

TWO NEW SPECIES OF THE GENUS *LONGIPENIS* (LEPIDOPTERA: LECITHOCERIDAE) FROM CHINA

HOSHUAI WANG¹, WEI XIONG¹ AND MIN WANG^{1,2}

¹Department of Entomology, College of Natural Resources & Environment, South China Agricultural University, Guangzhou 510642, China

²Corresponding author; E-mail: wangmin168@yahoo.com.cn

ABSTRACT

Two new species of the genus *Longipenis* Wu (Lepidoptera: Lecithoceridae), *L. paradeltidius* M. Wang and Xiong, **sp. nov.** and *L. dentivalvus* H. Wang and M. Wang, **sp. nov.** are described from South China. *Longipenis paradeltidius* is very similar to *L. deltidius* Wu in external morphology, but can be easily distinguished from the latter by M_3 free from CuA_1 in the hindwing and cornutus as long as 2/3 length of aedeagus. *Longipenis dentivalvus* differs from the 2 preceding species by uncus not apically forked. Adults, male genitalia, and wing venation are illustrated. A key and a distribution map of the species are given. The type specimens are deposited in the Department of Entomology, South China Agricultural University, Guangzhou, China.

Key Words: Lepidoptera, Lecithoceridae, *Longipenis*, new species, China

RESUMEN

Se describen dos nuevas especies del género *Longipenis* Wu (Lepidoptera: Lecithoceridae), *L. paradeltidius* Wang y Xiong, **sp. nov.** y *L. dentivalvus* Wang y Wang, **sp. nov.** del sur de China. *Longipenis paradeltidius* es muy parecida a *L. deltidius* Wu en su morfología externa, pero puede ser distinguida de la segunda por tener la ala posterior con M_3 libre de CuA_1 y el cornutus 2/3 del largo del aedeago. *Longipenis dentivalvus* se distingue de las especies anteriores por tener el ápice del uncus no bifurcado. Se ilustran los adultos, los genitales del macho y las nervaduras del ala. Se provee una clave y un mapa de la distribución de las especies. Los especímenes tipos son depositados en el Departamento de Entomología, Universidad Agrícola del Sur de China, Guangzhou, China.

The subfamily Torodorinae in the order Lepidoptera includes more than 270 species belonging to 37 genera, and more than 90% of the species are distributed in the Oriental Region and a few occur in the Australian and Palaeartic Regions, except for 1 species from the Neotropical Region (Park & Lee 1999; Park et al. 2006; Park 2008; Park & Byun 2008; Park & Kim 2009). The genus *Longipenis*, established by Wu in 1994 on the basis of the type species *L. deltidius* Wu, is a monotypic genus of Torodorinae distributed only in China so far. It is generally characterized by the following features: forewing venation with R_3 , R_4 and R_5 stalked, R_5 extending to the apex, M_2 very close to M_3 , CuA_1 and CuA_2 stalked at basal 1/3; hindwing 1/4-1/3 wider than forewing, R_s and M_1 stalked at 2/5, M_3 and CuA_1 with short stalk or free; abdominal tergites with spinose zones. This genus is very similar to the genus *Torodora* Meyrick, but differs from the latter by discal cell with remains of closing vein, the male genitalia with long triangle-shaped vinculum, and a relatively long aedeagus.

During surveys of the Lepidopterous fauna of South China, we found 2 new species which are

described in this paper, and presented along with a distribution map of the genus (Fig. 1).

MATERIALS AND METHODS

Descriptions are based on the dried specimens from the Department of Entomology, South China Agricultural University, Guangzhou, China. Photographs of adults were taken with a Nikon Coolpix 4500 digital camera. Genitalia were dissected in water after the abdomen was removed and dipped in boiled 10% KOH solution for 3-4 min. Wings of the paratypes were prepared for venation images by cleaning with 95% absolute ethyl alcohol and then stained with acetocarmine solution. Genitalia and wing venation were subsequently mounted on microscope slides with glycerin for photographing and then preserved in a micro-tube attached to the specimens. The images of genitalia and wing venation were taken through a Carl Zeiss Stemi 2000-CS stereoscope with the Nikon Coolpix 4500 camera body attached to the stereoscope phototube and compared with illustrations of *L. deltidius* by Wu (1994). Post processing of all the photos was done with Adobe Photoshop 6.0.

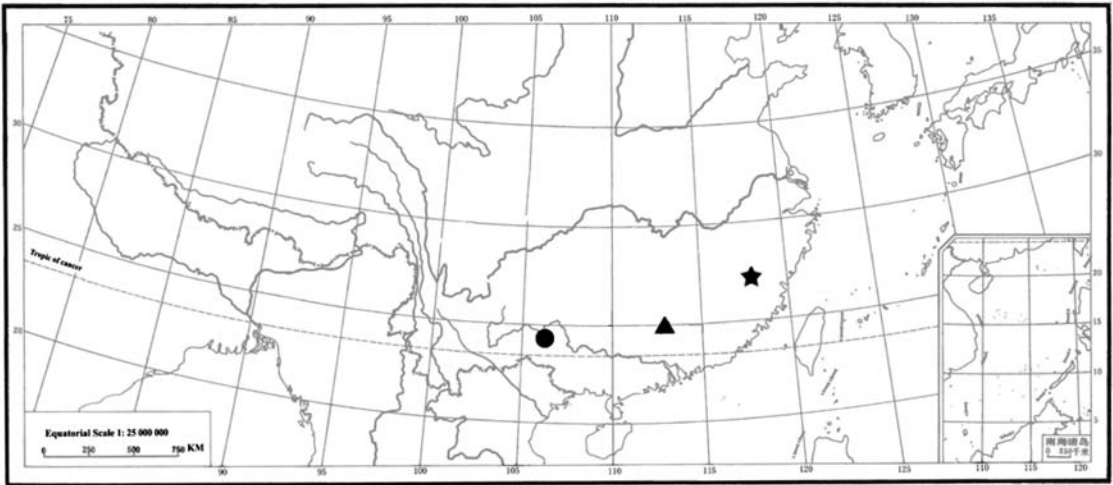


Fig. 1. Distribution of *Longipenis* species. *L. deltidius* Wu (★); *L. paradeltdidius* M. Wang and Xiong, **sp. nov.** (●); *L. dentalvus* H. Wang and M. Wang **sp. nov.** (▲).

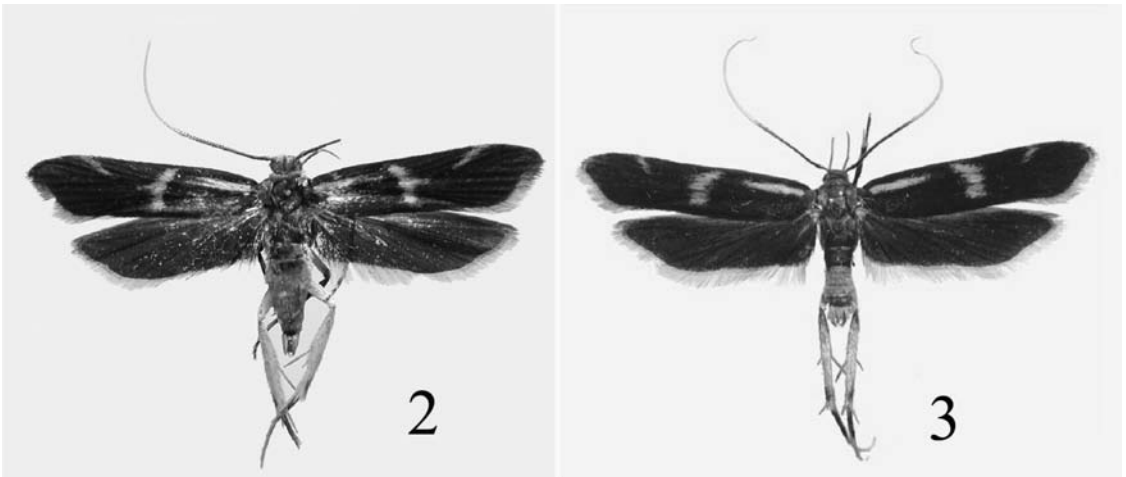
KEY TO THE SPECIES OF *LONGIPENIS* BASED ON MALE GENITALIA

- 1 Uncus not apically forked *L. dentalvus* H. Wang and M. Wang, **sp. nov.**
- Uncus apically forked 2
- 2 Cornutus longer than aedeagus *L. deltidius* Wu
- Cornutus 2/3 length of aedeagus *L. paradeltdidius* M. Wang and Xiong, **sp. nov.**

Longipenis paradeltdidius M. Wang and Xiong,
new species,
 (Figs. 2, 4, 6 and 7)

Diagnosis. The new species, in external morphology, is hardly distinguishable from *L. deltidi-*

ius Wu which was described from Fujian Province, China, except for its slightly smaller size. However, distinguishing characters are found in the male genitalia and the hindwing venation. In males of the new species, the aedeagus is thick and short with the cornutus length 2/3 that of the



Figs. 2 and 3. Adults of *Longipenis* species. (2) *L. paradeltdidius* M. Wang and Xiong, **sp. nov.**, male holotype, upperside; (3) *L. dentalvus* H. Wang and M. Wang, **sp. nov.**, male holotype, upperside.

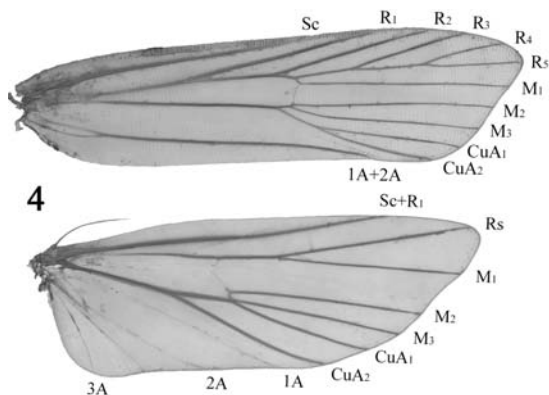


Fig. 4. Venation of *L. paradeltidius* M. Wang and Xiong, **sp. nov.** (male, Paratypes)

aedeagus, whereas in *L. deltidius*, the aedeagus is slender and the cornutus length exceeds that of the aedeagus; in the hindwing venation of the new species, M_3 free with CuA_1 , but M_3 and CuA_1 short stalked in *L. deltidius*.

Description. Adult. Wingspan 23 mm. Head brown, occiput with dark yellow scales; antenna almost as long as forewing, basal half black, apical half whitish yellow, with white fringe scales; labial palpus long, second segment yellowish brown, third segment brown; compound eye surrounded by yellowish brown scales. Thorax and tegula dark brown. Forewing dark brown and purplish, with a yellow costal margin patch at 3/4 costa, radius base with yellow transverse fasciae, yellow crescent longitudinal fasciae at middle; fringe scales brown, inner margin slightly concave; R_1 and R_2 arising before discal cell, R_3 , R_4 and R_5 stalked, R_5 to termen, M_1 almost parallel to M_2 , CuA_1 and CuA_2 stalked about 1/3, $1A+2A$ stalked near base. Hindwing wider than forewing, brownish black, apical angle acute, outer margin oblique, fringe scales brown, area between costal

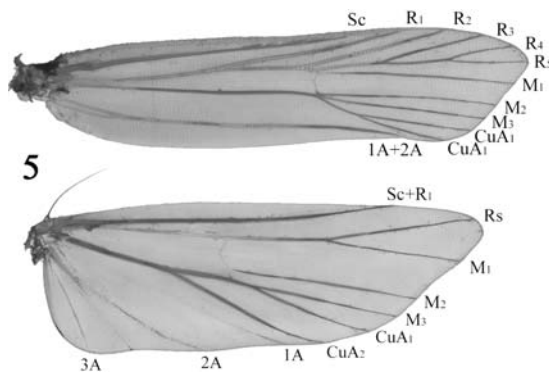


Fig. 5. Venation of *L. dentivalvus* H. Wang and M. Wang, **sp. nov.** (male, Paratypes)

margin and forewing grayish brown; R_s and M_1 stalked at 2/5, M_3 free from CuA_1 . Abdomen yellow, with spinose zones. Legs yellowish brown.

Male Genitalia. Uncus broad basally, apically forked. Gnathos broad ellipse-shaped basally, with a rectangular hook at apex. Valva triangular with dorsally recurved apex and concaved dorsal margin. Juxta with a pair of long caudal processes. Vinculum broad triangle-shaped medially, apex with minute setae. Aedeagus curved basally, longer than valva. Cornutus slender, as long as 2/3 length of aedeagus.

Female. Unknown

Holotype: Male, Cenwangaoshan Mt., Guangxi Zhuang Autonomous Region, China, 30-V-2002, leg. Wang Min. **Paratype:** 1 male, same data as holotype, which was used for the venation preparation.

Distribution. China (Guangxi Zhuang Autonomous Region).

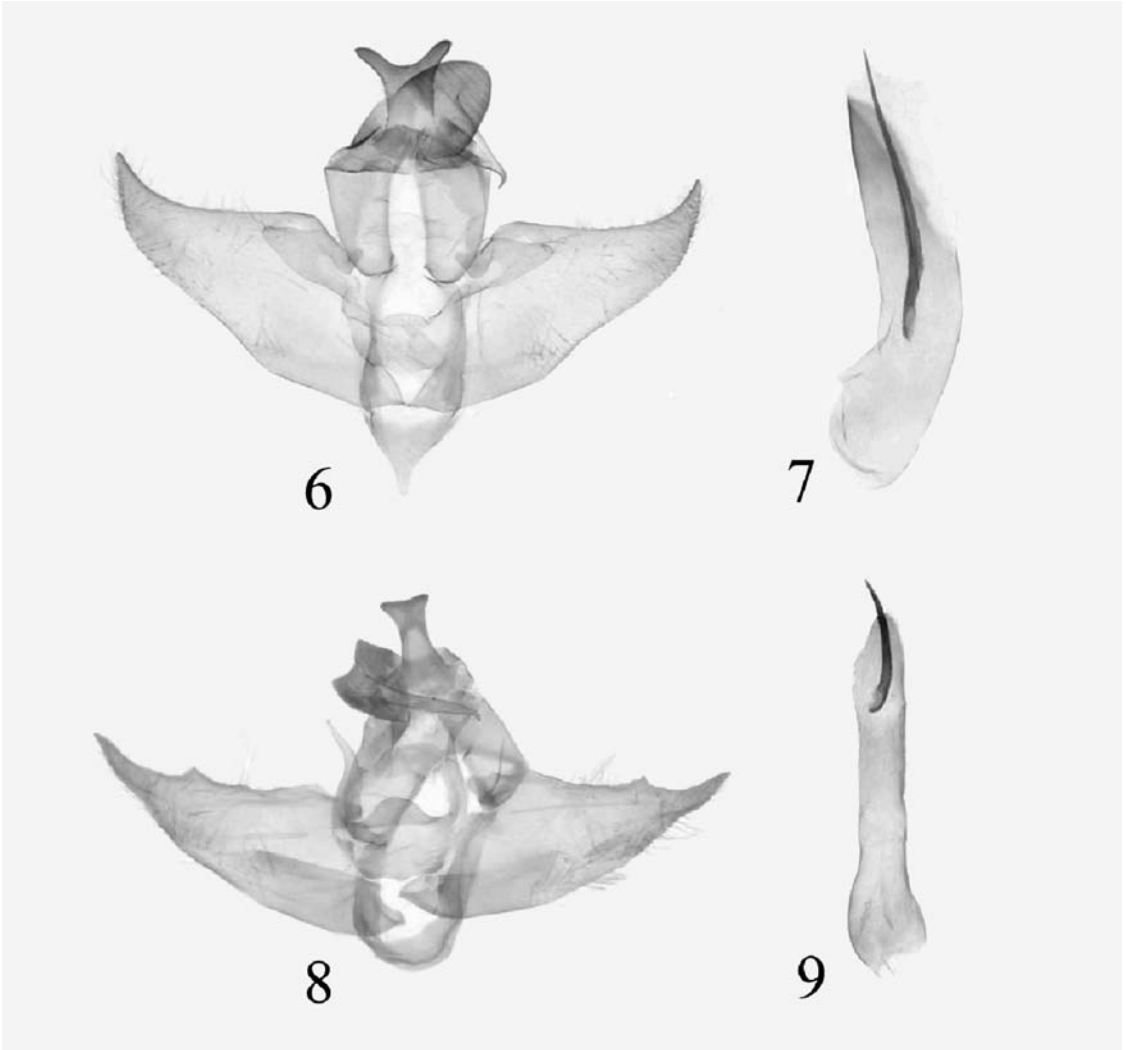
Etymology. The specific name is derived from Latin, "para" meaning next to or near, referring to similarity between this species and *L. deltidius* Wu.

Longipenis dentivalvus H. Wang and M. Wang,
new species,
(Figs. 3, 5, 8 and 9)

Diagnosis. This new species is very similar to *L. deltidius* Wu and the preceding species, but can be distinguished by the uncus not apically forked, shorter cornutus and valva with a dentiform projection on dorsal margin.

Description. Adult. Wingspan 29-30 mm. Head brown, with dark yellow scales dorsally; antenna almost as long as forewing, basal half black, apical half festucine; labial palpus long, upcurved, first segment very short, covered with yellow scales, second segment with rough, yellow scales, third segment brown, being more slender than second segment; compound eye surrounded by yellowish brown scales. Thorax and tegula dark brown. Forewing dark brown, with purplish, a yellow spot at 3/4 of costal margin, radius base with a yellow transverse fascia, a yellow crescent longitudinal fascia in middle; fringe scales yellow, inner margin slightly concave; R_1 and R_2 arising before discal cell, R_3 , R_4 and R_5 stalked, R_5 to the apex, M_1 almost parallel to M_2 , CuA_1 and CuA_2 stalked about 1/3, $1A+2A$ stalked at base. Hindwing wider than forewing, brownish black, apical angle acute, outer margin oblique, fringe scales yellow, area between costal margin and forewing yellow. R_s and M_1 stalked at 2/5, M_2 approaching short stalk of M_3+CuA_1 . Abdomen with spinose zones, anterior half part dark brown, posterior half part yellow. Legs yellow.

Male Genitalia. Uncus long and thick, truncate, slightly concaved. Gnathos long, apex



Figs. 6-9. Genitalia of *Longipenis* species. (6-7) Male genitalia of *L. paradeltidius* M. Wang and Xiong, **sp. nov.**, holotype; (8-9) Male genitalia of *L. dentivalvus* H. Wang and M. Wang, **sp. nov.**, holotype.

slightly bent, obtuse angle, large and stout at basal part, emarginated on caudal margin. Valva triangular, apex acute, with a process on outer margin. Sacculus broad. Juxta with a ligulate process medially and a pair of narrow, long lateral processes. Aedeagus slender, narrower than valva, apically with a long cornutus. Corantus as long as width of valva base.

Female. Unknown

Holotype: Male, Nanling Mt., Guangdong Province, China, 3-VI-2006, leg. Liusheng Chen. Paratype: 1 male, data same as holotype, which is used for the venation preparation.

Distribution. China (Guangdong Province).

Etymology. The species name is derived from the Latin “dent” and “valva”, referring to the costa of valva with a median dentiform projection.

DISCUSSION

There is some variation in the hindwing venation of the genus *Longipenis*. In the type species *L. deltoides*, M_3 and CuA_1 shortly stalked and Rs stalked with M_1 at $2/5$. However, examination of the 2 new species reveals that M_3 and CuA_1 are free in *L. paradeltidius* and Rs stalked with M_1 near $1/3$ in *L. dentivalvus*. The variation of venation is also found in other genera of Torodorinae (Park 2003; Park 2007; Park 2008). Therefore, the 2 new species are doubtlessly placed in this genus due to the similarity of the male genitalia and other external characteristics. In addition, the genus is probably belonging to diurnal moths group, for both of the 2 new species were collected when they were flying during the daytime.

ACKNOWLEDGMENTS

We sincerely appreciate Prof. Chunsheng Wu, Institute of Zoology, Academia Sinica, Beijing, China, and Dr. Kyu-Tek Park, The Korean Academy of Science and Technology, Korea, for help in providing useful references. We thank Dr. Liusheng Chen, Shihezi University, for collecting the materials.

REFERENCES CITED

- PARK, K. T. 2003. *Thubana* species (Lepidoptera, Lecithoceridae) in Thailand, with descriptions of twelve new species. *J. Asia-Pacific Entomol.* 6(2): 137-150.
- PARK, K. T. 2007. A review of the *Torodora manoconta* species-group (Lepidoptera: Lecithoceridae), with descriptions of three new species. *Zootaxa* 1465: 55-56.
- PARK, K. T. 2008. A new species of the Monotypic genus *Anaxyrina* Meyrick (Lepidoptera, Lecithoceridae, Torodorinae). *The Korean J. Systematic Zool.* 24(2): 165-167.
- PARK, K. T., AND BYUN, B. K. 2008. A new genus *Chrysonasma* (Lepidoptera, Gelechioidea, Lecithoceridae), with description of a new species from the Philippines. *Florida Entomol.* 91(2): 205-209.
- PARK, K. T., AND KIM, M. Y. 2009. *Notialis* Park **n. gen.** from the Philippines, with descriptions of two new species (Lepidoptera: Lecithoceridae). *Proc. Entomol. Soc. Washington* 111(1): 121-127.
- PARK, K. T., KIM, M. Y. CHAE, M. Y., KANG, T. M., BAE, Y. S., NGUYEN, C., AND PHAM, V. 2006. A taxonomic review of the subfamily Torodorinae (Lepidoptera, Lecithoceridae) of Vietnam, with descriptions of five new species. *J. Asia-Pacific Entomol.* 9(4): 327-337.
- PARK, K. T., AND LEE, S. M. 1999. A review of the Lecithocrinae and Torodorinae (Lepidoptera, Lecithoceridae) in Korea. *Insecta Koreana* 16(2): 119-129.
- WU, C. S. 1994. Study on Lecithoceridae in China. *Sinozoologia* 11: 123-174.
- WU, C. S. 1997. Lepidoptera Lecithoceridae. *Fauna Sinica, Insecta*, Vol. 7. Science Press, Beijing, China. 306 pp.
- WU, C. S. 2001. Lecithoceridae, *In* B. K. Huang (ed.), *Fauna of Insects in Fujian Province of China*, Vol. 5. Science & Technology Publishing House, Fuzhou, China. 664 pp.