

ELMIDAE:
II. Description of *Orientelmis* gen.n.
and new synonymy in *Cleptelmis* SANDERSON
(Coleoptera)

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Abstract

Orientelmis gen.n. and *O. sinensis* sp.n. (Coleoptera: Elmidae) are newly described from China. *Cleptelmis parvula* NOMURA & BABA is transferred to *Orientelmis*. *Cleptelmis ornata* (SCHAEFFER) is synonymized under *C. addenda* (FALL). A key to the species of *Orientelmis* is provided.

Key words: Coleoptera, Elmidae, *Orientelmis*, *Cleptelmis*, Japan, USA, China, new genus, new species.

Introduction

The genus *Cleptelmis* was described by SANDERSON (1954). It included two western Nearctic species, *Cleptelmis addenda* (FALL, 1907) and *C. ornata* (SCHAEFFER, 1911).

NOMURA & BABA (1961) described *Cleptelmis parvula* from Japan. However, their description, figures and discussion clearly indicate that their species differs markedly from *Cleptelmis*, and in fact represents an undescribed genus. An additional species of this same genus was collected in China recently.

Acronyms & CWBS localities:

CASS	Chinese Academy of Sciences, Institute of Applied Ecology, Shenyang
CWBS	China Water Beetle Survey
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA
NMW	Naturhistorisches Museum Wien, Austria
NSMT	National Science Museum, Tokyo, Japan
NWU	Nagoya Women's University, Japan
SIW	Smithsonian Institution, Washington DC, USA
WDS	William D. Shepard Collection, Sacramento, California, USA

CWBS loc. 21: **Hunan Province**; Xiangxi Prefecture; Dayong County; Zhangjiajie Forest National Park, Suoxiyü Nature Reserve, Wulingyüan section (ca. 30 km N Dayong City); small, right side tributary of Pipa Xi, short steep stretch with small waterfalls and big boulders, accumulations of decaying plant material, rocks partly covered with moss, shaded, ca. 650 m a.s.l.; 29.X.1993; leg. Schönmann, Schillhammer & Ji.

***Orientelmis* gen.n.**

Type species: *Orientelmis sinensis* sp.n.

DESCRIPTION: Body small (length of pronotum + elytra 1.5 mm), oval, strongly convex, widest at middle (maximum elytral width 1.0 - 1.1 mm); outline slightly indented where elytra

and pronotum meet (Figs. 1, 5). Plastron extensive; located on genae, hypomera, epimera, lateral parts of pro-, meso- and metasternum, posterior face of coxae, anterior face of profemora, posterior face of meso- and metafemora and abdominal sterna except for a medial bare area.

Head strongly retracted into prothorax. Anterior margin of labrum emarginate medially (Fig. 7). Maxillary and labial palpi 3-segmented. Labium densely setose anteriorly (Fig. 8). Clypeus and labrum separate, surface of both faintly rugose, fine setae and punctures sparsely distributed; fronto-clypeal suture distinct; frons gently convex. Antennae with 11 antennomeres; antennomeres 1 and 2 longer than 3 - 10 and swollen; antennomere 11 twice length of 10, cultriform, armed with a subapical ring of stout setae and one apical stout seta; inserted near ocular margin. Antennal ridges slightly produced above antenna and near eye. Eyes small, not prominent; fine raised ocular ridge.

Pronotum wider than long (Figs. 1, 5); length 0.40 - 0.46 mm; basal margin sinuate at scutellum; lateral rims evenly arcuate to apex, finely margined; anterior angles slightly produced; anterior rim finely margined (twice as wide as lateral margin). Disc evenly and strongly convex, shiny, evenly and sparsely punctate; punctures setiferous, fine, shallow and separated by more than own width; fine sublateral carinae in basal half; two rounded antescutellar depressions present.

Scutellum elongately triangular, shiny, devoid of punctures and setae (Figs. 1, 5).

Elytra shiny, strongly convex, widest at basal one-third thence tapering to apex; slightly constricted at apical 0.25; humeri absent; length 1.09 - 1.19 mm. Lateral margins margined and slightly explanate in middle one-half. Base depressed to level of pronotum. Nine rows of punctures beginning after basal depression; intervals slightly raised, surface slightly rough, with sparse fine setae; punctures distinct to apex; some rows merging before apex. Epipleura broad in basal half, tapering to a point at the base of the 5th abdominal sternite. Hind wings absent.

Prosternum (Fig. 11) margined anteriorly. Disc shiny, flat, and rectangular; sparsely and finely punctate and setose; parallel lateral carinae; posterior margin truncate.

Mesosternum short and strongly transverse. Lateral carinae continuous with pronotal carinae. Disc shiny, with few large punctures.

Metasternum long, broad, gently convex. Lateral sulci diverging posteriorly, slightly sinuate. Disc shiny with fine, widely spaced punctures; narrow medial sulcus in apical half; row of coarse punctures parallel to apical margin.

Pro- and mesocoxae globular, not prominent; metacoxae transverse (Fig. 6). Tibiae twice as broad apically as basally; dense medial fringe of setae; some fine spines in medial row and at apex. Tarsi with five tarsomeres; 1 - 4 subequal in length; 5 equal in length to combined length of 2 - 4, swollen apically, with long apical ventral tooth; each tarsomere with 3 or more stout setae ventrally. Claws simple, fine, gently arcuate.

Abdomen with five visible sternites. Sternite 1 with medial area margined by two carinae; carinae divergent in basal half, parallel in apical half; disc between carinae with numerous coarse punctures. Sternites 2 - 4 medially 0.5 as long as sternite 1; medial areas bare with scattered punctures that become finer apically. Sternite 5 subequal in length to sternite 1; apex evenly rounded in both sexes.

Aedeagus short and broad (Figs. 2, 3); corona present; parameres shorter than penis, connected basally on dorsal and ventral sides, ventral sides with medially projecting hooks; penis projecting beyond parameres, basal apophyses present; fibula present or absent; phallobasis shorter than parameres, complete ventrally, open dorsally.

Ovipositor (Fig. 4) elongate; terminal segment long and slender, apex with several short setae; preterminal segment 3 times longer than terminal segment and slender, apicolaterally with 4 stout curved setae; distal sclerite approximately 1.5 times as long as basal sclerite; basal segment a little longer than preterminal segment.

Differential diagnosis: This genus is distinguished from *Cleptelmis* by the following characters: body oval, sides arcuate; pronotal sublateral carinae fine; pronotal carinae not bifurcate basally; scutellum very elongate; humeri absent; elytral margins only slightly explanate; hypomera without carinae; prosternal carinae parallel; prosternal process truncate and not received in mesosternal groove; no mesosternal carinae; parameres with elongate ventral hooks.

Distribution: Known from SE China and Japan. The genus is widely distributed in SE China (Anhui, Fujian, Guangxi, Hunan, Jiangxi). Numerous specimens were recently collected by the CWBS. However, most of these specimens have not been worked up yet.

Etymology: Orient- (Latin, eastern) refers to the hemisphere of origin and -elmis refers to the type genus of the family. The gender is feminine.

Orientelmis sinensis sp.n.

TYPE LOCALITY: Ciping, Jinggang Shan, western Jiangxi, SE China.

TYPE MATERIAL: Holotype ♂ (NMW): "CHINA Jiangxi W \ JINGGANG SHAN \ Ciping env. \ 2-14.VI.1994". Paratypes (CASS, NMW, NSMT, NWU, SIW, WDS): 13 exs. from the same locality and date as the holotype; 1 ♂, 1 ♀ (NMW): CWBS loc. 21; 1 ex. (NWU): Guangxi, Dujuan Yuan, 1200 m, Mt. Miao'er Shan, 24.V.1996, leg. M. Satô; 43 exs. (NWU, NSMT): Guangxi, Tieshan Ping, 2000 m, Mt. Miao'er Shan, Guangxi, 22.-27.V.1996, leg. M. Satô.

DIAGNOSIS: General color black; antennae, tibiae, tarsi and basal palpal segments testaceous; mandibles black basally, testaceous apically; femora, coxae and abdominal sternites brown. Habitus as in Fig. 1.

Aedeagus (Fig. 2) with ventral paramere hooks elongate, converging anteriorly; fibula absent.

Ovipositor as figured (Fig. 4).

Distribution: China (Guangxi, Hunan and Jiangxi).

Etymology: sinensis (Latin: Chinese), referring to the country of origin.

Orientelmis parvula (NOMURA & BABA, 1961) comb.n.

Cleptelmis parvula NOMURA & BABA 1961: 4 - 5.

Type locality: Japan (Honshu).

Material examined: JAPAN: Kurokawa [= small town, ca. 10 km N Shibata-shi, ca. 60 km W Yamagata-shi], "N-Echigo" [= Niigata Prefecture], 12.IX.1960, coll. K. Baba (paratype, WDS).

Differential diagnosis: Distinguished from *Orientelmis sinensis* by the bimaculate elytra and the ventral paramere hooks being short and broad, and by the presence of an aedeagal fibula (Fig. 3).

Distribution: So far known only from the type locality (M. Satô, pers. comm.).

Cleptelmis addenda (FALL, 1907)

Elmis addendus FALL 1907: 226

Helmis ornatus SCHAEFFER 1911: 120 syn.n.

Type material examined: *Cleptelmis addenda*: Holotype ♀ (MCZ) "Pecos \ N. M. \ 6/03", "addendus \ TYPE", red label "TYPE 24455", "H. C. FALL \ COLLECTION", "Pecos \ N. M. \ 6/03", "H. C. FALL \ COLLECTION". *Cleptelmis ornatus*: Holotype ♂ (SIW) "TYPE", "Mont." [handwritten in ink], red label "Helmis \ ornatus. Schaeff. \ 1911.-p.120", "HOLO [handwritten] TYPE USNM", "43105." [handwritten], "Cleptelmis \ ornata \ 220 " [handwritten].

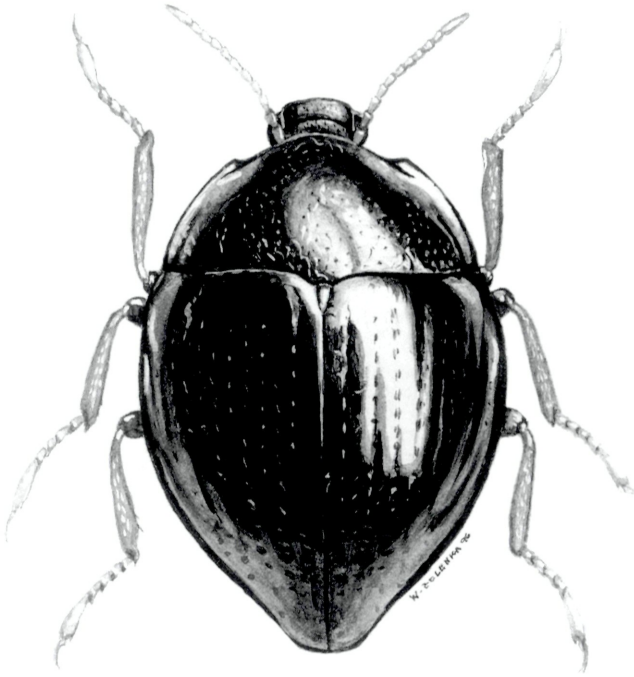


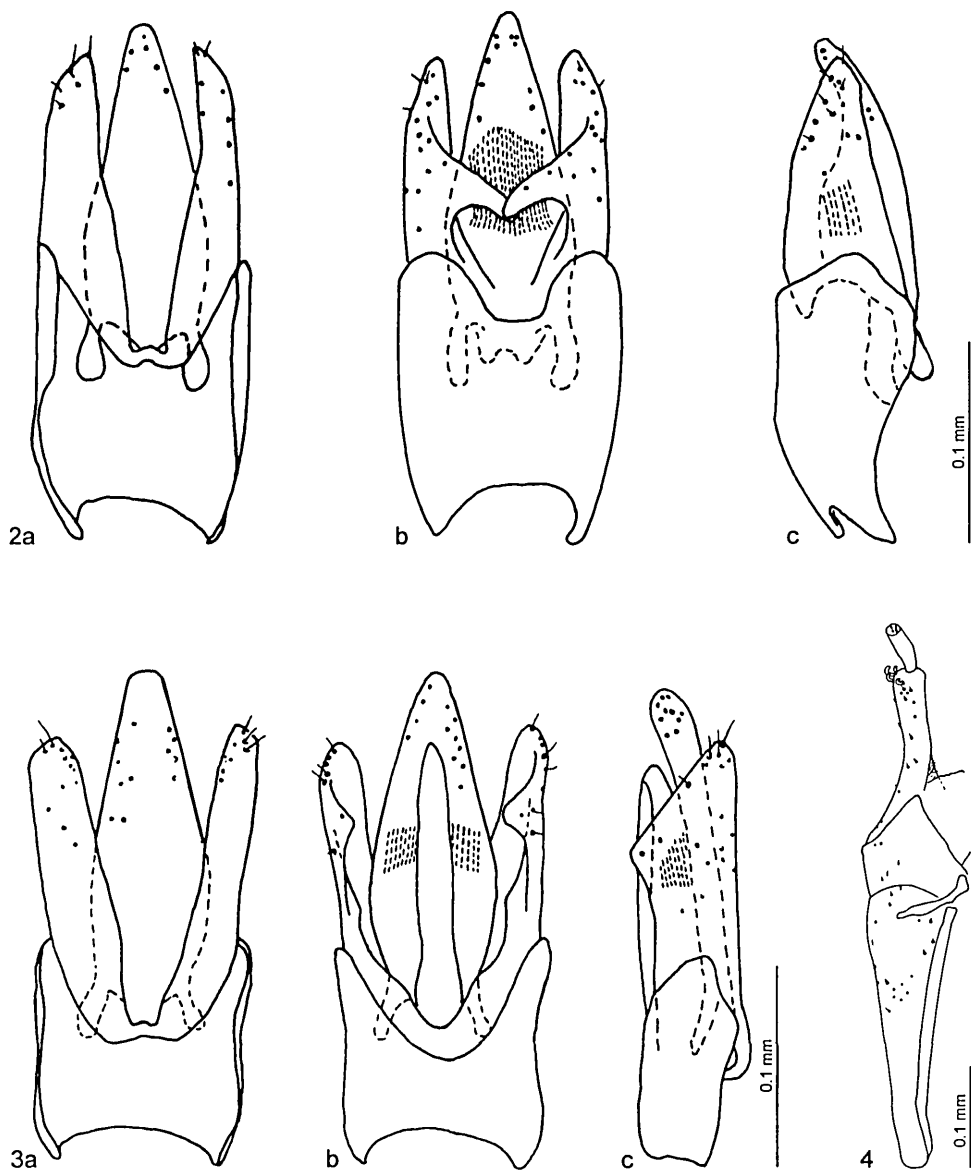
Fig 1: *Orientelmis sinensis*, habitus.

SYNONYMY: Adults of *C. ornata* and *C. addenda* have traditionally been separated on the basis of different elytral color patterns. However, collection of a large enough sample from any one population almost always includes both color morphs. The short series of 19 specimens borrowed from MCZ varies from strongly quadrimaculate to almost immaculate. It appears that the two color morphs are temperature related. The almost-all-black pattern is associated with colder waters, and the strongly quadrimaculate pattern is associated with warmer waters. Intergrades are commonly encountered. Additionally, some specimens may have spots that are faintly visible while the specimen is in alcohol but invisible when the specimen is dry. Thus the only character used to separate the two species is ambiguous. Examination of genitalia from beetles with the two different color patterns has shown no differences in form. I now synonymize the two species with *C. ornata* becoming the junior synonym.

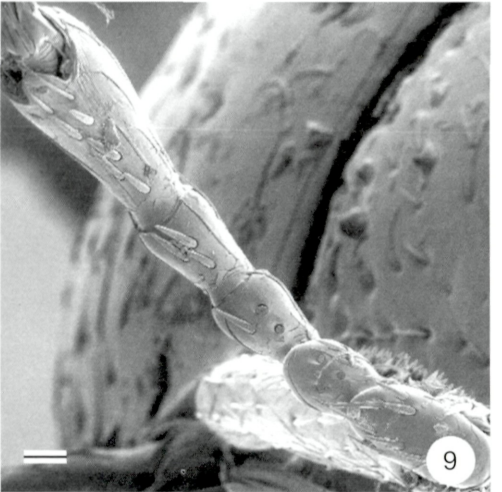
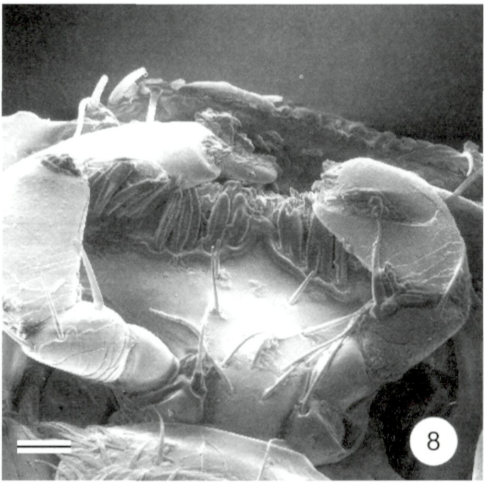
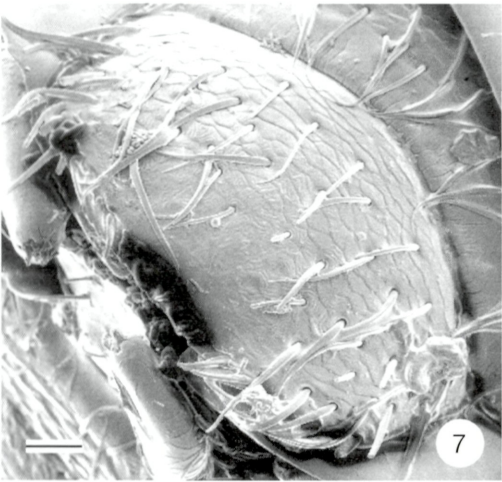
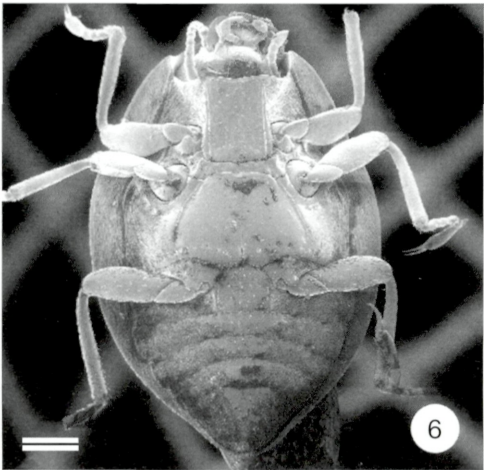
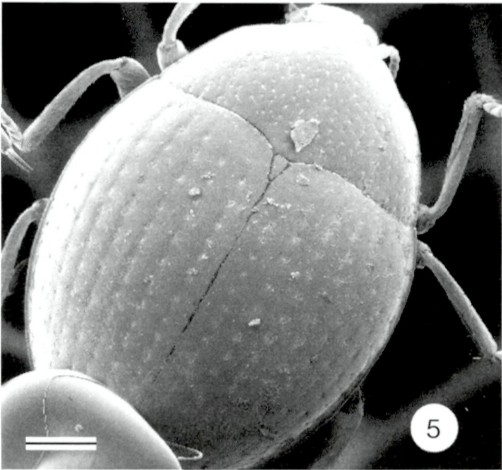
DISCUSSION: For a long time it has been recognized that some *Cleptelmis* larvae have 6 abdominal pleurites while others have 7, as mentioned by SANDERSON (1954). It was thought that the two morphs represented the two different species although no one reared them to verify that. It now appears that the two larval morphs may just represent the two sexes of the one species.

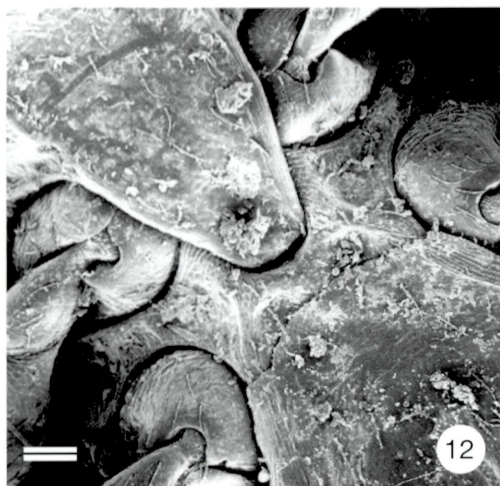
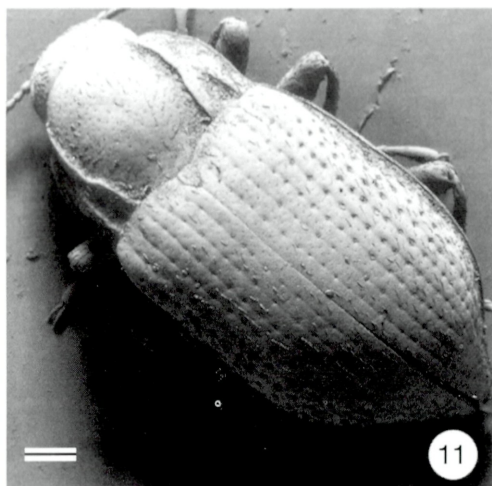
Acknowledgements

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Figs. 2 - 4: *Orientelmis*, 2) *O. sinensis*, aedeagus, a) dorsal view, b), ventral view, c), right lateral view; 3 - 4) *O. parvula*, 3) aedeagus, a), dorsal view, b) ventral view, c) right lateral view; 4) ovipositor.





Figs. 11 - 12: *Cleptelmis addenda*, SEM photographs, 11) habitus, dorsal view (scale bar = 0.2 mm), 12) thorax, ventral aspect (scale bar = 0.05 mm).

Figs. 5 - 10 (opposite page): *Orientelmis sinensis*, SEM photographs, 5) habitus, dorsal view, (scale bar = 0.2 mm), 6) same, ventral view (scale bar = 0.2 mm), 7) labrum (scale bar = 0.02 mm), 8) labium (scale bar = 0.02 mm), 9) right protarsus, ventral view (scale bar = 0.02 mm), 10) plastron on left hypomeron (scale bar = 0.02 mm).

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Jahr/Year: 1998

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