

## A new genus and three new species of helluonine beetles from Australia

(Insecta, Coleoptera, Carabidae, Hellunoniae)

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A new genus and species, *Platyhelluo weiri*, and two new species of the genus *Helluosoma* Castelnau, *H. bouchardi* and *H. hangayi*, from northern and eastern Australia are described. For the genus *Helluosoma* a key to all species is provided.

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### Introduction

When I recently visited the collections of Australian National Insect Collection, Canberra, I had the opportunity to sort through the large amount of unidentified material of ground beetles present in this collection. During this work I found, *inter alia*, two recently captured specimens of helluonine beetles that belong to yet undescribed species, while one of these even represents a peculiar new genus. In the course of the subsequent detailed examination of the specimens, I reexamined a single specimen from my own working collection that for some time was tentatively included in the known species *Helluosoma atrum* Castelnau, but now proved to represent another separate, new species.

The most recent and altogether the single comprehensive survey of the Australian Hellunoniae is that of T. G. Sloane (1914). This paper includes a key to the Australian genera, while in some genera also the species are keyed. However, these keys are rather short and only some species received a more exhaustive description. Virtually nothing was added during the following 90 years to the knowledge of Australian Hellunoniae, although some genera urgently need revision. In spite of Sloane's paper which was extraordinarily well done for his time, identification of Australian Hellunoniae hence still is dif-

ficult, because no habitus figures nor any survey of genitalic morphology are available.

Because material of certain Australian genera and species still is rare, the three mentioned species are described, even when the descriptions are based on single specimens only. In particular this was done for the reason that two of the three mentioned species were captured during a faunistic survey of certain National Parks in remote areas of the Far North of Australia.

During my visits to various large Australian collections I was always impressed by the large amount of sampled material, but, on the other hand, also by the regrettable disproportion between identified and unidentified material in most of the mentioned collections, which probably is due to the very small number of scientists who are able or willing to deal with this rich and very interesting fauna. So, from my opinion, identification and description of specimens at present is of much more importance than any superimposed biological survey, be it ecological, morphological, molecular or else, because identification is the base for all other work to be done and, moreover, because it is well known for a long time that only identification of specimens will encourage collectors and scientists to intensify their sampling and surveying efforts.

## Methods

In the taxonomic survey standard methods are used. The male genitalia were removed from the specimens that were soaked for a night in a jar under wet atmosphere, then cleaned for a short while in hot KOH. The habitus photographs were obtained by a digital camera using SPOT Advanced for Windows 3.5 and subsequently were worked with Corel Photo Paint 10.

Measurements were taken using a stereo microscope with an ocular micrometer. Length has been measured from apex of labrum to apex of elytra. Lengths, therefore, may slightly differ from those given by other authors. Length of orbit was taken from posterior margin of eye to the position where the orbital curvature meets the neck. Length of pronotum was measured along midline.

### Abbreviation of collections

ANIC	Australian National Insect Collection, Canberra
CBM	Working collection of M. Baehr at Zoologische Staatssammlung, München
CKZ	Collection V. Kabourek, Zlin
NHMW	Naturhistorisches Museum, Wien

### Genus *Helluosoma* Castelnau

So far two species were included in the genus *Helluosoma*, namely *H. atrum* Castelnau from northeastern Queensland and northernmost Northern Territory, and *H. longicolle* Macleay from northwestern Australia. *H. atrum* is a well known though probably quite rare eastern species, while of the northwestern Australian *H. longicolle* apparently only the holotype is known.

The genus is characterized by presence of large postorbital prominences, conspicuously constricted base of prothorax, more or less distinctly crenulate lateral margin of prothorax, anteriorly rounded and 4-setose labrum, dentate mentum, narrow, elongate, apically convex ligula, and black or dark piceous colour.

#### *Helluosoma atrum* Castelnau

Figs 1, 5, 8, 10

Castelnau, 1867: 21; Sloane 1914: 586; Moore et al. 1987: 316.

**Diagnosis.** Black species of moderate size (length c. 15 mm); head without distinct transverse sulcus across neck, with large, stout antenna and stout palpi; pronotum comparatively narrow, with comparatively wide basis and inconspicuously crenulate

margin; elytra with but little convex intervals of similar size and with biseriata punctuation; pilosity of surface fairly elongate, erect, even on elytra little declined, fringe of setae at lateral margin of pronotum rather short; aedeagus comparatively small and delicate, with symmetric, triangular apex. Distinguished from *H. longicolle* Macleay by lesser size and wider pronotum; from both, *H. bouchardi*, spec. nov. and *H. hangayi*, spec. nov. by absence of a transverse sulcus on neck and by less convex lateral margin and relatively wider base of pronotum; and from *H. hangayi*, spec. nov. also by the depressed, similarly punctate elytral striae and by the markedly smaller and more delicate aedeagus bearing a longer, exactly triangular apex.

### Partial redescription

Measurements (4 ex.). Length: 14.0-14.8 mm; width: 4.4-4.6 mm. Ratios. Width/length of pronotum: 1.09-1.11; widest diameter/base of pronotum: 1.74-1.78; length/width of elytra: 1.82-1.85.

Male genitalia (Fig. 1). Genital ring wide, almost symmetric, laterally convex, with long, evenly convex basal plate and rather narrow, convex apex. Aedeagus comparatively small and delicate, fairly elongate, straight, with markedly triangular, symmetric, straight, on upper surface deeply hollowed apex. Lower surface gently concave. Orificium very elongate, symmetric, situated in middle of upper surface, with two longitudinal, sclerotized, almost symmetric plates that are more sclerotized towards apex and are curved inside of internal sac. Internal sac complexly folded, with a short, heavily coiled, denticulate plate in middle. Parameres of very different size and shape, left large and elongate, right with short, convex apex and elongate, straight shaft.

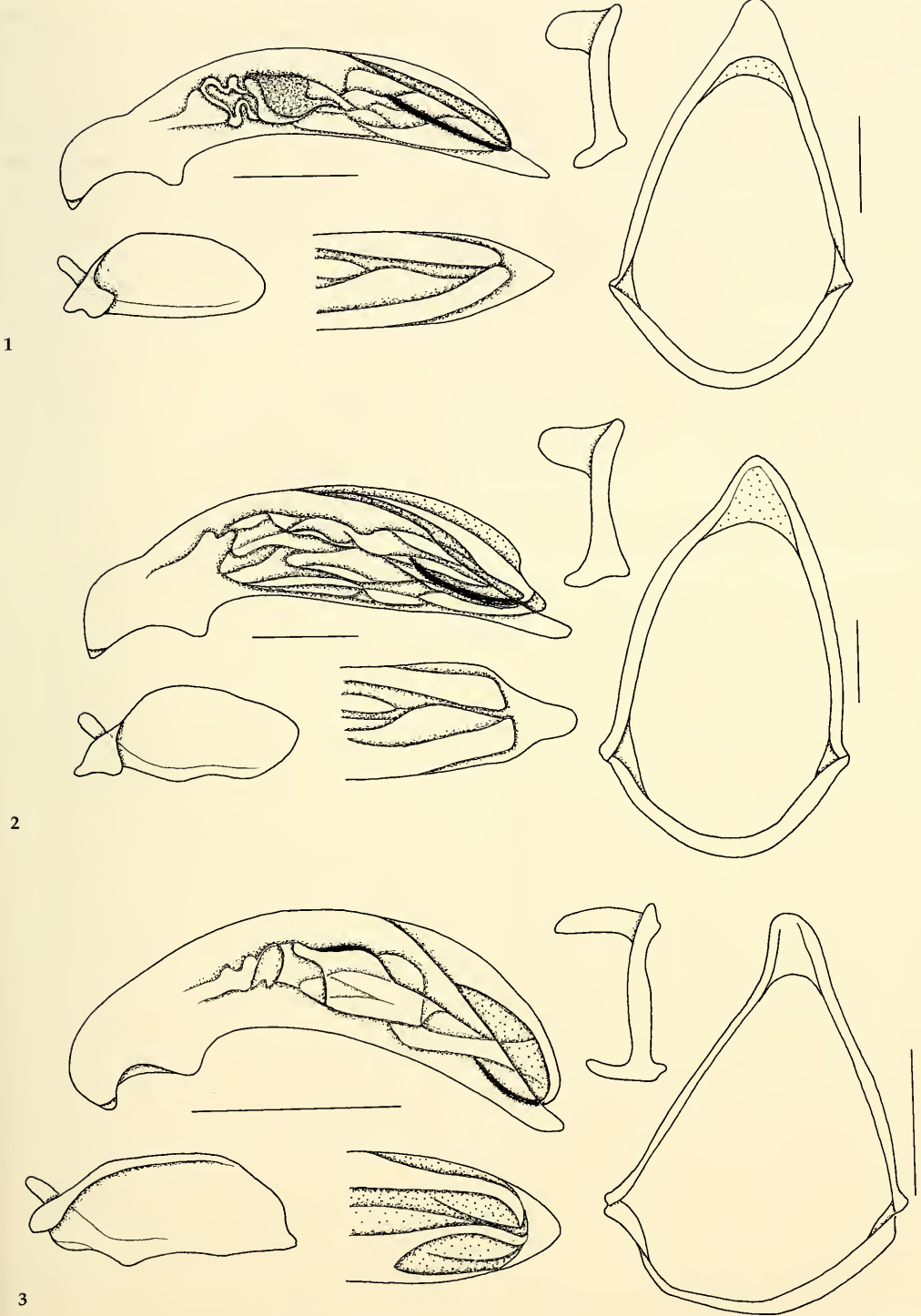
**Distribution.** According to Sloane (1914) and Moore et al. (1987) eastern Queensland from Rockhampton in the south to northern parts of Northern Territory.

**Examined material.** I have seen a few specimens from "Millstream Falls, North Queensland" (ANIC, CBM), three specimens from Katherine, Northern Territory (CBM, CKZ), and some old ones without exact locality except for "N. H." ("New Holland") (NHMW).

#### *Helluosoma longicolle* Macleay

Macleay, 1888: 450; Sloane 1914: 586; Moore et al. 1987: 316.

**Diagnosis.** Black species of comparatively large size (length c. 18 mm); head without distinct transverse sulcus across neck, with large, stout antenna and stout palpi; pronotum narrow, not wider than long,



Figs 1-3. Male genitalia: Aedeagus, left side; apex from above; left and right paramere; genital ring. 1. *Helluosoma atrum* Castelnau. 2. *Helluosoma hangayi*, spec. nov. 3. *Platyhelluo weiri*, gen. nov., spec. nov. Scales: 0.5 mm.

with very wide basis and crenulate margin; elytra conspicuously widened behind basal third, with but little convex intervals of similar size and irregular, somewhat coriaceous triseriate punctuation; pilosity of surface fairly elongate, on elytra very declined; legs unusually elongate. Distinguished from all other species by larger size and decidedly narrower pronotum.

#### Partial redescription

Measurements. Length: 18.2 mm; width: 5.8 mm. Ratios. Width/length of pronotum: 0.98; widest diameter/base of pronotum: 1.69; length/width of elytra: 1.78.

**Distribution.** "King's Sound", northwestern Australia. Apparently known only from holotype and type locality.

**Examined material.** I saw only the holotype (ANIC).

#### *Helluosoma hangayi*, spec. nov.

Figs 2, 6, 8, 11

**Types.** Holotype: ♂, Australien, Qld. Wild Horse Creek, 30.1.1968, leg. G. Hangay (CBM).

**Diagnosis.** Brown species of moderate size (length c. 14 mm); head with fairly deep transverse sulcus across neck, with large, stout antenna and stout palpi; pronotum comparatively wide, with rather narrow basis and coarsely crenulate margin; elytra with convex intervals of dissimilar size and shape, even intervals with biseriate punctuation, but odd ones, in particular 5<sup>th</sup> with a single external row of punctures only and with few additional punctures, giving the 5<sup>th</sup> interval a rather smooth, ridge-like appearance; pilosity of surface short, on elytra declined, pilosity of lateral margin of pronotum very short; aedeagus comparatively large and stout, with short, asymmetrically triangular apex. Distinguished from all other species by unequal punctuation of elytral striae; further distinguished from *H. atrum* Castelnau and *H. longicolle* Macleay by wider pronotum with relatively narrower base; from *H. bouchardi*, spec. nov. by less deep transverse sulcus on neck, stouter, but narrower pronotum that has a relatively wider base and a coarsely crenulate lateral margin; and from *H. atrum* Castelnau by the much larger and stouter aedeagus bearing a shorter, asymmetrically triangular apex.

#### Description

Measurements. Length: 13.9 mm; width: 4.5 mm. Ratios. Width/length of pronotum: 1.15; widest diameter/base of pronotum: 1.85; length/width of elytra: 1.76.

**Colour.** Upper and lower surface including mouth parts, antennae, and legs brown. Pilosity yellow.

**Head.** Of average size, postocular prominences conspicuous, about half as long as eye, laterally convex. Eyes convex, laterally distinctly surpassing orbit. A single suprorbital seta present. Middle of frons gently raised, with a fairly deep, slightly curved transverse sulcus between frons and neck. Clypeus gently concave at apex. Labrum elongate, with evenly convex apex, quadrisetose and with some hairs on margin. Mandibles of average size, not much curved inside towards apex. Palpi stout, sparsely setose, apical palpomeres of both palpi slightly widened towards apex. Mentum with unidentate, at apex slightly truncate tooth, with two elongate setae. Labrum elongate, at apex widely rounded, with two subapical and two basal setae, and with few setae along margin. Antenna stout, rather short, slightly surpassing base of pronotum. 1<sup>st</sup> antennomere with elongate subapical seta. Dense, short pilosity on 5<sup>th</sup>-11<sup>th</sup> antennomeres not interrupted by smooth areas. Frontal sulci rather deep, regular. Frons in middle and neck impunctate. Dorsal surface of head with very coarse punctuation and with comparatively short, erect setae that are slightly inclined anteriorly. Microreticulation absent, surface highly glossy.

**Pronotum.** Massive, wide, cordiform, with comparatively short, relatively narrow base. Apex very gently concave in middle, apical angles barely produced, lateral margin in anterior two thirds very convex, evenly concave in front of the rectangular though distinctly obtuse basal angles. Surface gently convex with conspicuous, slightly raised, anteriorly impunctate, longitudinal, discal ridges and little raised median ridge. Median line distinct. Lateral margin in apical two thirds conspicuously and coarsely crenulate, about 8-9 crenules present. Surface with rather confluent, very coarse punctures and dense, rather short, almost depressed setae that are inclined to middle. Lateral margin with a single marginal seta of moderate size in front of middle and with a fringe of short setae. Microreticulation absent, surface very glossy.

**Elytra.** Elongate, little widened towards apex, depressed. Humeri advanced though rounded. Apex evenly rounded, bordered. Striae well impressed, distinctly punctate. Intervals of slightly unequal shape and width, convex, with coarse, slightly irregular, biseriate punctuation that is regular on even intervals, but unequal on odd intervals, in particular on 5<sup>th</sup>, less so on 7<sup>th</sup> and 3<sup>rd</sup>. These, especially 5<sup>th</sup> interval have the punctuation situated laterally, so that the middle looks almost impunctate. Setae remarkably short, inclined backwards. 3<sup>rd</sup> stria with 4

short, erect setae that are very difficult to recognize within the other setosity. Margin with inconspicuous fringe of very short setae. Surface without microreticulation, highly glossy.

Lower surface. Densely and coarsely punctate, with short, rather depressed setosity. Terminal apical sternite in male bisetose, setae far removed from margin. Metepisternum very elongate, c. 3 × as long as wide.

Legs. Comparatively stout. Profemur with distinct protuberance at basal third. External angle of protibia prolonged to an acute, moderately elongate tooth that is directed laterally. 2<sup>nd</sup> and 3<sup>rd</sup> tarsomeres of male protarsus with a few adhesive hairs in middle between the dense setosity of lower surface.

Male genitalia (Fig. 2). Genital ring wide, slightly asymmetric, laterally convex, with long, evenly convex basal plate and rather wide, convex, asymmetric apex. Aedeagus stout, straight, with short, asymmetrically triangular, straight, on upper surface deeply hollowed apex. Lower surface almost straight. Lateral and lower surfaces with many conspicuous transverse striae. Orificium very elongate, symmetric, in middle of upper surface, with two longitudinal, sclerotized, almost symmetric plates that are more sclerotized towards apex and are curved inside of internal sac. Internal sac complexly folded, with a short, heavily coiled, denticulate plate in middle. Parameres of very different size and shape, left large and elongate, right with short, convex apex and elongate, straight shaft.

Female genitalia. Unknown

Variation. Unknown

**Distribution.** Central Queensland. Known only from type locality.

**Collecting circumstances.** Unknown, though most probably captured at light.

**Etymology.** The name honours the collector, George Hangay.

**Relationships.** According to its peculiar shape and punctuation of the elytral intervals, this species is rather isolated within the genus. However, in shape of antennae and palpi it is very similar to *H. atrum* Castelnau.

### *Helluosoma bouchardi*, spec. nov.

Figs 4, 7, 9, 12, 14

**Types.** Holotype: ♀, 15.57S 130.29E NT GPS 20.5 km NNE Bullita, Gregory Nat. Pk, 23 May 2001, T. Weir, P. Bouchard/at light open forest (ANIC).

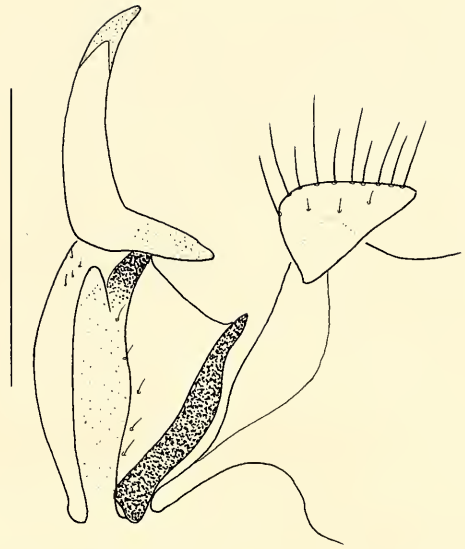


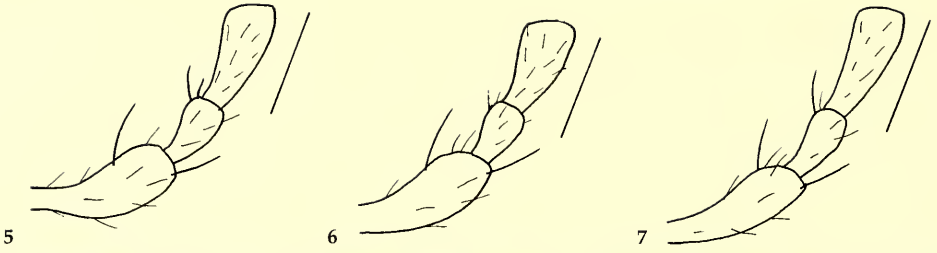
Fig. 4. *Helluosoma bouchardi*, spec. nov. Female stylomere 1+2. Scale: 0.5 mm.

**Diagnosis.** Brown species of moderate size (length c. 13 mm); head with deep transverse sulcus across neck, with delicate antenna and delicate palpi; pronotum comparatively wide, with rather narrow basis and distinctly though finely crenulate margin; elytra with but little convex intervals of similar size and biseriate punctuation; pilosity of surface very elongate, even on elytra barely declined, pilosity of lateral margin of pronotum remarkably elongate; aedeagus unknown. Distinguished from *H. atrum* Castelnau and *H. longicolle* Macleay by presence of a transverse sulcus on neck and by wider pronotum with relatively narrower base; and from *H. hangayi*, spec. nov. by even deeper transverse sulcus, more delicate, but wider pronotum that has a relatively narrower base and a finely crenulate lateral margin, and by equal punctuation of elytral striae.

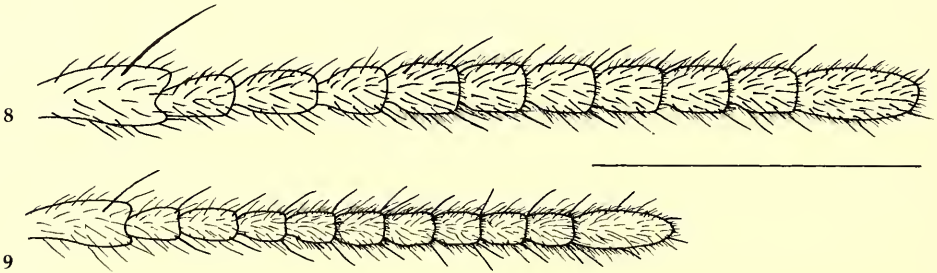
### Description

**Measurements.** Length: 12.7 mm; width: 4.0 mm. Ratios. Width/length of pronotum: 1.20; widest diameter/base of pronotum: 1.89; length/width of elytra: 1.93.

**Colour.** Head piceous, though clypeus, lateral margins of labrum, anterolateral margin in front of eyes, and posterolateral margin of postocular prominences reddish. Pronotum and elytra brown, lighter than head, but pronotum in basal half slightly darker. Basal palpomeres, antennae and legs reddish, apical palpomere of both palpi and apex of mandibles piceous. Lower surface light reddish, pilosity yellow.



Figs 5-7. Right maxillary palpus. 5. *Helluosoma atrum* Castelnau. 6. *Helluosoma hangayi*, spec. nov. 7. *Helluosoma bouchardi*, spec. nov. Scales: 0.5 mm.



Figs 8,9. Antenna. 8. *Helluosoma atrum* Castelnau and *H. hangayi*, spec. nov. 9. *Helluosoma bouchardi*, spec. nov. Scale: 2 mm.

Head. Of average size, postocular prominences conspicuous, about half as long as eye, almost quadrangular, but posterior-lateral angle rounded. Eyes convex, laterally distinctly surpassing orbit. A single supraorbital seta present. Middle of frons raised, with a deep, slightly curved transverse sulcus between frons and neck. Clypeus gently concave at apex. Labrum elongate, with evenly convex apex, quadrisetose and with some hairs on margin. Mandibles of average size, not much curved inside towards apex. Palpi remarkably slender, sparsely setose, apical palpomeres of both palpi slightly widened towards apex. Mentum with unidentate, at apex slightly truncate tooth, with two elongate setae. Labrum elongate, at apex widely rounded, with two subapical and two basal setae, and with few setae along margin. Antenna unusually delicate though rather short, barely attaining base of pronotum. 1<sup>st</sup> antennomere with elongate subapical seta. Dense, short pilosity on 5<sup>th</sup>-11<sup>th</sup> antennomeres not interrupted by smooth areas. Dorsal surface of head with several deep, irregular grooves along frontal sulci, and with very coarse punctuation and remarkably elongate, erect setae that are slightly inclined anteriorly. However, frons in middle and neck impunctate. Microreticulation absent, surface highly glossy.

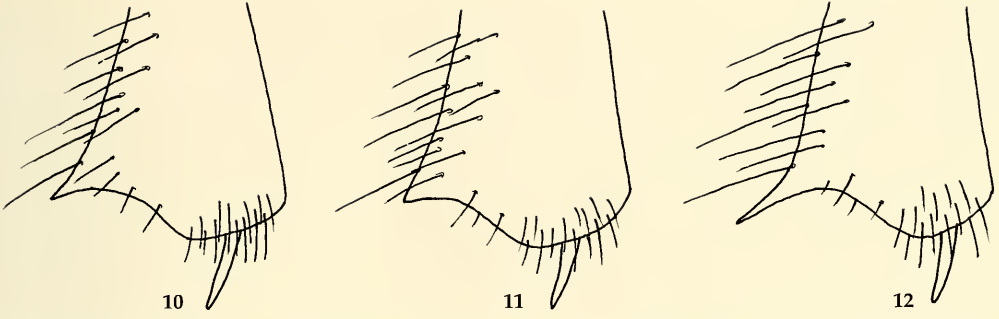
Pronotum. Wide, remarkably cordiform, with elongate, relatively narrow base. Apex almost

straight, apical angles not at all produced, lateral margin in anterior half very convex, evenly concave in front of the rectangular though slightly obtuse basal angles. Surface depressed with little raised longitudinal, discal ridges and not at all raised median ridge. median line distinct. Lateral margin in apical half conspicuously though rather finely crenulate, about 11-12 crenules present. Surface with rather confluent, very coarse punctures and dense, elongate, erect setae. Lateral margin with a single very elongate marginal seta in front of middle and with a dense fringe of remarkably elongate setae. Microreticulation absent, surface very glossy.

Elytra. Elongate, little widened towards apex, depressed. Humeri advanced though rounded. Apex evenly rounded, bordered. Striae well impressed, distinctly punctate. Intervals of equal shape and width, rather depressed, with coarse, slightly irregular, biseriate punctuation and elongate setae that are slightly inclined backwards. 3<sup>rd</sup> stria with 4 erect setae that are difficult to recognize within the dense setosity. Margin with fringe of rather elongate setae. Surface without microreticulation, highly glossy.

Lower surface. Densely and coarsely punctate, with elongate, erect setosity. Terminal apical sternite in female bisetose, setae far removed from margin. Metepisternum very elongate, c. 3 × as long as wide.

Legs. Comparatively delicate and slender. Pro-



10

11

12

**Figs 10-12.** Apex of right protibia. 10. *Helluosoma atrum* Castelnau. 11. *Helluosoma hangayi*, spec. nov. 12. *Helluosoma bouchardi*, spec. nov.

femur with distinct protuberance at basal third. External angle of protibia prolonged to an acute, comparatively elongate tooth that is directed antero-laterally. Vestiture of male protarsus unknown.

Male genitalia. Unknown.

Female genitalia (Fig. 4). Stylomere 2 extremely narrow and elongate, curved, with acute apex, devoid of any setae. Base of stylomere 1 with a few very short setae on median surface and with a series of extremely short, inconspicuous setae down the lower surface. Lateral plate with a fringe of stiff nematiform setae (c. 10) at apical rim, and a few below rim.

Variation. Unknown

**Distribution.** Northwestern Northern Territory. Known only from type locality.

**Collecting circumstances.** Captured at light in open tropical woodland.

**Etymology.** The name honours the junior collector, Patrice Bouchard.

**Relationships.** According to shape and punctuation of the elytral intervals this species is most closely related to *H. atrum* Castelnau.

**Key to the species of the genus  
*Helluosoma* Castelnau**

1. Large species, length c. 18 mm; prothorax about as wide as long, with comparatively wide base; elytra perceptibly widened behind basal third, intervals with three irregular rows of punctures, punctures tend to combine to irregular transverse sulci, therefore, punctuation somewhat coriaceous. Northwestern Australia ..... *longicolle* Macleay
- Smaller species, length < 15 mm; prothorax much wider than long, with comparatively narrow base; elytra barely widened behind basal third, intervals with two rows of punctures, punctures well separated, punctuation not coriaceous .. 2.
2. Intervals of elytra almost depressed, of equal width and shape, all with similar biseriate punctuation; pilosity of surface elongate, on elytra little declined; aedeagus small and delicate, with exactly triangular apex (Fig. 1), or unknown ....
- ..... *hangayi*, spec. nov. 3.
- Intervals of elytra convex, of unequal shape, odd ones, in particular 5<sup>th</sup>, more convex than others, with punctures at inner and outer rim only and with few additional punctures in middle, hence intervals, in particular 5<sup>th</sup>, smooth, of rather ridge-like appearance; pilosity of surface short, on elytra depressed; aedeagus large and stout, with short, not asymmetrically triangular apex (Fig. 2). Eastern Queensland.....
- ..... *hangayi*, spec. nov.
3. Without distinct transverse sulcus across "neck"; labial palpi and antenna stout (Figs 5, 8); pronotum narrower (ratio width/length 1.09-1.11), with comparatively wider base (ratio diameter/base 1.74-1.78); lateral margin inconspicuously crenulate; pilosity shorter, in particular on head and at lateral margin of pronotum; aedeagus see

**Appendix**

**Measurements and ratios of the species of the genus *Helluosoma* Castelnau**

	N	body length (mm)	ratio width/length pronotum	ratio diameter/base pronotum	ratio length/width elytra
<i>atrum</i>	4	14.0-14.8	1.09-1.11	1.74-1.78	1.82-1.85
<i>bouchardi</i>	1	12.7	1.20	1.89	1.93
<i>hangayi</i>	1	13.9	1.15	1.85	1.76
<i>longicolle</i>	1	18.2	0.98	1.69	1.78

fig. 1. Eastern Queensland, northernmost part of Northern Territory ..... *atrum* Castelnau

- With distinct transverse sulcus across "neck"; labial palpi and antenna delicate (Figs 6, 9); pronotum wider (ratio width/length 1.20), with comparatively narrower base (ratio diameter/base 1.89); lateral margin conspicuously crenulate; pilosity longer, in particular on head and at lateral margin of pronotum; aedeagus unknown. Northwestern Northern Territory.....  
..... *bouchardi*, spec. nov.

### Genus *Platyhelluo*, gen. nov.

**Diagnosis.** Genus of Helliuoninae, the single known species is characterized by the following character states: relatively small size; remarkably depressed body; head with large, rather quadrangular postorbital prominences and very narrow neck; two supraorbital setae; wide, anteriorly very gently convex, quadrisetose labrum with a lateral fringe of hairs; short and stout palpi with apically enlarged terminal palpomeres; sharp, unidentate mental tooth; wide, apically gently convex, bisetose ligula bearing setose lateral margins; short lacinia bearing a sharp apical hook, with a tuft of long setae at apex; very acute, on inner margin strongly curved mandibles; rather elongate, delicate antenna; surface covered by erect, barely inclined, elongate setosity; elongate, not cordiform pronotum that is little narrowed to base, and has two fringes of elongate hairs along margin, one lateral, the other erect; narrow and elongate elytra, with deeply impressed, channelled striae and depressed intervals bearing coarse, biseriate punctation; elongate, posteriorly inclined pilosity; fully developed wings; very elongate metepisternum; punctate and shortly pilose lower surface; profemur with conspicuous protuberance in middle of lower surface; laterally angulate but not dentate protibia; 2<sup>nd</sup> and 3<sup>rd</sup> tarsomeres of male protarsus in middle with few adhesive hairs; bisetose terminal abdominal sternite of male, setae situated at a distance from apical margin; aedeagus short and compact, dorsoventrally curved, with short apex, two parallel sclerotized pieces in the elongate orificium, and a complexly folded, at upper rim more distinctly sclerotized plate; both parameres markedly elongate, left very large, right small, with narrow and elongate apex.

**Type species.** *Platyhelluo weiri*, spec. nov. by monotypy.

**Etymology.** The genus name refers to the extremely depressed body shape of the single known species.

**Distribution.** Extreme northwestern part of Northern Territory, Australia.

**Relationships.** Certainly, this new genus is one of the most peculiar helluonine genera at all, due to its remarkably depressed body shape that is unknown not only in any Australian helluonine, but to my knowledge also in the extra-Australian members of the subfamily. For this reason, and in view of the large postorbital protuberances and the very narrow neck, at the first glance I took it for a member of the subfamily Hexagoniinae which are very similar in their body shape. Nevertheless, it is a helluonine, but apart from its peculiar shape, it bears some additional characters states that in this composition do not occur in any other helluonine genus. Apart from the extremely depressed body, other peculiar character states are the bisetose head and, on the other hand, the well developed protuberance at the profemur. According to Sloane (1914), all Australian helluonine genera, except *Epimicodema* Sloane, possess a single supraorbital seta only, whereas the extra-Australian genera generally have an unarmed profemur.

Within the Australian genera, *Platyhelluo* belongs to the lineage with large postocular prominences, and by reason of the 4-setose labrum, to the *Helluosoma-Helluodema*-lineage. However, apart from body shape and the bisetose head, *Platydema* is distinguished from both genera by the short, almost quadrate labrum, the wide, though apically not emarginate ligula, and the position of the protuberance on the profemur which is situated in middle of lower surface instead at basal third. From *Helluosoma* it is further distinguished by its elongate, barely constricted pronotum.

As a consequence, the new genus occupies a quite isolated systematic position within the Australian Helliuoninae, and it can be considered one of the most highly developed Australian helluonine genera at all.

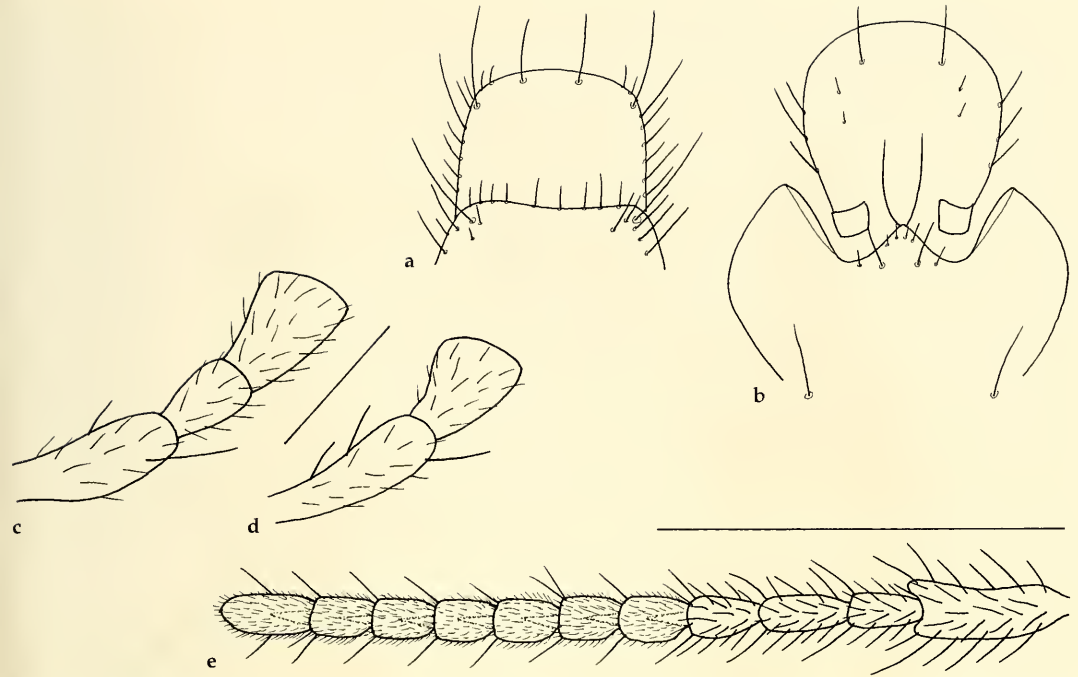
### *Platyhelluo weiri*, spec. nov.

Figs 3, 13, 15

**Types.** Holotype: ♂, 15.45S 129.10E NT GPS spring at 8 km E by N Jammam, Keep River Nat. Pk 26-28 May 2001, T. Weir, P. Bouchard/at light open forest (ANIC).

**Diagnosis.** Rather small, piceous species, immediately distinguished by its extremely depressed body, the bisetose head that bears large postocular protuberances and a very narrow neck, the elongate pronotum that is but little constricted towards base, the somewhat channelled striae of the elytra, and the profemur that bears a conspicuous protuberance that is located about at middle of lower surface.





**Fig. 13.** *Platyhelluo weiri*, gen. nov., spec. nov. Mouth parts. a. Labrum. b. Mentum and Ligula. c. Maxillary palpus. d. Labial palpus. e. Antenna. Scales: 0.5 mm (c, d); 2 mm (e).

## Description

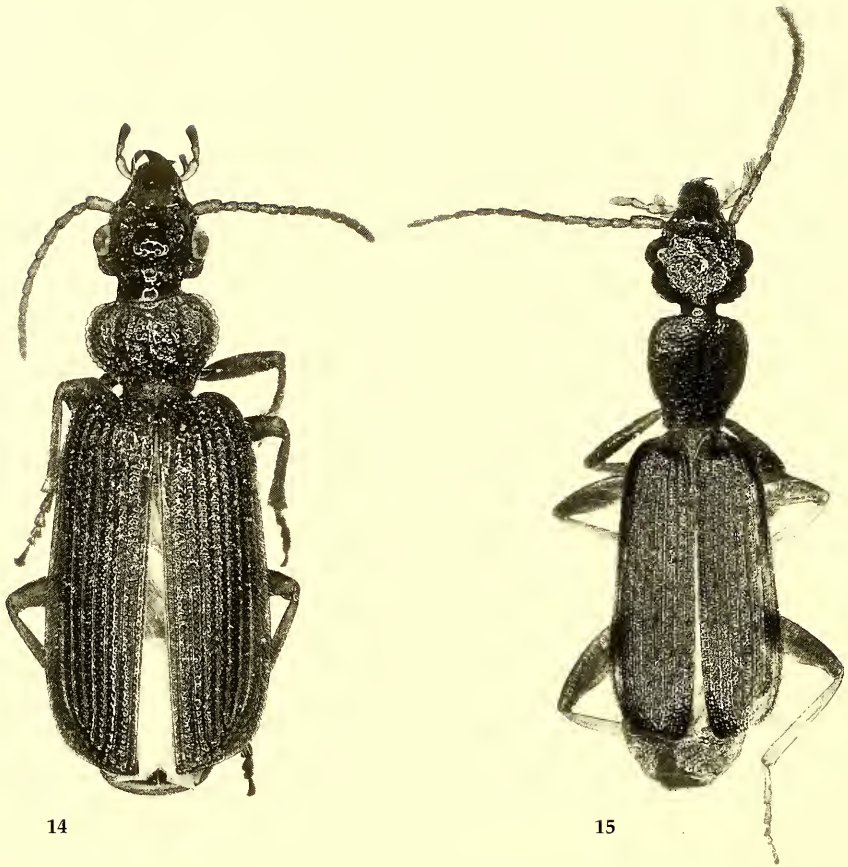
**Measurements.** Length: 11.8 mm; width: 3.5 mm. Ratios. Width/length of pronotum: 0.88; widest diameter/base of pronotum: 1.56; length/width of elytra: 1.69.

**Colour.** Very dark piceous, elytra slightly lighter. Mouth parts, antennae and legs reddish, though antennae to apex becoming slightly darker, and tibiae and tarsi on posterior surface decidedly lighter. Lower surface light reddish. Pilosity yellow.

**Head** (Figs 13, 15). Large and wide, with remarkably narrow neck. Postocular prominences conspicuous, about as long as eye, almost quadrangular, but widely rounded. Eyes comparatively small though markedly convex, laterally by far surpassing orbit. Two supraorbital setae present above eye. Dorsal surface depressed, slightly uneven, without distinct transverse sulcus between frons and neck. Clypeus almost straight at apex. Labrum short and wide, with little convex apex, in middle slightly raised and here, apical margin very slightly produced. Labrum quadrisetose and with a fringe of hairs on lateral margins. Mandibles of average size, though apex very acute and inner margin remarkably curved towards apex. Palpi short and compact, sparsely setose, apical palpomeres of both palpi slightly widened towards apex. Mentum with trian-

gular, acute, unidentate tooth, bisetose, submentum with two elongate setae. Labium wide, at apex gently rounded, in middle faintly sulcate, with two subapical setae, and with few setae along margin. Lacinia short, with a sharp apical hook and a tuft of setae at apex. Antenna fairly stout, rather elongate, surpassing base of pronotum by about one antennomere. Four basal antennomeres with dense, hirsute pilosity, no single elongate seta present near apex of 1<sup>st</sup> antennomere. Short pilosity of antennae beginning from 4<sup>th</sup> antennomere. 5<sup>th</sup>-11<sup>th</sup> antennomeres on both surfaces with a arrowhead-shaped glossy area at base. Dorsal surface of head with very coarse, somewhat irregular punctuation and remarkably elongate, erect setae that are slightly inclined anteriorly. Microreticulation absent, surface highly glossy.

**Pronotum** (Fig. 15). Elongate, barely cordiform, with short, relatively wide basal part. Apex very gently concave in middle, lateral parts oblique, apical angles almost rounded off, lateral margin in anterior half very little convex, almost parallel, shortly concave in basal fourth, basal part straight, parallel, basal angles rectangular though slightly obtuse, gently produced posteriorly, base gently excised, in middle very faintly convex. Surface very much depressed with barely raised longitudinal, discal ridges and median ridge that are recognizable only



Figs 14,15. Habitus. 14. *Helluosoma bouchardi*, spec. nov. 15. *Platyhelluo weiri*, gen. nov., spec. nov. Body lengths: 12.7 mm; 11.8 mm.

by their impunctate surface. Median line almost absent. Base and apex not margined, lateral border finely margined, but without discernible lateral channel, not crenulate. Surface with dense, very coarse, in parts slightly confluent punctures and dense, elongate, erect setae. Lateral margin with a series of slightly longer marginal setae along border, none of which is decidedly longer than the others, and with a fringe of elongate setae that are directed laterally. Microreticulation absent, surface very glossy.

Elytra (Fig. 15). Elongate, little widened towards apex, very depressed. Humeri not advanced, rounded. Apex evenly rounded, not bordered, with a narrow, hyaline margin. Striae well impressed, finely punctate, somewhat channeled. Intervals wide, depressed, of equal shape and width, with very coarse, slightly irregular, biseriate punctation and elongate setae that are rather inclined backwards. 3<sup>rd</sup> stria with 5-6 erect setae that are difficult to recognize within the dense setosity. Marginal setae

numerous, elongate, arranged in two rows, setae of lateral row directed rather laterally, those of median row directed vertically, lateral margin with additional submarginal fringe of short setae. Surface without microreticulation, highly glossy.

Lower surface. Thorax with moderately dense, very coarse punctation, abdomen with finer and denser punctures, whole surface with rather elongate, somewhat inclined setosity. Terminal apical sternite in male bisetose, setae far removed from margin. Metepisternum very elongate, almost 4 × as long as wide.

Legs. Comparatively delicate and slender. Profemur large, with conspicuous protuberance in middle. External angle of protibia rectangular, without any tooth. 2<sup>nd</sup> and 3<sup>rd</sup> tarsomeres of male protarsus with very few adhesive hairs in middle between the dense setosity of lower surface.

Male genitalia (Fig. 3). Genital ring basally very wide, remarkably triangular though slightly asym-

metric, with moderately short, very wide, evenly convex basal plate and fairly narrow, convex, asymmetric apex. Aedeagus short and stout, straight, dorso-ventrally much curved, with very short, widely rounded apex. Lower surface evenly concave. Orificium very elongate, symmetric, in middle of upper surface, with two longitudinal, sclerotized, almost symmetric plates that are narrowed towards apex and are curved inside of internal sac. Internal sac complexly folded, with the upper rim of the heavily coiled plate in middle more sclerotized. Parameres of very different size and shape, left very large and elongate, though comparatively narrow, right with small, though remarkably narrow and elongate apex and elongate, straight shaft.

Female genitalia. Unknown.

Variation. Unknown

**Distribution.** Extreme northwestern part of Northern Territory, close to NT/WA border. Known only from type locality.

**Collecting circumstances.** The holotype was captured at light in open forest.

**Etymology.** The species name honours the senior collector, Tom Weir.

## Remarks

The subfamily Helluoninae is decidedly a southern hemispheric one with a few species only that were able to invade the southern margin of the Palaearctic and Nearctic regions. Australia is one of the strongholds of the subfamily and is the home of more than half of the known genera, though of just about a fourth of the described species. Nevertheless is the Australian helluonine fauna probably most diverse in terms of morphological and ecological diversity, because as well brightly coloured species, as large, depressed ones, as clumsy, flightless species occur, and in Australia helluonines occur as well in diverse forests under bark, from rain forest to dry open woodland, as in ground litter of wet forests, as on the ground in semidesert country. The detection of a peculiar, extremely depressed new genus thus is not too surprising, as is the description of two additional species of the genus *Helluosoma*.

Helluoninae which occur in all continents apart from Europe, generally have a circumtropical distribution. Hence in Australia most helluonine genera occur in the tropical belt from northern Queensland through northwestern Australia. Certain genera and surprisingly many species, however, have adapted to dry environments throughout large parts of non-tropical Australia, and a few species even managed

to invade cool-temperate wet forests of southeastern Australia. The new species and the new genus described herein, although occurring in the tropical belt, nevertheless inhabit fairly dry areas that receive rain only during a relatively short period, and thus, they belong to a fauna that is well adapted to rather dry climate.

Members of the genus *Helluosoma* are probably ground living creatures that round about at night and can be found at the lamp. Because the material supply in all species is surprisingly sparse, either they generally are rare insects on whatever reasons, either they inhabit unusual habitats or very remote areas.

The remarkably depressed body shape of the new genus *Platyhelluo*, however, rather suggests life under bark of eucalypts, but perhaps also under slabs of rock. But this body shape could even remind to life in the leaf sheets of reed or other grassy plants, much alike species of the similarly shaped, likewise extremely depressed hexagoniine genus *Hexagonia*, were it not that the new genus has been sampled in a quite dry area, where such mode of life is highly improbable. Thus, for the present, any suggestion as to ecology of the peculiar new genus must be left untouched.

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