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## New species of the helluonine genus *Helluosoma* CASTELNAU, 1867 from Australia (Coleoptera, Carabidae, Helluonini)

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### Abstract

Three new species of the helluonine genus *Helluosoma* CASTELNAU, 1867 (Coleoptera, Carabidae, Helluonini) are described from Australia: *H. bisetosum* **sp. n.** from eastern New South Wales, *H. kalumburu* **sp. n.** from the northern part of the Kimberley Division, northern Western Australia, and *H. crenulicollis* **sp. n.** from northern parts of Queensland and the Northern Territory. The first species is outstanding in the presence of only two labral setae and the barely crenulate lateral margin of the pronotum; the second species is most closely related to *H. bouchardi* BAEHR, 2005 but is distinguished by some differences in body size, shape of elytra, and length of antenna. The third species is most similar to *H. hangayi* BAEHR, 2005 but is distinguished by some differences in shape of elytra, density of the elytral punctuation, and shape of the apex of the aedeagus. For the genus *Helluosoma* a complete new key is provided. Altogether seven species are now known from Australia.

### Introduction

While sorting through some Helluonine beetles formerly identified as *Helluosoma atrum* CASTELNAU, 1867 in my working collection, I detected that a few specimens deviate in shape and structure of head and pronotum from those in *H. atrum*, so that they were supposed to represent a separate species. This was corroborated by succeeding examination of the male aedeagus which is definitely different. Examination of additional, hitherto unidentified Helluonines borrowed from an Australian Collection revealed two additional new species from eastern New South Wales and extreme northern Western Australia, which both deviate in their unusual small body size. In material recently borrowed to gain additional material for the descriptions, several additional specimens of one of the new species were received that previously were identified as *H. atrum* CASTELNAU. These three new species are described in the present paper and a complete new key for the genus is provided.

The most recent and only comprehensive survey of the Australian Helluonini is that of T. G. SLOANE (1914). This paper includes a key to the Australian genera, and 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 100 years to the knowledge of Australian Helluoninae, except my paper on some new species of the genus *Helluosoma* CASTELNAU and on a new genus (BAEHR 2005), although some genera urgently need a revision. Although Sloane's paper was extraordinarily well done for his time, identification of Australian Helluonini is still difficult, because for most genera neither habitus figures nor any survey of the genitalic morphology are available. An updated key to the genera is included in the forthcoming 2<sup>nd</sup> part of the book on the Australian beetles, edited by CSIRO, which is scheduled for early 2018 (BAEHR & WILL, in print).

Material of many Australian Helluonine genera and species generally still is rare. Thus, the descriptions of two species are based on single specimens.

### Methods

For dissecting the genitalia, the specimens were relaxed overnight in a jar under moist atmosphere, then cleaned for a short while in 10% KOH. The habitus photographs were obtained by a digital camera using ProgRes CapturePro 2.6 and AutoMontage and subsequently were worked with Corel Photo Paint 14.



**Figs 1.** Habitus. Body lengths in brackets. *Helluosoma crenulicolle* sp. n. (16.4 mm).

Measurements were taken using a stereo microscope with an ocular micrometer. Body length was measured from apex of labrum to apex of elytra, length of pronotum along midline, length of elytra in a straight line from the most produced part of the humerus to the most produced part of the apex.

The holotypes of the new species are stored in the Australian National Insect Collection, Canberra, some paratypes of *H. crenulipenne* are shared with that collection, the Queensland Museum, Brisbane, and the working collection of the author at Zoologische Staatssammlung München.

#### Abbreviations

ANIC	- Australian National Insect Collection, Canberra
CBM	- working collection M. Baehr in Zoologische Staatssammlung, München
CYP	- Cape York Peninsula
KID	- Kimberley Division
NSW	- New South Wales
NT	- Northern Territory
QMB	- Queensland Museum, Brisbane
QLD	- Queensland
WA	- Western Australia

ce. = central eastern	n. = northern
ne. = north-eastern	nw. = north-western
> = larger or longer than	< = smaller or shorter than.



**Figs 2-3.** Habitus. Body lengths in brackets.  
**2** (left): *H. kalumburu* sp. n. (11.6 mm). **3** (right): *H. bisetosum* sp. n. (10.9 mm).

### Genus *Helluosoma* CASTELNAU, 1867

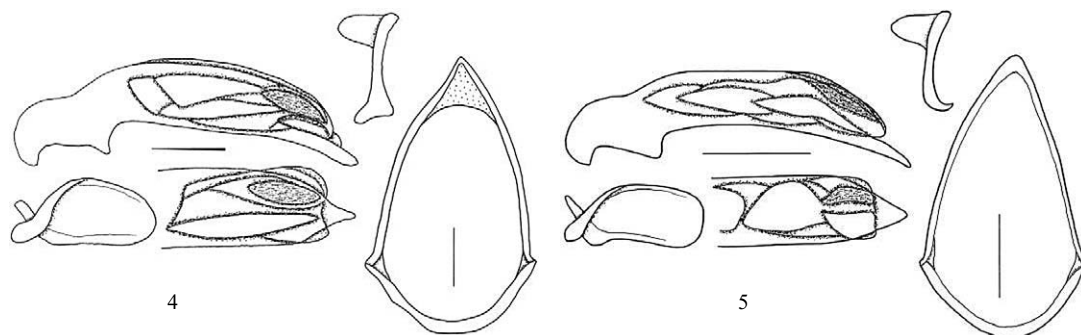
CASTELNAU, 1867: 21. – SLOANE 1914: 586; MOORE et al. 1987: 316; BAEHR 2005: 22.

The genus *Helluosoma* CASTELNAU is characterized by presence of large postorbital prominences, conspicuously constricted base of prothorax, more or less distinctly crenulate lateral margin of pronotum, anteriorly rounded and usually 4-setose labrum, presence of a mental tooth, narrow, elongate, apically convex glossa, and black or piceous, not metallic colour.

#### *Helluosoma crenulicolle* sp. n. (Figs 1, 4, 6, 8)

**Types.** Holotype: ♂, “12.17S 133.20E Cooper Creek, N.T. 11km S.by W. of Nimbuwah Rock, 3.vi.73, Feehan & Upton / *Helluosoma atrum* Cast. Det. M.Baehr 2011” (ANIC).

Paratypes: 1 ♀, same data (ANIC); 1 ♂, “12.52S, 132.50E Koongarra, N.T. 6-10.iii.53, M. S. Upton / *Helluosoma atrum* Cast. Det. M.Baehr 2011” (ANIC); 1 ♂, 1 ♀, “Tindal, N.T. 14.31S 132.22E 1-20 Dec. 1967 light trap V.J.M. Vestjens / *Helluosoma atrum* Cast. Det. B. P. Moore’69” (ANIC); 1 ♂, 1 ♀, m”15.58S 129.02E NT 25.8 km S. of Jarnam Junction, Hazard Ck, 1-11. Jun. 2001 A. Calder & R Oberprieler / flight intercept trap / *Helluosoma atrum* Cast. Det. M.Baehr 2011” (ANIC); 1 ♀, “16.08S 136.06E 22km WSW of Borroloola, NT. 2 Nov. 1975 M. S. Upton / *Helluosoma atrum* Cast. Det. M.Baehr 2011” (ANIC); 2 ♀♀, “AUSTR. NT, 70km SW of Mataranka, 22.12.08 15°19’S 132°50’E 190m, Sv. Bílý leg.” (CBM); 2 ♂♂, “AUSTRALIA NT. 25km S of Katherine, 168 m, 14°31’ S, 132°25’ E, 16.-17.1.2009, Sv. Bílý leg.” (CBM); 2 ♂♂, “Australia, QLD90 Musgrave Roadh. 140 km NW Laura 18.11.2010, L.Hovorka” (CBM, QMB).



**Figs 4, 5.** Male genitalia: aedeagus, left side and apical half from below, left and right parameres, genital ring. Scales: 0.5 mm. **4.** *Helluosoma crenulicolle* sp. n. **5.** *H. kalumburu* sp. n.

**Etymology.** The name refers to the markedly crenulate lateral margin of the pronotum.

**Diagnosis.** Pale brown to dark piceous species of medium to rather large size (< 12 mm); head with deep transverse sulcus across neck; with stout though relatively elongate antenna and fairly stout palpi; labrum quadrisetose; pronotum comparatively wide, with rather narrow basis and markedly crenulate margin; elytra with convex intervals of similar size and irregularly triseriate punctation; pilosity of surface moderately elongate, on elytra slightly declined; protibia with elongate external tooth; aedeagus with symmetric, triangular apex; gonocoxite 1 moderately curved. Distinguished from the most similar *H. hangayi* BAEHR by longer and narrower elytra, less convex, rather triseriately punctate intervals, slightly longer antenna, and different shape of the apex of the aedeagus.

#### Description.

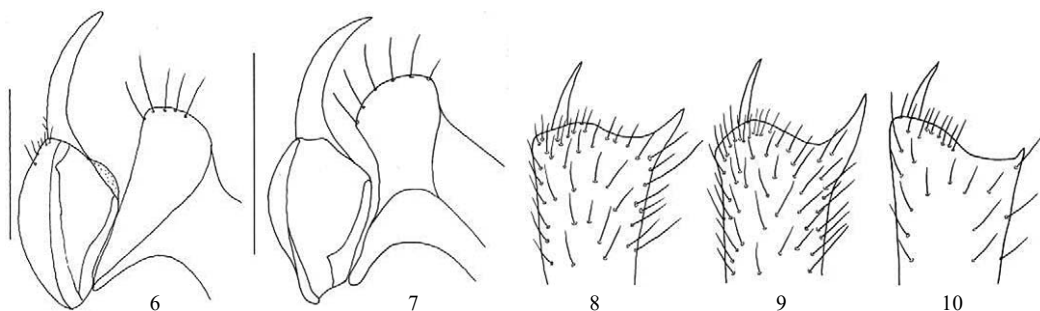
Measurements and ratios: Length: 12.9-16.4 mm; width: 4.05-5.2 mm. Ratios. Width/length of pronotum: 1.15-1.24; widest diameter/base of pronotum: 1.80-1.91; length/width of elytra: 1.84-1.88; length of antenna/length of head and pronotum from base of antenna: 1.21-1.31.

Colour (Fig. 1): Pale brown to dark piceous, in paler specimens head and sometimes also pronotum commonly slightly darker than elytra, Clypeus, palpi, antenna, and legs rufous to pale brown. Pilosity yellow.

Head (Fig. 1). Of average size, postocular prominences conspicuous, slightly more than half of length of eye, almost quadrangular, but posterior-lateral angle rounded. Eye convex, laterad distinctly surpassing the orbit. A single supraorbital seta present that is located at about middle of eye. Middle of frons raised, with a deep, slightly curved transverse sulcus between frons and neck. Clypeus straight to gently concave at apex. Labrum elongate, with evenly convex apex, quadrisetose and with some hairs on the margin. Mandibles rather elongate, regularly curved. Palpi of average size, not decidedly slender, sparsely setose, apical palpomeres of both palpi slightly widened towards apex. Mentum with unidentate, at apex slightly truncate tooth, with two elongate setae. Antenna rather stout but elongate, far 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. Dorsal surface of head with several deep, irregular grooves along frontal sulci, with very coarse punctation and fairly elongate, erect to slightly declined setae. However, frons in middle and neck impunctate. Microreticulation absent, surface very glossy.

Pronotum (Fig. 1): Wide, remarkably cordate, with elongate, relatively narrow base. Apex almost straight, apical angles barely produced, lateral margin in anterior two thirds very convex, evenly concave in front of the rectangular though slightly obtuse basal angles. Surface depressed with little raised longitudinal, discal ridges and slightly raised median ridge. median line distinct. Lateral margin in apical three quarters conspicuously crenulate, about 11-12 crenules present. Surface with coarse punctures and dense, rather short, erect or declined setae. Lateral margin with a single elongate marginal seta in front of middle and with a fringe of rather short setae. Microreticulation absent, surface very glossy.

Elytra (Fig. 1): Elongate, barely widened towards apex, depressed. Humerus advanced though rounded. Apex evenly rounded, bordered. Striae well impressed, distinctly punctate. Intervals of equal



**Figs 6, 7.** Female gonocoxites 1 and 2. Scales 0.5 mm. **6.** *Helluosoma crenulicolle* sp. n. **7.** *H. bisetosum* sp. n.  
**Figs 8-10.** Apex of right protibia. **8.** *Helluosoma crenulicolle* sp. n. **9.** *H. kalumburu* sp. n. **10.** *H. bisetosum* sp. n.

shape and width, rather depressed, with coarse, irregularly triseriate punctation and moderately 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. Surface without microreticulation, very glossy. Metathoracic wings fully developed.

Lower surface: Rather densely and coarsely punctate, with fairly elongate, erect setosity. Terminal sternum in both sexes apparently bisetose, setae far removed from margin. Metepisternum very narrow and elongate, c. 5 x as long as wide at anterior margin.

Legs (Figs 1, 8): Comparatively slender. Profemur with distinct protuberance at basal third. External angle of protibia prolonged to an acute, comparatively elongate tooth that is directed antero-laterally. Three basal tarsomeres of male protarsus with sparse pilosity.

Male genitalia (Fig. 4): Genital ring wide, triangular, almost asymmetric, laterally convex, with evenly convex basal plate and narrow, acute apex. Aedeagus rather stout, straight, with short, straight, symmetrically triangular, but laterally slightly concave, at tip acute apex. Lower surface almost straight. Orificium very elongate, symmetric, in middle of upper surface. Internal sac with several little sclerotized folds and one denticulate fold in the apical part on the left side. Parameres of very different size and shape, left large and elongate, with widely rounded apex, right with short, convex apex and elongate, straight shaft.

Female genitalia (Fig. 6): Gonocoxite 1 wide, the lateral margin much more sclerotized than the rest. Base with few very short setae on the median part of the apex. Gonocoxite 2 narrow and elongate, curved, with rather acute apex, without any setae, except a few very short ones on the medio-basal surface. Lateral plate with five elongate nematiform setae at apical rim.

Variation: Considerable variation noted in body size and in colour, Otherwise little variation noted.

**Distribution.** Northern parts of QLD and NT.

**Collecting circumstances.** No or little records on labels, but according to personal information from collectors sampled from under bark of trees and at light.

**Relationships.** According to the depth of the neck impression, shape of pronotum, shape and structure of the male genitalia, this species is probably most closely related to *H. hangayi* BAEHR.

### *Helluosoma kalumburu* sp. n. (Figs 2, 5, 9)

**Type.** Holotype: ♀, "14.17S 126.39E Kalumburu, W.A. 17 June 1985, L.A.Crawen" (ANIC).

**Etymology.** The name refers to the type locality, Kalumburu in extreme northern WA.

**Diagnosis.** Pale brown species of comparatively small size (< 12 mm); head with deep transverse sulcus across neck; with delicate, relatively elongate antenna, rather slender palpi; labrum quadrisetose; pronotum comparatively wide, with rather narrow basis and distinctly crenulate margin; elytra with convex intervals of similar size and irregularly biseriate punctation; pilosity of surface elongate, on elytra slightly declined; aedeagus with symmetric, triangular apex, female genitalia unknown. Distinguished from the most similar *H. bouchardi* BAEHR by lesser body size, narrower pronotum, and longer antenna.

## Description

Measurements and ratios: Length: 11.6 mm; width: 3.6 mm. Ratios. Width/length of pronotum: 1.13; widest diameter/base of pronotum: 1.83; length/width of elytra: 1.88; length of antenna/length of head and pronotum from base of antenna: 1.18.

Colour (Fig. 2): Pale brown, head considerably darker, Clypeus, palpi, antenna, and legs rufous to pale brown. Pilosity yellow.

Head (Fig. 2): Of average size, postocular prominences conspicuous, slightly more than half of length of eye, almost quadrangular, but posterior-lateral angle rounded. Eye convex, laterad distinctly surpassing the orbit. A single supraorbital seta present that is located at about middle of eye. Middle of frons raised, with a deep, slightly curved transverse sulcus between frons and neck. Clypeus almost straight. Labrum elongate, with evenly convex apex, quadrisetose and with some hairs on margin. Mandibles rather elongate, regularly curved. Palpi slender and elongate, sparsely setose, apical palpomeres of both palpi slightly widened towards apex. Mentum with unidentate, at apex slightly truncate tooth, with two elongate setae. Antenna rather stout but elongate, far 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. Dorsal surface of head with several deep, irregular grooves along frontal sulci, with very coarse punctation and fairly elongate, erect to slightly declined setae. However, frons in middle and neck impunctate. Microreticulation absent, surface very glossy.

Pronotum (Fig. 2): Wide, cordate, with elongate, relatively narrow base. Apex almost straight, apical angles barely produced, lateral margin in anterior two thirds very convex, evenly concave in front of the rectangular though slightly obtuse basal angles. Surface depressed with little raised longitudinal, discal ridges and slightly raised median ridge. median line distinct. Lateral margin in apical three quarters distinctly crenulate, about 10 crenules present. Surface with coarse punctures and dense, rather short, erect or declined setae. Lateral margin with a single elongate marginal seta in front of middle and with a fringe of rather short setae. Microreticulation absent, surface very glossy.

Elytra (Fig. 2): Elongate, barely widened towards apex, depressed. Humerus advanced though rounded. Apex evenly rounded, bordered. Striae well impressed, distinctly punctate. Intervals of equal shape and width, rather depressed, with coarse, irregularly biseriate punctation and moderately elongate setae that are slightly inclined backwards. 3<sup>rd</sup> stria probably with erect setae, but number unknown because they are not recognizable within the dense setosity. Surface without microreticulation, very glossy. Metathoracic wings fully developed.

Lower surface: Very densely and coarsely punctate, with fairly elongate, erect setosity. Female terminal sternum bisetose, setae far removed from margin. Metepisternum very elongate, c. 5 x as long as wide at anterior margin.

Legs (Figs 2, 9): Comparatively slender. Profemur with distinct protuberance at basal third. External angle of protibia prolonged to an acute, elongate tooth that is directed antero-laterad. Three basal tarsomeres of male protarsus with sparse pilosity.

Male genitalia (Fig. 5): Genital ring wide, triangular, almost asymmetric, laterally almost straight, with evenly convex basal plate and narrow, slightly obtuse apex. Aedeagus moderately stout, straight, with short, straight, symmetrically triangular, at tip obtuse apex. Lower surface almost straight. Orificium very elongate, symmetric, in middle of upper surface. Internal sac with several little sclerotized folds. Parameres of very different size and shape, left large and elongate, with almost transverse apex, right with short, convex apex and elongate, straight shaft.

Female genitalia: Unknown.

Variation: Unknown.

**Distribution.** Extreme northern part of KID, n.WA. Known only from type locality.

**Collecting circumstances.** Not recorded.

**Relationships.** According to colour, body shape, depth of the neck impression, shape of pronotum, shape and structure of elytra, this species is probably most closely related to *H. bouchardi* BAHR.

## *Helluosoma bisetosum* sp. n. (Figs 3, 7, 10)

**Type.** Holotype: ♀, "Ourimbah N. S. Wales J. Armstrong" (ANIC).

**Etymology.** The name refers to the presence of only two setae on the labrum.

**Diagnosis.** Pale brown species of comparatively small size (< 11 mm); head with rather deep transverse sulcus across neck; postocular prominences rounded; head with short antenna and remarkably stout palpi; labrum anteriorly rounded, bisetose; pronotum comparatively narrow, with rather wide basis and barely crenulate margin; elytra with convex intervals of similar size and irregularly uni- to biseriate punctuation; pilosity of surface elongate, slightly declined; aedeagus unknown, gonocoxite 2 markedly curved. Distinguished from all other species by the bisetose labrum.

### Description.

Measurements and ratios: Length: 10.9 mm; width: 3.3 mm. Ratios. Width/length of pronotum: 0.99; widest diameter/base of pronotum: 1.69; length/width of elytra: 1.88; length of antenna/length of head and pronotum from base of antenna: 0.97.

Colour (Fig. 3): Reddish-brown, head and pronotum slightly darker than elytra, Clypeus, palpi, antenna, and legs rufous. Pilosity yellow.

Head (Fig. 3): Of average size, postocular prominences conspicuous but rounded, about two thirds of length of eye. Eye convex, laterad well surpassing the orbit. A single very elongate supraorbital seta present, situated near posterior margin of eye. Middle of frons raised, with a moderately deep, slightly curved transverse sulcus between frons and neck. Clypeus very gently concave at apex. Labrum elongate, with evenly convex apex, bisetose and with some hairs on margin, the elongate setae removed from margin and situated rather laterally. Mandibles of average size, regularly curved. Palpi short and compact, sparsely setose, apical palpomeres of both palpi slightly widened towards apex. Mentum with unidentate, at apex slightly truncate tooth, with two elongate setae. Antenna short and stout, not 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 remarkably smooth, frontal sulci straight, their margins with several very coarse punctures. Middle of frons almost impunctate, neck with denser punctures. Pilosity sparse, rather elongate, slightly inclined anteriorad. Microreticulation absent, surface very glossy.

Pronotum (Fig. 3): Comparatively narrow, cordate, with elongate, relatively wide base. Apex almost straight, apical angles barely produced, lateral margin in anterior two thirds convex, evenly concave in front of the rectangular though slightly obtuse basal angles. Margin in basal part even very slightly directed laterad. Surface depressed with little raised and inconspicuous longitudinal, discal ridges, without a distinct, median ridge. median line distinct. Lateral margin barely crenulate. Surface with sparse, coarse punctures and moderately elongate, slightly declined setae. Lateral margin with a single elongate marginal seta in front of middle and with a sparse fringe of shorter, mostly erect setae. Microreticulation absent, surface very glossy.

Elytra (Fig. 3): Elongate, barely widened towards apex, depressed. Humerus advanced though rounded. Apex evenly rounded, bordered. Striae well impressed, barely punctate. Intervals of equal shape and width, moderately convex, with coarse, irregularly biseriate punctuation and moderately elongate setae that are inclined posteriorad. Odd intervals even uniseriate. 3<sup>rd</sup> stria with at least two, perhaps more erect setae, though the anterior ones are barely recognizable within the setosity. Surface without microreticulation, very glossy. Metathoracic wings fully developed.

Lower surface: Rather densely and coarsely punctate, with fairly elongate, erect setosity. Terminal sternum in the female apparently bisetose, setae far removed from margin. Metepisternum very narrow and elongate, c. 5 x as long as wide at anterior margin.

Legs (Figs 3, 10): Moderately slender. Profemur with distinct protuberance at basal third. Protibia at the external angle with a tiny, acute tooth. Squamosity of male protarsus unknown.

Male genitalia: Unknown.

Female genitalia (Fig. 7): Gonocoxite 1 wide, the median and lateral margins much more sclerotized than the rest. Base without any setae on median surface. Gonocoxite 2 narrow and elongate, remarkably curved, with very acute apex, without any setae. Lateral plate with 5 or 6 elongate nematiform setae at apical rim.

Variation: Unknown.

**Distribution.** Near-coastal, central eastern NSW. Known only from type locality.

**Collecting circumstances.** Not recorded.

**Relationships.** Uncertain; in view of the bisetose labrum and the barely crenulate margins of the pronotum rather remotely related to all other species of *Helluosoma*. Actually, it may even represent a separate supraspecific taxon within or outside of *Helluosoma*. Any decision, however, should be postponed, until the male genitalia of this species are available.

## Appendix.

Measurements and ratios of the species of *Helluosoma* CASTELNAU

N: number of specimens measured; L: length in mm; W: width of elytra in mm; w/l pr: ratio width/length of pronotum; dia/b pr: ratio widest diameter/width of base of pronotum; l/w el: ratio length/width of elytra; l ant/h: ratio length of antenna/length of head and pronotum from base of antenna.

	N	L	W	w/l pr	dia/b pr	l/w el	l ant/h
<i>atrum</i>	6	13.0-14.8	4.2-4.6	1.09-1.11	1.74-1.78	1.82-1.85	1.15-1.27
<i>bisetosum</i>	1	10.9	3.3	0.99	1.69	1.88	0.97
<i>bouchardi</i>	1	12.7	4.0	1.20	1.89	1.93	0.90
<i>crenulicolle</i>	6	12.9-16.4	4.05-5.2	1.15-1.24	1.80-1.91	1.84-1.88	1.21-1.31
<i>hangayi</i>	1	13.9	4.5	1.15	1.89	1.78	1.20
<i>kalumburu</i>	1	11.6	3.6	1.13	1.83	1.88	1.17
<i>longicolle</i>	2	15.1-18.2	4.8-5.8	0.96-0.98	1.69-1.72	1.78-1.79	1.20-1.21

Key to the species of the genus *Helluosoma* CASTELNAU

(Figures from BAEHR (2005) are introduced as **Ba** fig.)

1. Labrum bisetose; body size small, length 10.9 mm; head in middle widely impunctate; lateral margins of pronotum barely crenulate (Fig. 1); aedeagus unknown. ce.NSW ..... *H. bisetosum* sp. n.
- Labrum quadrisetose; body size various, but always larger (>11.5 mm); when comparatively small, pronotum decidedly wider and lateral margins conspicuously crenulate; head in middle less widely impunctate; aedeagus variously shaped, or unknown. ce. + n.QLD, n.NT, n.WA ..... 2.
2. Prothorax slightly longer than wide, with comparatively wide base; elytra perceptibly widened in apical third, intervals with three irregular rows of punctures, punctures tend to combine to irregular transverse sulci, therefore, punctuation somewhat coriaceous. n.WA: KID ..... *H. longicolle* MACLEAY
- Prothorax considerably wider than long, with comparatively narrow base; elytra usually barely widened in apical third, intervals with two or three irregular rows of punctures, punctures well separated, therefore punctuation not coriaceous ..... 3.
3. Elytra longer and apically barely widened, ratio length/width >1.82; intervals of elytra more depressed, of equal width and shape, all with similar biseriate or triseriate punctuation; pilosity of surface elongate, on elytra little declined; aedeagus always with symmetric apex (Figs 4, 5, **Ba** Fig. 1), or unknown. n.QLD, n.NT, n.WA ..... 4.
- Elytra shorter and apically more distinctly widened, ratio length/width 1.78; 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, asymmetrically triangular and at tip obtusely rounded apex (**Ba** Fig. 2). ce.QLD ..... *H. hangayi* BAEHR
4. Without distinct transverse sulcus across "neck"; pronotum narrower (ratio width/length 1.09-1.11), with comparatively wide base (ratio diameter/base 1.74-1.78); lateral margin inconspicuously crenulate; pilosity short, in particular on head and at lateral margin of pronotum; apex of aedeagus regularly triangular, without lateral excisions (**Ba** Fig. 1). e.QLD, n.NT ..... *H. atrum* CASTELNAU



- With distinct transverse sulcus across “neck”; pronotum slightly wider (ratio width/length > 1.13), with comparatively wider base (ratio diameter/base >1.80); lateral margin conspicuously crenulate (Figs 1, 2); apex of aedeagus triangular with or without lateral excisions (Figs 4, 5), or unknown ..... 5.
  
- 5. Body size small, length 11.6 mm; pronotum comparatively narrow, ratio width/length 1.13 (Fig. 2); apex of aedeagus regularly triangular, without lateral excisions (Fig. 5). n.WA: n.KID .....  
 ..... *H. kalumburu* sp. n.
  
- Body size larger, length > 12.7 mm, usually larger; pronotum slightly wider, ratio width/length > 1.15; apex of aedeagus triangular but on both sides laterally excised (Fig. 4), or unknown. n.QLD, n.NT ....  
 ..... 6.
  
- 6. Labial palpi and antenna delicate, antenna shorter than head and pronotum from base of antenna; aedeagus unknown. nw.NT ..... *H. bouchardi* BAEHR
  
- Labial palpi and antenna stouter, antenna much longer than head and pronotum from base of antenna (Fig. 1); apex of aedeagus triangular but on both sides laterally excised (Fig. 4). ne.QLD, n.NT .....  
 ..... *H. crenulicollis* sp. n.

### Acknowledgements

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