginal spines or apical spurs; tarsal grooves of tibiae poorly defined, little more than longitudinal depressions; tarsi laterally compressed.

Propygidium smooth, sparsely setose, transversely elevated, this elevation forming a prominent, interrupted carina in females; pygidium setose, faintly margined, especially along basal edge.

Diagnosis. – *Orectoscelis brendelli* is a very distinctive chlamydopsine. It differs from all other species known from Sulawesi by its laterally margined pronotum. Among Chlamydopsinae that have the scutellum concealed, the pronotum is only margined in *Gomyopsis kuscheli* Degallier, known from Fiji. This character, in combination with the quadrate form of the elytra easily separate this species from all other known Indonesian Chlamydopsinae.

Etymology. – This species is named for Mr. Martin Brendell of The Natural History Museum, London, in recognition of both his important role in the entomological success of Project Wallace, and his patient and generous assistance to the author during the course of this and other studies.

#### CONCLUSIONS

The species described in this paper present substantial morphological diversity and characters useful for resolving relationships among them are not im-

mediately obvious. But it is nonetheless worth pointing out some similarities based on a few possible synapomorphies. *Orectoscelis aurolepidus* and *O. punctatus* share both semicircular, anteriorly directed epaulettes and scale-like body setae and a close relationship between them therefore seems likely. In both *O. dumogae* and *O. obliquus* the epaulettes are located closer to the anterior margins of the elytra than in most other *Orectoscelis*. This may be taken as a potential indicator of relationship between them. It is also possible that this relates to the anteriorly open condition of the epaulettes in *O. aurolepidus* and *O. punctatus*, and possibly also in the Australian *Pheidoliphila* Lea, in which the epaulettes are very far forward on the elytra. The absence of the elytral epaulettes in *O. demotus* is potentially a very interesting character. Their absence is also known in two undescribed species from Borneo, as well as in *Ceratohister pheidoliphilus* Reichensperger, described from India (Reichensperger 1924). Whether or not this character indicates a close phylogenetic relationship, it may indicate a common feature of these species' biologies. Several of the species described here (*O. brendelli*, *O. carinatus*, *O. hammondi*, *O. elongatus*, and possibly *O. dumogae* and *O. obliquus*) appear to show closer relationships to species outside of Sulawesi than to the others. The more or less transverse, raised epaulettes are seen in several species being described from Borneo, as well as in species currently placed in the genus *Eucurtiopsis* Silvestri (from Japan and Taiwan).

Although secondary sexual characters are uncommon in Histeridae a few have become apparent during the course of this study. First, the dimorphic antennal club, with that of the males substantially longer and more cylindrical than that of the females, is apparently common to all Chlamydopsinae (it appears that this was noted by earlier workers [e.g., Oke 1923], although its actual extent has not been appreciated). The dimorphic propygidium described for *O. brendelli* and *O. elongatus*, however, is apparently more restricted in the Chlamydopsinae, and it may prove to be an important phylogenetic character. But given the material available for study, its distribution cannot be adequately established to draw any, even tentative, conclusions regarding relationships.

Finally, it is worth highlighting the fact that all of the present study material was collected using large area flight interception traps. No Chlamydopsinae were collected by hand during the project despite, among other efforts, the intensive work of Dr. David Kistner, a specialist in myrmecophilous and termitophilous Coleoptera. An obvious implication of this is that there is no direct evidence that any of these species are true inquilines, although the presence of trichomes in most is strong indirect evidence. It is hoped that additional attempts in these areas to ob-

tain Chlamydopsinae can confirm this assumption. In any event, the utility of flight intercept trapping for sampling otherwise rare components of the fauna is clear (see also Helava 1989, Jessop & Hammond 1993) and it is certain that similar efforts in this and other poorly known areas of Indomalaysia will uncover many additional new and interesting taxa.

#### ACKNOWLEDGMENTS

I would like to recognize several colleagues who enabled the completion of this study. I first thank Martin Brendell and Peter Hammond for help with all aspects of the work. I thank Alfried Vogler for financial and intellectual support. Anthony Cognato and Nicolas Degallier read and provided valuable feedback on an earlier version of the manuscript. This project was funded in part by a Leverhulme Trust grant to Alfried Vogler.

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Received: 16 May 2000

Accepted: 6 July 2000