

A new subspecies of *Thaumantis hainana* (Crowley, 1900) from Guizhou province, southwest region of China (Lepidoptera: Nymphalidae)

Xue-jian Wang & Song-yun Lang

Abstract

In this paper, the *Thaumantis diores* Doubleday, 1845-complex, including *T. diores* Doubleday, 1845 and *T. hainana* (Crowley, 1900), is studied, and a new subspecies, *T. hainana libodiores* Lang & Wang, ssp. nov., is described from Guizhou province, S.W. China.

Keywords: Lepidoptera, Nymphalidae, *Thaumantis*, new subspecies, China.

**Una nueva subespecie de *Thaumantis hainana* (Crowley, 1900) de la provincia Guizhou,
región suroeste de China
(Lepidoptera: Nymphalidae)**

Resumen

En este trabajo se estudia el complejo *Thaumantis diores* Doubleday, 1845, que incluye *T. diores* Doubleday, 1845 y *T. hainana* (Crowley, 1900) y se describe una nueva subespecie, *T. hainana libodiores* Lang & Wang, ssp. nov., de la provincia de Guizhou, suroeste de China.

Palabras clave: Lepidoptera, Nymphalidae, *Thaumantis*, nueva subespecie, China.

Introduction

The genus *Thaumantis* Hübner, [1826] (Morphinae: Amathusiini) is a small Oriental genus and inhabits the tropical rainforests. *Nandogea hainana* Crowley, 1900 was described from Hainan Island, southwest of China as a distinct species (Crowley, 1900). Stichel (1906, in Wytzman) sunk it to an insular subspecies of *Thaumantis diores* Doubleday, 1845, viz. *T. diores hainana* (Crowley), and for a long time, it was considered as an endemic subspecies of Hainan (Fruhstorfer, 1911 in Seitz; Stichel, 1933 in Strand; D'Abbrera, 1985; Gu & Chen, 1997). Osada et al. (1999) treated specimen from North of Laos as *T. diores hainana* (Crowley), but according to Inayoshi & Saito (2021), it is still *T. diores diores* Dbl. Basing upon differences of male genitalia, Lang (2010) recovered the species status of *Thaumantis hainana* (Crowley), and meanwhile, he found that this species also distributes in Asian mainland (Mt. Dayaoshan, Guangxi province, China). Inayoshi & Saito (2021) recognized two subspecies of *Thaumantis diores diores* Dbl. (= *ramdeo* Moore, [1858]) (Range: north of India, Bhutan, north of Myanmar, north and centre of Thailand, Laos, Vietnam, southwest of China including S.E. Tibet and S. Yunnan) and *Thaumantis diores splendens* Tytler, 1939 (Range: south Myanmar, west and Peninsula Thailand). According to Inayoshi (pers. comm.), some populations of subspecies *diores* Dbl. from Vietnam also have *hainana*-like structure of male genitalia, and obviously, they are more

closely related to continental *Thaumantis hainana* (Crowley) from Guangxi. Here, we propose *Thaumantis diores* Dbld. species complex which includes both *T. diores* Dbld. and *T. hainana* (Crowley). In Indo-Chinese region and south of China, the *T. diores* Dbld.-complex is possibly undergoing a process of speciation, therefore, its different species, whose male genitalia already are distinct, have their superficial appearances very similar from each other. This phenomenon can be also found in other Amathusiini species complex, such as the *Faunis aerope* (Leech, 1890)-complex and the *Aemona amathusia* (Hewitson, 1867)-complex from the same region (Indochina and South of China) (Monastyrskii, 2005; Nakamura et al. 2010; Lang, 2012; Monastyrskii & Lang, 2016; Nakamura, 2021; Huang, 2021). In this study, a special local population is found from Maolan, Libo, south of Guizhou, near the border with Guangxi. This locality is on the northern boundary of the range of the *Thaumantis diores* Dbld.-complex. It is quite different from the known mainland *T. hainana hainana* (Crowley) from Mt. Dayaoshan, Guangxi, and should be a new subspecies of *T. hainana* (Crowley). It seems that marginal effect is workable in the speciation process of this species complex.

Materials

Specimens examined in this research are deposited in the following collections: Institute of Zoology, Chinese Academy of Sciences, Beijing, China (IZCAS); Chongqing Museum of Natural History, Beibei, China (CMNH); Guizhou Education University, Guiyang, China (GZEU); Dr. S. Y. Lang's private collection, Chengdu, China (LSY). Photographs of the type of *Nandogea hainana* Crowley kept in Natural History Museum, London, UK (NHM) were provided by Reynolds and Ackery.

The collecting data of related specimens in this research are: *Thaumantis hainana hainana* (Crowley): CHINA, Hainan, Lingshui, 2 ♂♂, 8-X-1934, leg. P. Bai (IZCAS); Hainan, Lingshui, Mt. Diaoluoshan, 260 m, 1 ♂, 5-V-2007, leg. S. Y. Lang (IZCAS); Hainan, Mt. Jianfengling, 3 ♂♂ 2 ♀♀, 2-VII-1981, 3-III-1-VIII-1983, leg. M. B. Gu (IZCAS); Hainan, Mt. Wuzhishan, Shuiman, 730-900 m, 1 ♂, 9-V-2007, leg. S. Y. Lang (IZCAS); Hainan, Mt. Wuzhishan, 5 ♂♂, 14-16-IV-2017, leg. S. Y. Lang (LSY); Guangxi, Jinxiu, 900 m, 1 ♂, 20-V-1999, leg. Y. Z. Zhang (IZCAS). *T. diores diores* Dbld.: CHINA: Yunnan, Xiaomengyang, 850 m, 1 ♂, 5-V-1957, leg. D. Panfilov (IZCAS); Yunnan, Mengla, Menghun, 580 m, 1 ♂, 12-IX-1993 (IZCAS); Yunnan, Mengla, Menghun, 710-1400 m, 2 ♀♀, 6-VI-1958, leg. C. P. Hong (IZCAS); Yunnan, Mengla, 620-650 m, 1 ♀, 16-XI-1958 (IZCAS); Yunnan, Mengla, 3 ♂♂, 2-5-V-2017, leg. S. Y. Lang & J. Hou (LSY); Yunnan, Ximeng, 1 ♂, 5-V-2019, leg. S. Y. Lang (LSY); Tibet, Bome, Yigong, 2300 m, 1 ♀, 27-VIII-1983, leg. Y. H. Han (IZCAS); Tibet, Medog, Beibeng, 800-900 m, 1 ♂, 2 ♀♀, 5-29-VIII-1974, leg. F. S. Huang (IZCAS); Tibet, Medog, Beibeng, 850 m, 1 ♂, 1 ♀, 23-29-V-1983, leg. Y. H. Han & Z. Lin (IZCAS); Tibet, Medog, Yarang, 800 m, 2 ♂♂, 4-VIII-1974, leg. F. S. Huang (IZCAS); Tibet, Medog, Yarang, 790 m, 3 ♂♂, 13-VIII-2006, leg. S. Y. Lang & F. Q. Chen (IZCAS).

Terminology

Terminology of male genitalia follows that of Klots (in Tuxen, 1970), excepting two specialized characters of the *Thaumantis diores* Dbld.-complex. Tegumen caudal end has a short and acute projection for which the term “uncus anticus” is used (Kirchberg, 1942); a short projection is present and attaches to the base of the dorsal ridge of the uncus, and Kirchberg (1942) used the term “crista” for this projection.

Taxonomy

Thaumantis hainana libodiores Lang & Wang, ssp. nov. (Figures 1-3, 11-13)

Material: Holotype ♂, CHINA: Guizhou, Libo, Maolan Natural Reserve, Banzhai, 800 m, 26-VIII-2013, leg. S. Y. Lang (CMNH). Paratypes: 11 ♂♂, ditto, 22-27-VIII-2013, leg. S. Y. Lang & X. J. Wang (GZEU, LSY).

Diagnosis: The new subspecies can be distinguished from the nominate subspecies by the

combination of the following characters: 1. It is obviously larger than insular individuals of the nominate subspecies; 2. Iridescent blue patch on forewing upperside is narrowing towards the costa, whereas its anterior margin is wide in the nominate subspecies; 3. The dorsal surface of tegumen has 2 or 3 deep grooves, whereas it is smooth in the nominate subspecies; 4. Uncus anticus is coniform-shaped as in the nominate subspecies, but is more robust; 5. Crista is built as a finger like projection as in the nominate subspecies, but is obviously smaller.

The new subspecies is also superficially similar to *Thaumantis diores diores* Dbld., and it can be distinguished from the latter by the combination of the following characters: 1. Iridescent blue patches on upperside of both wings are often more restricted than those in *T. diores diores* Dbld.; 2. Iridescent blue patch on forewing upperside is narrowing towards the costa, whereas its anterior margin is wide in *T. diores diores* Dbld.; 3. Uncus anticus is coniform-shaped, whereas it is usually slightly flat in *T. diores diores* Dbld.; 4. Crista is built as a finger like projection, whereas it is very slender and flat in *T. diores diores* Dbld.

Notes: This subspecies also has features similar to *Thaumantis diores* Dbld., for example, its tegumen with grooves dorsally. Basing upon more characters shared with *T. hainana* (Crowley), we treat it as a subspecies of the latter: 1. Iridescent blue patches are often more reduced; 2. Uncus anticus is coniform-shaped; 3. Crista is built as a finger like projection.

Etymology: The specific name *libodiores* is composed by Libo, the type locality, and *diores*, the oldest name of this species complex.

Distribution: China (S. Guizhou).

Discussions

The fauna of Guangxi Province (China) is heterogeneous and diverse, and different mountain ridges are often isolated from each other here. Maolan Natural Reserve in Libo, Guizhou, type locality of *Thaumantis hainana libodiores* Lang & Wang, ssp. nov., is on the Guizhou-Guangxi border, and it is located at the southeastern fringe of the Yunnan-Guizhou plateau. Maolan is about 260 km to the northwest of Mt. Dayaoshan, which is an isolate ridge in east of Guangxi and a known habitat of *T. hainana hainana* (Crowley) in mainland. For Amathusiini, often local and slow flyers, such a distance and a degree of isolation can cause their speciation.

Only a male *Thaumantis hainana hainana* (Crowley) from Mt. Dayaoshan, Guangxi is examined in this study. Its male genitalia can hardly separate it from its conspecific relatives from Hainan Island, but it is obviously larger than those Hainanese individuals. Both its internal and external features are close to specimens of *T. diores diores* Dbld. from Vietnam (Inayoshi, pers. comm.). Therefore, populations of the *T. diores* Dbld.-complex from Guangxi and Vietnam might be a distinct subspecies of *T. hainana* (Crowley). Moreover, considering male genitalia differences, *T. hainana libodiores* Lang & Wang, ssp. nov. is also likely to be a distinct species. However, on the other hand, there is also another possibility that the *T. diores* Dbld.-complex is only a single species itself, *T. diores* Dbld., and all its taxa are conspecific and biogeographical subspecies, which are undergoing their vicariance (for example, differentiation of male genitalia structure). Of course, the above-mentioned hypotheses need more studies in the future.

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Xue-jian Wang
 School of Biological Sciences
 Guizhou Education University
 Wudang 550018 Guiyang
 CHINA / CHINA
 E-mail: wangxuejian622@126.com
<https://orcid.org/0000-0002-5103-3297>

*Song-yun Lang
 Chongqing Museum of Natural History
 Beibei 400700 Chongqing
 CHINA / CHINA
 E-mail: langsongyun@126.com
<https://orcid.org/0000-0001-5096-7082>

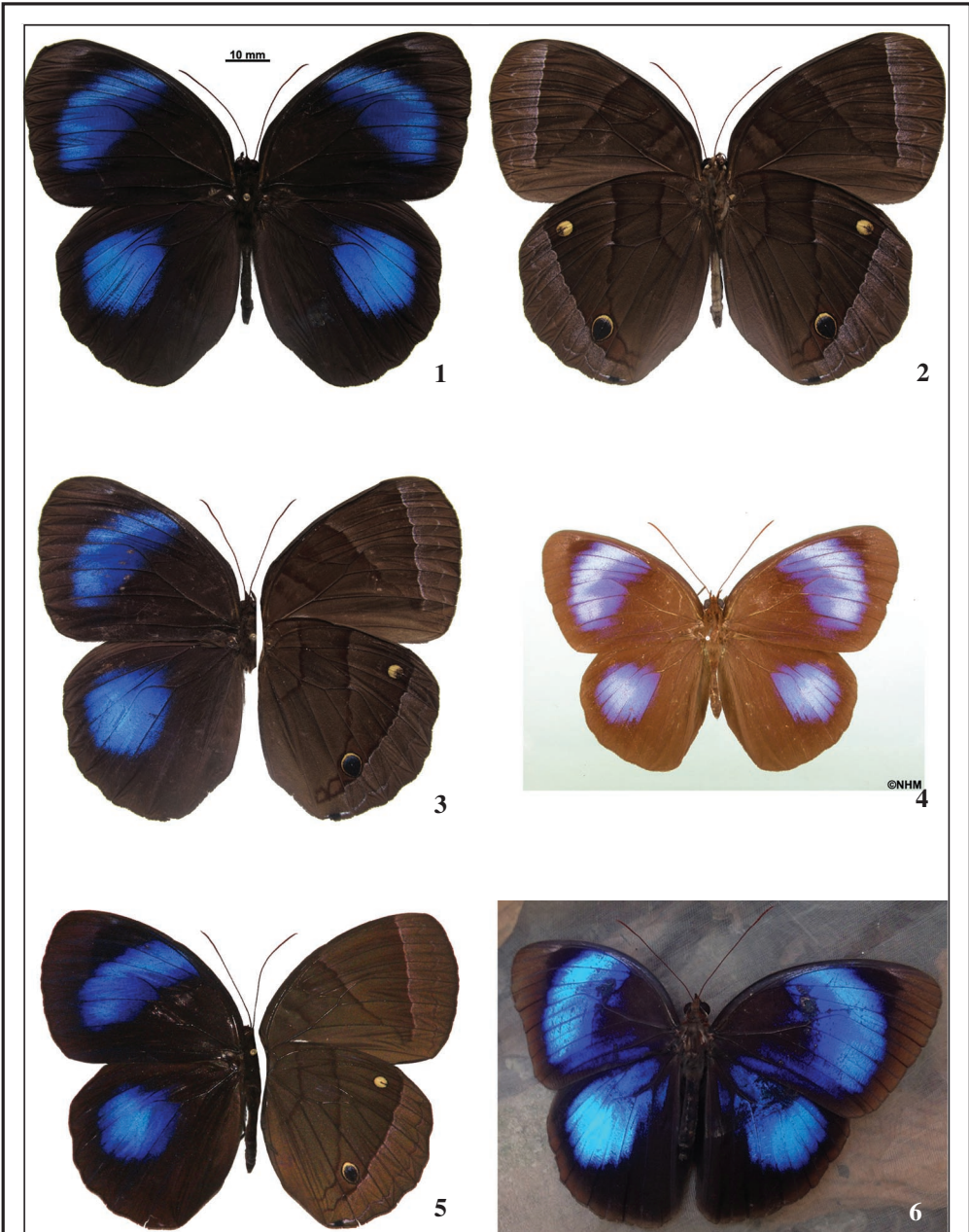
*Autor para la correspondencia / *Corresponding author*

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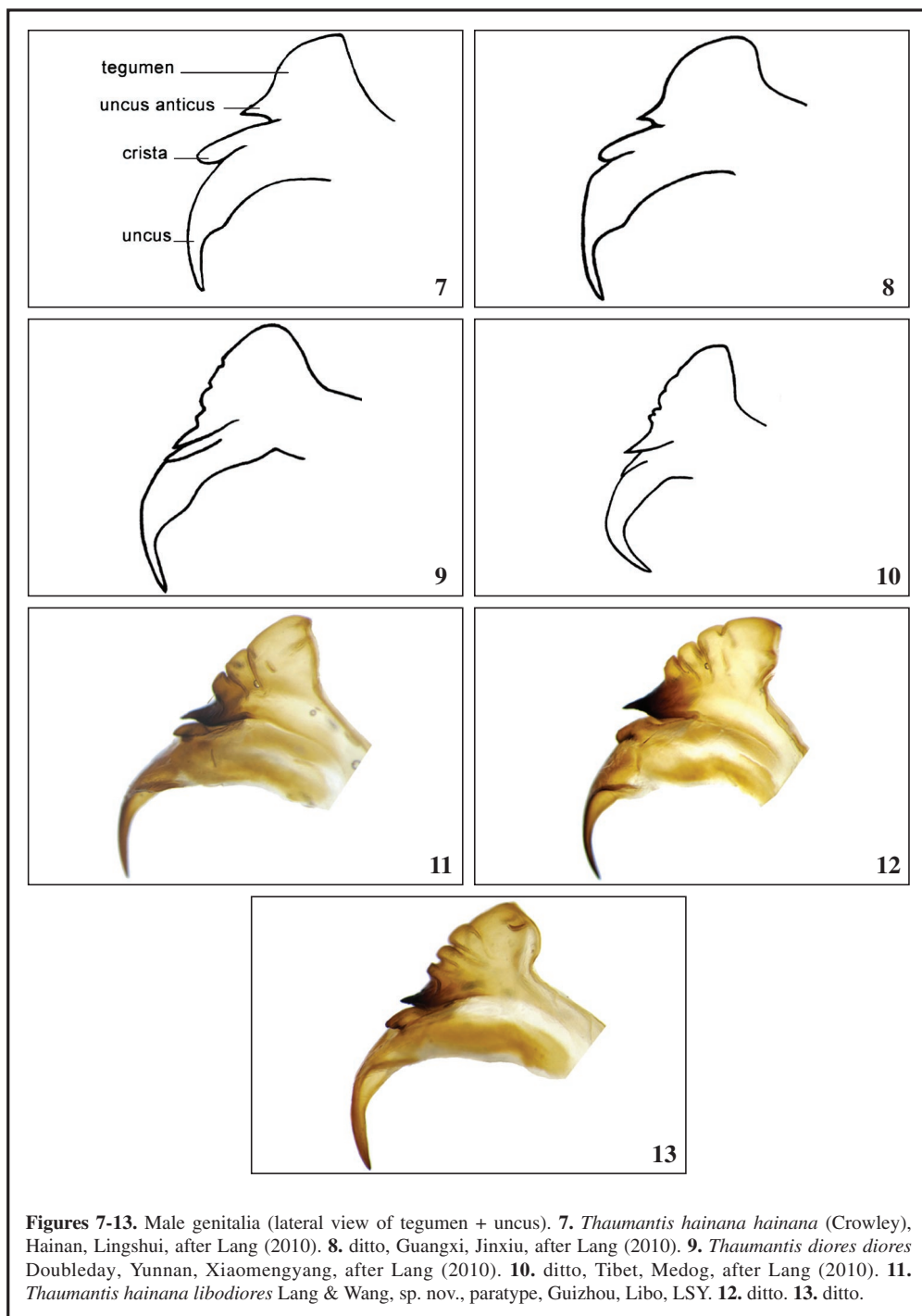
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Figures 1-6. 1-2. *Thaumantis hainana libodiorens* Lang & Wang, ssp. nov., holotype, ♂, Guizhou, Libo, CMNH. 3. ditto, paratype, ♂, Guizhou, Libo, LSY. 4. *Thaumantis hainana hainana* (Crowley), type of *Nandogea hainana* Crowley, ♂, Hainan, NHM. 5. *Thaumantis diores diores* Doubleday, ♂, Tibet, Medog, IZCAS. 6. ditto, ♂, Yunnan, Mengla, LSY.



Figures 7-13. Male genitalia (lateral view of tegumen + uncus). **7.** *Thaumantis hainana hainana* (Crowley), Hainan, Lingshui, after Lang (2010). **8.** ditto, Guangxi, Jinxiu, after Lang (2010). **9.** *Thaumantis diores diores* Doubleday, Yunnan, Xiaomengyang, after Lang (2010). **10.** ditto, Tibet, Medog, after Lang (2010). **11.** *Thaumantis hainana libodiores* Lang & Wang, sp. nov., paratype, Guizhou, Libo, LSY. **12.** ditto. **13.** ditto.

