Elytra, *Tokyo*, **35**(1): 119–128, May 30, 2007

Two New Species of the Genus *Lamellipalpodes* (Coleoptera, Lampyridae) from Indochina, Southeast Asia

Itsuro KAWASHIMA

Nagasawa 1-50-9, Yokosuka, Kanagawa, 239-0842 Japan

Abstract Two new species of the lampyrid genus *Lamellipalpodes* from Thailand and Myanmar, Indochina, Southeast Asia, are described and illustrated, i.e. *L. tsurui* sp. nov. from North Thailand and *L. masatakai* sp. nov. from Myanmar.

Introduction

The genus *Lamellipalpodes* was originally established by MAULIK (1921) for *L. annandalei* from "Bengal" as a member of the family Drilidae. The members of the family Drilidae were enumerated twice by OLIVIER (1910) and WITTMER (1944), though in the latter catalogue, the type species of the genus *Lamellipalpus, L. nigripennis* (PASCOE, 1887) was listed as a species of the genus *Lamellipalpodes*. This is evidently an error of the author. In this paper, I provisionally regarded the genus *Lamellipalpodes* as an independent genus of the family Lampyridae, following the opinion of CROWSON (1972) and WITTMER (1979), and will describe two new species of this genus from Indochina, Southeast Asia.

The present paper is dedicated to the memory of the late Dr. Masataka SATÔ, who was the leading specialist of the Lampyridae and passed away on August 9, 2006.

Materials and Methods

The materials used in this study are enumerated under the heading of "*Type material*" following the description of each taxon. For dissection, dried materials were relaxed in hot water, and then, male genitalia were removed from the body, mounted on a slide glass with glycerol, and were observed under an optical microscope (Olympus CH-2, max. magnification ×1,000) and sketched with the aid of an attached drawing tube. External characters were observed and sketched with a stereoscopic microscope (Olympus SZH10, max. magnification ×140) equipped with a drawing tube. The abbreviations used herein are as follows: BL – length of body, from anterior margin of frons to elytral apices; HW – maximum width of head, including eyes; PL – length of pronotum, along mid-line; PW – maximum width of pronotum, across basal angles; EL – length of elytra; EW – maximum width of elytra; EHW – humeral width of elytra; HTL – length of hind tibiae; NSMT – National Science Museum, Tokyo; TUA – Tokyo

University of Agriculture, Atsugi, Kanagawa.

Descriptions

Genus *Lamellipalpodes* MAULIK, 1921

Lamellipalpodes MAULIK, 1921, Proc. zool. Soc. Lond., **1921**: 584 (type species: *L. annandalei* from "Bengal", by monotypy). —— PIC, 1930, Annls. Soc. ent. Fr., **99**: 322 (notes). —— WITTMER, 1944, Revta. Soc. ent. Argentina, **12**: 210 (check-list). —— CROWSON, 1972, Revta. Univ. Madrid, **21**: 53 (brief comments). —— WITTMER, 1979, Ent. Arb. Mus. Frey, **28**: 86 (key to the genera).

Lamellipalpodes tsurui KAWASHIMA, sp. nov.

(Figs. 1–5)

Type material. Holotype (Fig. 3): ♂, Doi Suthep (alt. 800–900 m), Chiang Khian, Chiang Mai Province, N. Thailand, 13–V–2002, T. TSURU leg.

Type depository. The holotype is deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

M a l e. Coloration:— Body moderately shiny and bicolorous, covered all over including each appendage with similar ground coloration and with golden or blackish subrecumbent pubescence. Head:— Head capsule, maxillae and labium including each palpus orange yellow; eyes black; antennal scape yellowish brown; pedicel brown; flagellum moderately frosted, blackish brown to black; mandibles dark reddish brown, paler towards the bases. Thorax:— Pronotum, basal halves of elytra, all legs and ventral side of thoraces orange yellow; distal halves and exterior sides of elytra tinged with black; claws tinged with brown. Abdomen:— Visible sternites constantly orange yellow; male genitalia moderately shiny, well-pigmented, external surface almost reddish brown.

Structure:— Body rather wide and elongate-oval, subparallel-sided. Head:— Head capsule (Figs. 1, 3) relatively large and transverse, but clearly narrower than the apical width of pronotum; basal part of head capsule largely concealed under the anterior margin of pronotum, depressed above and moderately concave. Labrum not recognized. Eyes (Figs. 1, 3) simply globular, small but roundly projected laterad, separated from each other by about four times the diameter of an eye in dorsal view. Antennae (Fig. 2) 11-segmented and rather short; the sockets clearly separated from each other; all flagellar segments flattened dorso-ventrally, barely reaching humeri of elytra; scape clavate, dilated towards the apex; pedicel the shortest; 3rd to 10th segments (flagellar 1st to 8th) rather thick and rounded triangular, dilated towards the apices, weakly serrate continuously; distal 11th (flagellar 9th) spindle-shaped; relative length of each segment as follows:— 1.00 : 0.57 : 1.14 : 0.93 : 1.00 : 1.00 : 0.86 : 0.79 : 0.86 : 0.86 : 1.14. Mandibles (Fig. 1) fairly large but slender, wholly seen from dorsal side, incurved and gradually tapered towards the pointed apices. Both maxillary and labial palpi (Figs. 1, 3) with extraordinarily expanded distal segments, which show very large leaf-like or elongated elliptical lobes; both pairs of palpi almost the same in shape and of equal size.

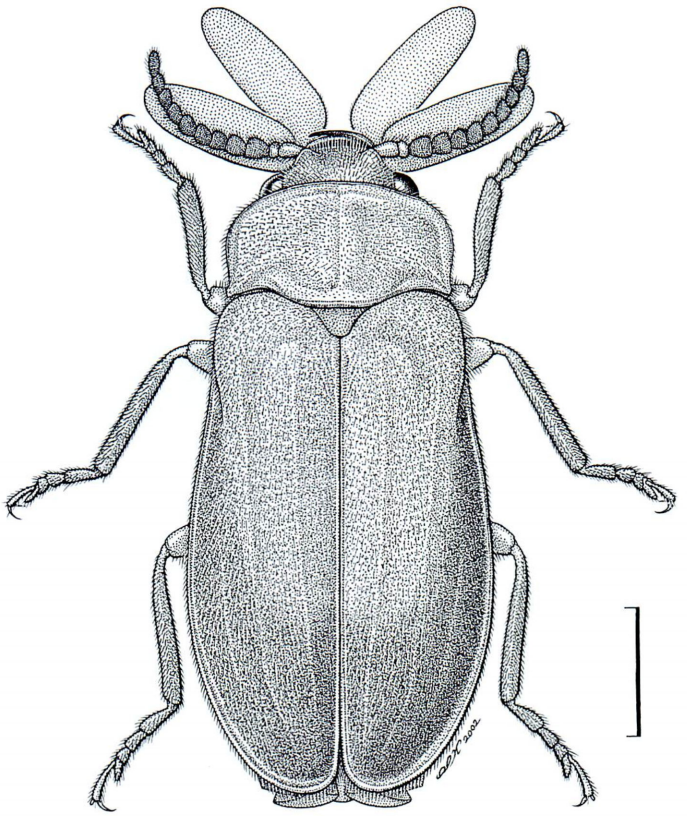
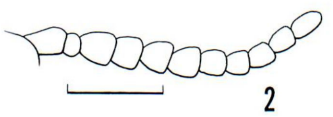
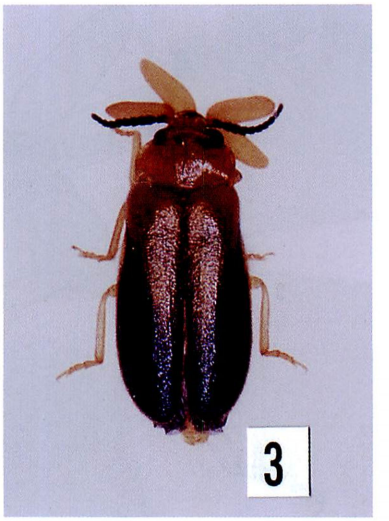


Fig. 1. *Lamellipalpodes tsurui* sp. nov., from N. Thailand, dorsal view. Scale: 1.0 mm.

Thorax:— Pronotum (Figs. 1, 3) larger but rather short, transversely quadrate in dorsal view, widest at the level of basal protuberances; the maximum width feebly narrower than the width at elytral humeri; anterior margin widely arcuate and weakly produced anteriad; sides weakly sinuate, feebly constricted at basal third, reflexed and forming narrow flattened areas throughout; anterior to lateral margins very narrowly bordered throughout; basal angles projected latero-posteriad, each of them forming a small projection; basal margin clearly sinuate on each side, and bordered in central part; dorsal surface constantly and densely punctate; disc weakly depressed; very shallow medio-longitudinal furrow running along mid-line, but the posterior part disappears; PW/HW 1.44; PW/PL 1.95; PL/PW 0.59; PW/EHW 0.91. Scutellum (Figs. 1, 3) triangular with rounded apex, closely punctate on dorsal surface. Elytra (Figs. 1, 3) fairly broad; sides widely arcuate, weakly divergent posteriad, widest just after the middle, and then convergent to rounded apices, dehiscent in apical portions, very narrowly margined throughout including suture, the margin being concealed by humeri, which are weakly prominent laterad; dorsal surface densely punctate and rugulose; each elytron with three

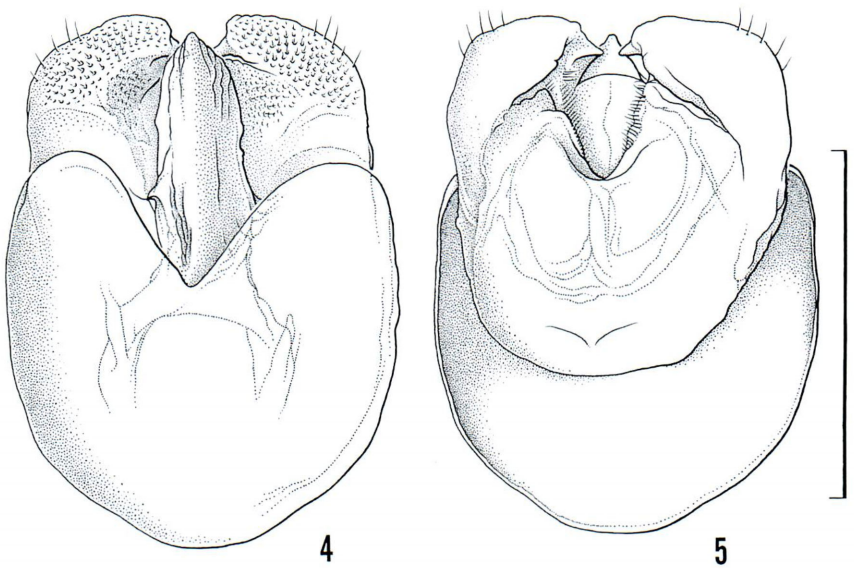




Figs. 2–3. *Lamellipalpodes tsurui* sp. nov., from N. Thailand, dorsal view: right antenna (2); holotype (3). Scale: 0.5 mm.

vague costae, of which the middle one is the longest and clearest, running throughout the length of elytra; the apical part bent inwards; the innermost one relatively long but disappearing at the apical part; the exterior one the shortest, very weak and more obsolete, only recognized at about posterior third of elytra; EL/PL 3.87; EL/EW 1.75; EW/PW 1.31. All legs (Figs. 1, 3) rather thick; femora fusiform; tibiae flattened dorso-ventrally, almost straight though weakly incurved at the bases; tarsal formula 5-5-5; tarsi relatively short as a whole; 1st tarsomere usually the longest or almost the same in length as 5th; 4th one bilobed. Claws simple, weakly dilated at the bases. Abdomen:— Abdomen broad and flattened dorso-ventrally, with seven visible segments in ventral view; sides subparallel in basal three sternites or weakly dilated apicad, and then gradually convergent posteriad from 4th segment to anal 7th; luminescent organs not recognized from outside.

Male genitalia as shown in Figs. 4 and 5, well sclerotized and symmetrically trilobed, broad and quadrate or rounded semi-pentagonal, weakly depressed dorso-ventrally; external surface moderately shiny, almost smooth and glabrous though the distal portions of parameres are more or less punctate or scattered with sockets of minute setae on venter. Basal plate large, a little broader than the width of parameres, semicircular in ventral view; distal margin on venter excavated triangularly at the center; widely open on dorsum; sides weakly arcuate, subparallel and continuing to the rounded basal margin. Aedeagus relatively slender but a little shorter than the lengths of parameres, elongate triangular, weakly but gradually narrowed towards the pointed apex, very deeply and longitudinally hollowed on ventral side. Parameres embracing aedeagus from left and right, largely joining at the bases on basal side; both external



Figs. 4–5. *Lemellipalpodes tsurui* sp. nov., from N. Thailand, male genitalia; ventral view (4); dorsal view (5). Scale: 0.25 mm.

sides almost straight and parallel, and abruptly divergent towards the apices; inner sides of the apices each with a small protuberance, and widely separated from each other on ventral side, narrowly separated from each other in distal 2/5 of longitudinal length, each with five to six setae near external angle.

Measurement in mm. BL: 5.80; HW: 1.35; PL: 1.15; PW: 1.95; EL: 4.45; EW: 2.55; EHW: 2.15; HTL: 1.35.

F e m a l e. Unknown.

Immature stages. Unknown.

Distribution. N. Thailand.

Biology. Unknown. The holotype individual flew along a forest road in the daytime (T. TSURU, pers. comm.).

Notes. At a glance, this new species is similar to the type species of the genus, *L. annandalei* MAULIK, 1921, in general appearance, but is easily distinguished from the latter by the following characteristics: 1) body rather wide and thick, 2) antennal sockets widely and clearly separated from each other and 3) blackish marking of elytra rather reduced.

Etymology. The specific name is dedicated to Mr. T. TSURU, who gave me the opportunity of examining the holotype specimen of this new species.

Lamellipalpodes masatakai KAWASHIMA, sp. nov.

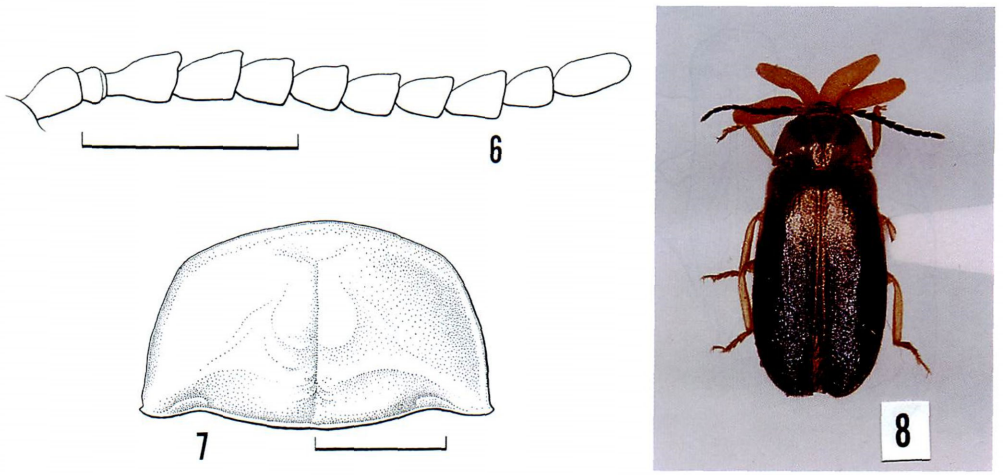
(Figs. 6–10)

Type material. Holotype (Fig. 8): ♂, Myang-Shwe (near Inde Lake), Shan State, E. Myanmar, 15～16-IV-1996, Y. KUSAKABE leg.

Type depository. The holotype is deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo.

M a l e. Coloration:— Body moderately shiny and bicolorous, covered all over including each appendage with similar ground coloration, and with golden or blackish subrecumbent pubescence. Head:— Head capsule, antennal scape and pedicel, maxillae, and labium including each palpus orange yellow; eyes black; antennal flagellum moderately frosted, blackish brown to black; mandibles dark reddish brown, paler towards the bases. Thorax:— Pronotum, basal 1/3 of elytra, all legs and ventral side of thoraces orange yellow; distal 2/3 and exterior sides of elytra tinged with black; claws tinged with brown. Abdomen:— Visible sternites constantly orange yellow; male genitalia moderately shiny, well-pigmented, external surface almost reddish brown.

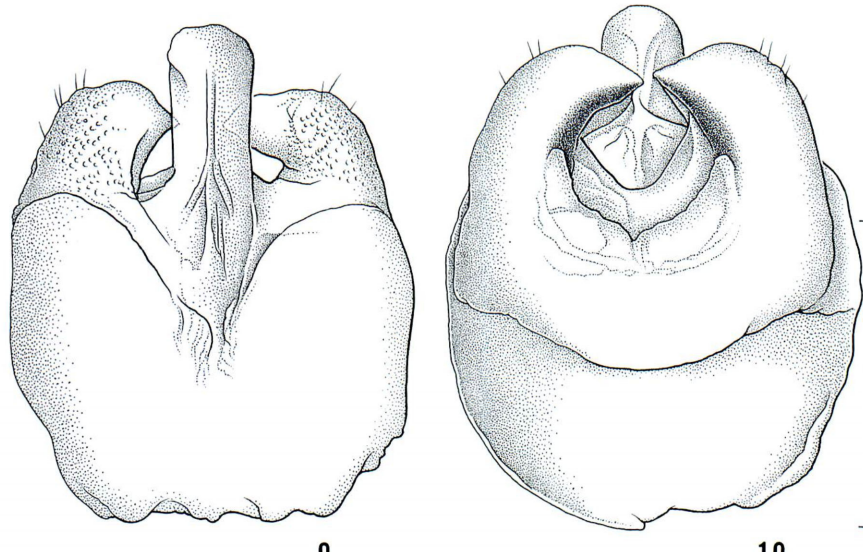
Structure:— Body fairly wide and elongate-oval, subparallel-sided. Head:— Head capsule (Fig. 8) rather large and transverse, but clearly narrower than the apical width of pronotum; basal part of head capsule largely concealed under the anterior margin of pronotum, depressed and flattened above. Labrum not recognized. Eyes simply globular, small but roundly projected laterad, separated from each other by 3.75 times the diameter of an eye in dorsal view. Antennae (Fig. 6) 11-segmented and rather short; antennal sockets clearly separated from each other; all flagellar segments flattened dorso-ventrally, reaching humeri of elytra; scape clavate, dilated towards the widest apex; pedicel the shortest; 3rd to 10th segments (flagellar 1st to 8th) triangular, dilated towards the apices, serrate continuously; distal 11th (flagellar 9th) spindle-shaped; relative length of each segment as follows:— 1.00 : 0.38 : 1.25 : 1.08 : 0.92 : 0.92 : 0.92 : 0.92 : 0.96 : 0.88 : 1.42. Mandibles fairly large but slender, wholly seen from dorsal side, incurved and gradually tapered towards the pointed apices. Both maxillary and labial palpi (Fig. 8) with extraordinarily expanded distal segments, which show very large leaf-like or elongated elliptical lobes; both pairs of palpi almost the same in shape and of equal size. Thorax:— Pronotum (Figs. 7, 8) rather large and transverse semicircular, widest at the level of basal protuberances; maximum width feebly narrower than elytral humeral width; anterior margin widely arcuate and weakly produced anteriad, very narrowly margined; both sides almost straight or feebly sinuate, very narrowly margined throughout, transversely concave on both sides along the basal margin; basal margin clearly bisinuate on both sides; basal angles projected outwards, each of them forming a minute projection; dorsal surface constantly and densely punctate; disc rather clearly depressed; very shallow medio-longitudinal furrow running along mid-line, its anterior portion evanescent; PW/HW 1.53; PW/PL 1.74; PL/PW 0.57; PW/EHW 0.93. Scutellum (Fig. 8) triangular with moderately pointed apex, closely punctate on dorsal surface. Elytra (Fig. 8) fairly broad; sides widely arcuate, clearly divergent posteriad,



Figs. 6–8. *Lamellipalpodes masatakai* sp. nov., from E. Myanmar, dorsal view: right antenna (6); pronotum (7); holotype (8). Scale: 1.0 mm.

widest at the distal third, and then convergent to rounded apices, dehiscent in apical portions, narrowly margined throughout including suture, the margin being concealed by humeri, which are feebly prominent laterad; dorsal surface densely punctate and rugulose; each elytron with three vague costae, of which the innermost and middle ones are the longest and clearest, but disappearing in about distal 4/5 to 2/6; exterior one the shortest, very weak and more obsolete, only recognized at about posterior third of elytra; EL/PL 4.00; EL/EW 1.72; EW/PW 1.33. All legs (Fig. 8) rather thick; femora fusiform; tibiae flattened dorso-ventrally, almost straight though weakly incurved at the bases; tarsal formula 5-5-5; tarsi relatively short as a whole; 1st tarsomeres usually the longest or almost of the same length as 5th ones; 4th bilobed. Claws simple, weakly dilated at the bases. Abdomen:— Abdomen broad and flattened dorso-ventrally, with seven visible segments in ventral view; sides almost parallel in basal three segments, and then gradually convergent posteriad from 4th segment to anal 7th; luminous organs not recognized externally.

Male genitalia as shown in Figs. 9 and 10, well sclerotized and symmetrically trilobed, broad and globular as a whole, weakly depressed dorso-ventrally; external surface moderately shiny, generally smooth and glabrous, but the ventral surface of parameres is punctate or scattered with sockets of minute setae. Basal plate large and semicircular, a little broader than the width of parameres, widely open on dorsum; distal margin of venter deeply excavated triangularly at the centre; sides arcuate and continued to the rounded basal margin. Aedeagus elongate cylindrical with rounded apex, slender and rather long, clearly longer than the length of parameres. Parameres embracing aedeagus from left and right, largely joining at the bases on dorsum; both sides feebly arcuate, gradually convergent distad, ending in pointed apices, respectively;



Figs. 9–10. *Lamellipalpodes masatakai* sp. nov., from E. Myanmar, male genitalia; ventral view (9); dorsal view (10). Scale: 0.25 mm.

each apex oriented inwards, conical and closely approaching to each other; inner margins strongly and roundly arcuate; each extero-lateral part with several thin setae.

Measurement in mm. BL: 7.80; HW: 1.77; PL: 1.55; PW: 2.70; EL: 6.20; EW: 3.60; EHW: 2.90; HTL: 1.83.

F e m a l e. Unknown.

Immature stages. Unknown.

Distribution. E. Myanmar.

Biology. Unknown. The holotype individual flew to the light (Y. KUSAKABE, pers. comm.). According to MAULIK (1921), a cotype specimen of *L. annandalei* from Barkuda Island was "found on bath-room window" by Dr. N. ANNANDALE.

Notes. This species is closely similar to *L. tsurui* sp. nov. in general appearance and in the well-separated attachment of both antennal sockets. However, it is easily distinguished from the latter by the following characteristics:— 1) body size larger, 2) the shape of male genitalia clearly different, and 3) the blackish markings of elytra rather enlarged.

Etymology. The specific name is given in dedication to the late Dr. Masataka SATÔ, who made marvelous contributions to the systematic coleopterology.

General Remarks

MAULIK (1921) quoted "Dr. C. J. GAHAN thinks that *Lamellipalpodes* MAULIK

does not belong to the Drilidae, but is more allied to the Rhagophthalmidae" in the definition of the genus *Lamellipalpodes*. However, I was unable to find any similarity and common characteristics in the external characters of adult males between the genus *Lamellipalpodes* and the family Rhagophthalmidae. In the chapter of the family Telegeusidae (p. 53) in his review of the superfamily Cantharoidea, CROWSON (1972) briefly commented that "the extraordinary development of the maxillary palpi is paralleled in at least two Old World genera of Lampyridae—" *Lamellipalpus* and *Lamellipalpodes,* and definitely included *Lamellipalpus palpalis* in the subfamily Ototretinae of the family Lampyridae (p. 57). WITTMER (1979) proposed a key to the lampyrid genera with enlarged maxillary and labial palpi from the Indian sub-continent, and thus placed the two genera under consideration in the Lampyridae. On the other hand, LAWRENCE and NEWTON (1995) reviewed the families and subfamilies of the order Coleoptera in the world, and only cited the genus *Lamellipalpus* in the subfamily Ototretinae of the family Lampyridae, probably following CROWSON (1972, p. 57).

The genus *Lamellipalpodes* is generally similar to the genus *Lamellipalpus,* but according to the key given by MAULIK (1921), the former was distinguished from the latter by the following two characteristics: 1) "head short, the eyes almost touching the anterior margin of pronotum"; and 2) "antennae more or less approximate" (p. 579). In the case of the two new species of the genus *Lamellipalpodes* described in this paper, the antennal bases are widely separated from each other, a peculiarity common to the genus *Lamellipalpus.* The female adults have never been discovered in all the known species of this genus. They may be wingless larviform as those of the lampyrid *Stenocladius* and rhagophthalmid *Rhagophthalmus* (cf. KAWASHIMA, 1998, etc.).

Acknowledgements

I wish to express my sincere thanks to Dr. S.-I. UÉNO (National Science Museum (Nat. Hist.), Tokyo), for his critically reading the original draft, and to Dr. S. OKAJIMA (TUA), the late Dr. M. SATÔ (Nagoya), Messrs. Y. KUSAKABE (Yokohama), T. TSURU (Hokkaido University, Sapporo) and T. SHIMADA (TUA), for their kind help in various ways.

要　　約

川島逸郎：インドシナ産 *Lamellipalpodes* 属 2 新種の記載．—— *Lamellipalpodes* 属は，Drilidae の一群として，MAULIK (1921) によりベンガル産の 1 新種を基に創設されたが，その後は CROWSON (1972) や WITTMER (1979) らにより簡潔に触れられたにすぎない．今回，インドシナから得られた材料の外部形態を詳細に検討した結果，それらが未知の 2 種と判断されたので，本論文において命名記載した．属名のとおり，小顎肢および下唇肢の各末端節が顕著に拡大・発達し，巨大な葉状を呈する．属の基準種である *L. annandalei* にも類似するが，2 種ともに体躯はより幅広く各附属肢も短小，触角基部はたがいに明瞭に離れる点が異なる．とくに最後の形質につ

いては，本属と同時に創設された *Lamellipalpus* 属と連続する可能性があり，今後さらなる検討を要する．本論文では，CROWSON (1972) に従って，本属を暫定的にホタル科 Lampyridae に含めておいたが，MAULIK (1921) に言及されたオオメボタル科 Rhagophthalmidae との関連など，周辺の分類群との類縁に関する見解を付した．なお，本論著は，甲虫の分類を中心にして基礎昆虫学の進展に大きい貢献を果たされ，昨年 8 月に逝去された佐藤正孝博士に捧げるものである．

References

CROWSON, R. A., 1972. A review of the classification of Cantharoidea (Coleoptera), with the definition of two new families, Cneoglossidae and Omethidae. *Revta. Univ. Madrid,* **21**: 35–77.

KAWASHIMA, I., 1998. Morphology and larviform adult females in Japanese Cantharoidea, with special reference to the families and genera *Rhagophthalmus* (Rhagophthalmidae) and *Stenocladius* (Lampyridae). *Nat. & Ins., Tokyo,* **33**(7): 16–18. (In Japanese.)

LAWRENCE, J. F., & A. F. NEWTON JR., 1995. Families and sub-families of Coleoptera (with selected genera, notes, references and data on family-group names). *In*: PAKALUK, J., & S. A. ŚLIPIŃSKI (eds.), *Biology, Phylogeny, and Classification of Coleoptera. Papers Celebrating the 80th Birthday of Roy A. Crowson,* [**2**]: 779–1006. Museum i Instytut Zoologii Polska Akademia Nauk, Warszawa.

MAULIK, S., 1921. New Indian drilid beetles. *Proc. zool. Soc. London,* **1921**: 579–586.

OLIVIER, E., 1910. Rhagophthalmidae, Drilidae. *In*: JUNK, W., & S. SCHENKLING (eds.), *Coleopt. Cat.,* pars 10, 10 pp. W. Junk, Berlin.

PASCOE, F. P., 1887. Notes on Coleoptera, with descriptions of new genera and species. *Ann. Mag. nat. Hist.,* (5), **20**: 8–20.

PIC, M., 1924. Nouveaux Malacodermes Asiatiques. *Bull. Mus. Hist. nat., Paris,* **13**: 475–482.

—— 1930. Contribution à l'étude des Coléoptères Malacodermes. (2^{e} article). *Annls. Soc. ent. Fr.,* **99**: 311–324.

WESTWOOD, J. O., 1853. Descriptions of some new species of Coleoptera from China and Ceylon. *Trans. ent. Soc. London,* (2), **2**: 232–241, pl. 12.

WITTMER, W., 1944. Catalogue des Drilidae E. OLIV. (Coleoptera – Malacodermata). *Revta. Soc. ent. Argentina,* **12**: 203–221.

—— 1979. Zur Kenntnis der Lampyridae der orientalischen Region. *Ent. Arb. Mus. Frey,* **28**: 83–92.