

## Notes on the *Lopinga catena* (LEECH)-complex with the description of a new species

(Lepidoptera, Nymphalidae, Satyrinae)

by

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**Abstract:** *Lopinga catena* (LEECH, 1890)-complex which is a sister group of *L. achine* (SCOPOLI, 1763) is studied in this paper. *Lopinga stax* SUGIYAMA, 1999 **stat. nov.** is a distinct species but not a subspecies of *L. catena* (LEECH, 1890). *Lopinga catena zhaoi* LANG, 2018 **syn. nov.** is found to be a junior synonym of *L. stax* SUGIYAMA **stat. nov.** A new species, *Lopinga microcatena spec. nov.*, from western Hubei Province and southeastern Shaanxi Province, China is described and illustrated. Therefore until now 4 species are recognised from the *Lopinga catena* (LEECH)-complex, viz. *L. catena* (LEECH), *L. stax* SUGIYAMA **stat. nov.**, *L. microcatena spec. nov.* and *L. shaana* LANG & TSHIKOLOVETS, 2017.

**Abbreviations:** CMNH Chongqing Museum of Natural History, Beibei, Chongqing, CHINA  
 LSY Collection of SONG-YUN LANG, Shuangliu, Chengdu, Sichuan, CHINA

In LANG et al. (2018) the following three closely related species are involved, viz. *Lopinga achine* (SCOPOLI, 1763), *L. catena* (LEECH, 1890) and *L. shaana* LANG & TSHIKOLOVETS, 2017. Though the classification of *Lopinga achine* (SCOPOLI) is comparatively clear, the classification of *L. catena* (LEECH) and its related taxa, including *L. catena stax* SUGIYAMA, 1999, *L. catena zhaoi* LANG, 2018 as well as *L. shaana* LANG & TSHIKOLOVETS, is far from simple. Here, the present author treats *Lopinga catena* (LEECH) and its related taxa as a species group called *L. catena* (LEECH)-complex which is a sister group of *L. achine* (SCOPOLI). With examining additional material of the *Lopinga catena* (LEECH)-complex from different localities in this study, it seems that *L. shaana* LANG & TSHIKOLOVETS is not the only cryptic species which can be separated from *L. catena* (LEECH). Typical *Lopinga catena* (LEECH) was described from western Hubei Province, therefore material from Hubei is a key point. Interestingly, two kinds of *Lopinga catena* (LEECH) were obtained from western Hubei and nearby area of southeastern Shaanxi Province. One kind is the same as the syntype of *Pararge catena* LEECH, 1890 (fig. 7) which was illustrated by LEECH (1892) and BOZANO (1999), and another kind is quite different from the former and should be a new species. After examining true *Lopinga catena* (LEECH) from Hubei, the status of *L. catena stax* SUGIYAMA, 1999 is also clear and it deserves species status and then *L. catena zhaoi* LANG, 2018 should be its junior synonym. Therefore, at last four species can be recognised from the *Lopinga catena* (LEECH)-complex, and all of them will be introduced below one by one, including a description of the new species mentioned above.

### *Lopinga catena* (LEECH, 1890)-complex

#### *Lopinga catena* (LEECH, 1890) (figs: 1-9, 24-29)

*Pararge catena* LEECH, 1890: 30. Type locality (TL): Chang-yang, [Hubei].

Material: 1 ♂, CHINA: Gansu, Wenxian, Qiujiaba, 5.VII.2015, leg. ZI-HAO LIU (LSY); 4 ♀♀, CHINA: Gansu, Tanchang, Eman-gou, 2400 m, 2.VIII.2018, leg. SONG-YUN LANG & JIANG HOU (LSY); 9 ♂♂, CHINA: Shaanxi, Pingli, Hualong-shan, 2100 m, 29.VI.2018, leg. SONG-YUN LANG & JIANG HOU (LSY); 69 ♂♂, CHINA: Shaanxi, Lan'gao, Shenhe-yuan, 2200 m, 30.VI.-1.VII.2018, leg. SONG-YUN LANG & JIANG HOU (LSY); 8 ♂♂, CHINA: Hubei, Shennongjia, Shennongding, 2900 m, 17.VII.2018, leg. JIANG HOU (LSY); 1 ♀, CHINA: Sichuan, Nanjiang, Mt. Micangshan, Daba, 1850 m, 1.VIII.2016, leg. SONG-YUN LANG (LSY); 6 ♀♀, CHINA: Sichuan, Jiuzhaigou, Wujiao, 2450-2550 m, 28.VII.2018, leg. SONG-YUN LANG & JIANG HOU (LSY).

Distribution: China (S. Gansu, Daba-shan in S. Shaanxi, W. Hubei, N. Sichuan, N.E. Chongqing).

#### *Lopinga microcatena spec. nov.* (figs: 10-17, 32-35)

Holotype ♂, CHINA: Hubei, Shennongjia, Yanziya, 2150 m, 14.VII.2018, leg. SONG-YUN LANG (CMNH). Paratypes: 11 ♂♂, 3 ♀♀, ditto, 2150 m, 14-19.VII.2018, leg. SONG-YUN LANG & JIANG HOU (LSY); 1 ♀, ditto, 1.VIII.2013, leg. GUO-XI XUE (LSY); 1 ♂, CHINA: Hubei, Shennongjia, Hongping, 1850 m, 13.VII.2018, leg. SONG-YUN LANG (LSY); 1 ♂, 1 ♀, CHINA: Hubei, Shennongjia, Motianling, 1950 m, 18.VII.2018, leg. SONG-YUN LANG (LSY); 5 ♂♂, CHINA: Shaanxi, Lan'gao, Shenhe-yuan, 2200 m, 30.VI.-1.VII. 2018, leg. SONG-YUN LANG & JIANG HOU (LSY).

Etymology: The specific name *microcatena*, composed by the Latin prefix *micro-* and the name *catena*, means "small *catena*".

Description: ♂ (figs: 10-13, 15-17). Forewing length (FWL): 23-24.5 mm. Similar to *Lopinga catena* (LEECH); on forewing underside, yellowish bar in the cell very narrow; on forewing underside, yellowish discal band in spaces 1, 2 and 3 narrow; on hindwing underside, white bar in the cell thin, nearly equal width, not interrupted; on hindwing underside, white band inside the postdiscal ocelli very narrow. ♂ genitalia (figs: 32-35): Similar to *L. catena* (LEECH); uncus thin, not thickened; valva narrow throughout.

♀ (fig: 14). FWL: 24-26 mm. Similar to the ♂; on upperside of both wings, yellowish rings of the postdiscal ocelli very clear; on forewing upperside, a yellowish bar beyond the cell well present.

Diagnosis: The new species can be distinguished from other species of the *Lopinga catena* (LEECH)-complex by the combination of the following characters:

1. It is smaller than the other species of the *L. catena* (LEECH)-complex (table 1: FWL).
2. On forewing underside, the yellowish discal band in spaces 1, 2 and 3 is obviously narrower than that of *L. catena* (LEECH) and *L. shaana* LANG & TSHIKOLOVETS (table 1: WBF).
3. On hindwing underside, the white bar in the cell is thin and nearly equal width, whereas it is bulbed at both ends in *L. catena* (LEECH) and *L. shaana* LANG & TSHIKOLOVETS.
4. On hindwing underside, the white band inside the postdiscal ocelli is slender, somewhat narrower than that of *L. stax* SUGIYAMA **stat. nov.**, much narrower than that of *L. catena* (LEECH) and *L. shaana* LANG & TSHIKOLOVETS (table 1: WBH).
5. Uncus is somewhat thicker than that of *L. stax* SUGIYAMA **stat. nov.**, thinner than that of *L. catena* (LEECH), and much thinner than that of *L. shaana* LANG & TSHIKOLOVETS (table 1: WOU).
6. Valva is much narrower than that of the other species of the *L. catena* (LEECH)-complex (table 1: WOV).

Distribution: China (Daba-shan in S. Shaanxi, W. Hubei).

*Lopinga stax* SUGIYAMA, 1999 stat. nov. (figs: 18-21, 36-38)

*Lopinga catena stax* SUGIYAMA, 1999: 5, figs. 7, 8. TL: Lanzhou, Gansu.

*Lopinga catena zhaoi* LANG, in LANG et al., 2018: 127, figs: 5, 6, 15. TL: Liupan-shan, Ningxia. **syn. nov.**

Material: 1 ♂, CHINA: Gansu, Hezheng, square of Paleozoological Museum, 2100 m, 10.VII.2017, leg. YI LANG (LSY); holotype ♂ of *Lopinga catena zhaoi* LANG, CHINA: Ningxia, Mt. Liupanshan, 2000 m, 23.VI.2008, leg. ZONG-YI ZHAO (CMNH); 1 ♂, CHINA: Shaanxi, Fengxian, 20.VI.2010, leg. YU-FEI LI (LSY); 1 ♂, CHINA: Shaanxi, Zhouzhi, Banfangzi, 8.VI.2014, leg. WEN-HAO SUN (LSY); 2 ♂♂, CHINA: Shaanxi, Ningshan, 1900 m, 10.VI.2016, leg. SONG-YUN LANG (LSY).

Diagnosis: *Lopinga stax* SUGIYAMA **stat. nov.** can be distinguished from *L. catena* (LEECH) by the combination of the following characters:

1. On forewing underside, the yellowish discal band is usually narrower than that of *L. catena* (LEECH) (table 1: WBF).
2. On hindwing underside, the whitish basal and subbasal markings are weakly present, whereas they are well developed in *L. catena* (LEECH).
3. Uncus is thinner than that of *L. catena* (LEECH) (table 1: WOU).

Distribution: China (Gansu, S. Ningxia, Qin-ling in Shaanxi).

*Lopinga shaana* LANG & TSHIKOLOVETS, 2017 (figs: 22, 23, 30, 31)

LANG & TSHIKOLOVETS, in LANG, 2017: 118, pl. XIV: 10, 11. TL: Pinghe-liang, Ningshan, Shaanxi.

Material: Holotype ♂ of *Lopinga shaana* LANG & TSHIKOLOVETS, CHINA: Ningshan, Pinghe-liang, 2200 m, 9.VII.2017, leg. SONG-YUN LANG (CMNH); paratype ♂ of *Lopinga shaana* LANG & TSHIKOLOVETS, the same data as the holotype (LSY); 5 paratypes ♂♂ of *Lopinga shaana* LANG & TSHIKOLOVETS, CHINA: Ningshan, Cigou-liang, 1900 m, 8.VII.2017, leg. YI LANG & SONG-YUN LANG (LSY).

Distribution: China (Qin-ling in Shaanxi).

**Distribution pattern of the *Lopinga catena* (LEECH)-complex:** Judging from the distribution map of the *Lopinga catena* (LEECH)-complex (fig: 40), the ranges of *L. catena* (LEECH) and *L. stax* SUGIYAMA **stat. nov.** seem to be separated from each other. *Lopinga catena* (LEECH) is known from the Longmen-shan ridge which extends north-eastwards from C. Sichuan to N. Sichuan, and from the Daba-shan ridge sensu lato, which is an east-west orientated ridge located at the frontier areas of N. Sichuan, N.E. Chongqing, S. Gansu, S. Shaanxi and W. Hubei (Daba-shan ridge sensu lato including 4 sections from west to east, viz. Mts. Motian-ling between N. Sichuan and S.E. Gansu, Mts. Micangshan between N. Sichuan and S. Shaanxi, Mts. Daba-shan sensu stricto between N.E. Chongqing and S.E. Shaanxi, and Mts. Shennongjia in W. Hubei). Meanwhile, *Lopinga stax* SUGIYAMA **stat. nov.** is distributed on the north of the range of *L. catena* (LEECH) and it is known from Gansu (Yellow River basin and upper Wei-he River basin), S. Ningxia (Mts. Liupan-shan) and the Qin-ling ridge in Shaanxi. In west Qin-ling area of S. Gansu, which is the watershed of Yellow River basin and Yangtse River basin, three huge mountainous ridges including Qin-ling, Daba-shan and Min-shan are joint together here, therefore the boundary between the ranges of *Lopinga catena* (LEECH) and *L. stax* SUGIYAMA **stat. nov.** becomes blur in this area. Without examining ♂ specimen, 4 ♀♀ from Tanchang of this area are temporarily identified as *Lopinga catena* (LEECH) in this research. Therefore, further study of this area is needed for clarification of the distribution pattern of the two species mentioned above. But in the east the situation is simple because at there Qin-ling and Daba-shan are well and widely separated by Han-shui River basin which is a highly civilization area with agricultural development. Comparing with *Lopinga catena* (LEECH) and *L. stax* SUGIYAMA **stat. nov.** which have relatively large ranges, both *L. shaana* LANG & TSHIKOLOVETS and *L. microcatena* **spec. nov.** appear to be very local species. *Lopinga shaana* LANG & TSHIKOLOVETS shares the same habitat with *L. stax* SUGIYAMA **stat. nov.** at central part of Qin-ling (Mts. Taibai-shan area) in Shaanxi, but its adult occurs about a month later after *L. stax* SUGIYAMA **stat. nov.** *Lopinga microcatena* **spec. nov.** is described from the eastern part of the Daba-shan ridge sensu lato (this part including Daba-shan sensu stricto in the west and Mts. Shennongjia in the east). In Mts. Shennongjia, *Lopinga microcatena* **spec. nov.** and *L. catena* (LEECH) were collected from quite different habitats respectively by the present author and his colleagues, therefore it seems that the two do not share a same niche. Whereas in S.E. Shaanxi (area of Daba-shan sensu stricto) the two species mentioned above fly together in nature.

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References

- BOZANO, G. C. (1999): Satyridae 1, Subfamily Elymniinae, Tribe Lethini, *Lasiommata*, *Pararge*, *Lopinga*, *Kirinia*, *Chonala*, *Tatinga*, *Rhaphicera*, *Ninguita*, *Neope*, *Lethe*, *Neorina*. - In: Guide to the Butterflies of the Palearctic Region. - Omnes Artes, Milano.
- LANG, S. Y. (2017): The Nymphalidae of China (Lepidoptera, Rhopalocera). Part II. Satyrinae (partim): Tribe Satyrini (partim): Subtribes Eritina, Ragadiina, Lethina, Parargina. - Tshikolovets Publications, Pardubice.
- LANG, S. Y., LIU, Z. H., YU, L. & S. Q. ZHANG (2018): Some notes on *Lopinga* Moore, 1893 with description of two new subspecies from China (Lepidoptera, Nymphalidae, Satyrinae). - *Atalanta* 49 (1-4): 127-130, Marktfluthen.
- LEECH, J. H. (1890): New species of Lepidoptera from China. - *Entomologist* 23: 26-50, 81-83, 109-114, 187-192, London.
- LEECH, J. H. (1892): Butterflies from China, Japan, and Corea 1, 2. - R. H. Porter, London.
- SUGIYAMA, H. (1999): New butterflies from Western China (VI). - *Pallarge* 7: 1-14, Gifu.

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Taxa	FWL (mm)	WBF (mm)	WBH (mm)	WOU (mm)	WOV (mm)
<i>catena</i>	25-27	1.5-2.2	1.0-1.7	0.37-0.41	0.26-0.30
<i>microcatena</i>	23-24.5	0.9-1.1	0.7-1.0	0.36-0.40	0.15-0.20
<i>stax</i>	24-25.5	0.9-1.5	1.1-1.2	0.33-0.36	0.26-0.27
<i>shaana</i>	27.5-28.5	1.9-2.0	1.9-2.0	0.44-0.47	0.26-0.27

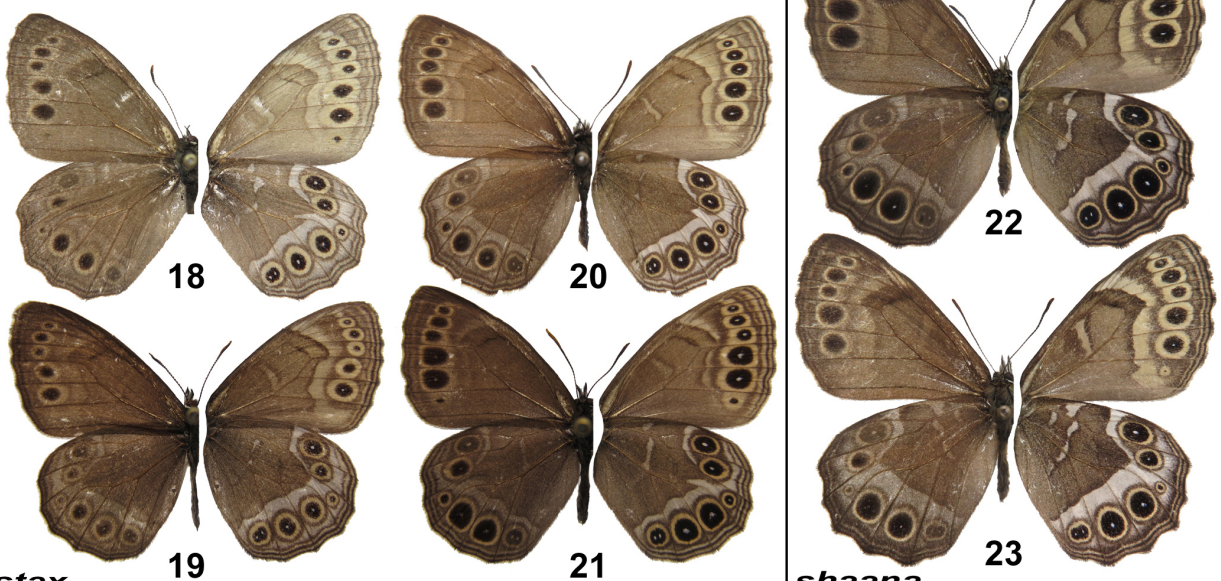
Table 1. Some measured features of the *Lopinga catena* (LEECH)-complex, data based on ♂ (see fig: 39). FWL - Forewing length; WBF - width of the yellowish discal band along vein 3 on forewing underside; WBH - width of the white band inside the postdiscal ocellus in space 2 on hindwing underside; WOU - width of the uncus; WOV - width of the apical half of the valva.



*catena*



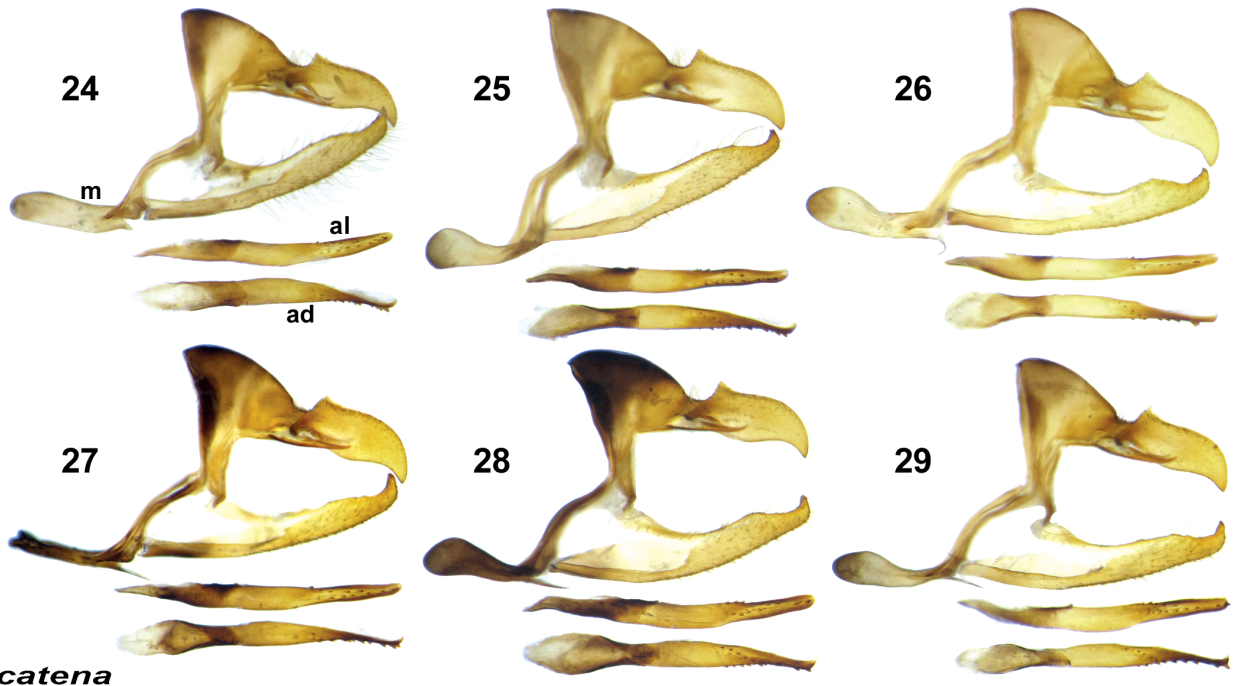
*microcatena*



*stax*

*shaana*

Fig. 1-8 (♂), 9 (♀): *Lopinga catena* (LEECH, 1890): (1) China: Shaanxi, Lan'gao, LSY; (2) China: Shaanxi, Lan'gao, SATY0715, LSY; (3) China: Shaanxi, Lan'gao, SATY0705, LSY; (4) China: Hubei, Shennongjia, SATY0711, LSY; (5) China: Hubei, Shennongjia, SATY0709, LSY; (6) CHINA: Hubei, Shennongjia, SATY0710, LSY; (7) syntype of *Pararge catena* LEECH, "Plate XI: 9" in LEECH (1892), [China: Hubei], Chang-yang, this figure without a scale bar; (8) China: Gansu, Wenxian, SATY0636, LSY; (9) China: Sichuan, Jiuzhaigou, LSY. Fig. 10-17: *Lopinga microcatena* spec. nov.: (10, 11) HT ♂, China: Hubei, Shennongjia, CMNH; (12) PT ♂, CHINA: Hubei, Shennongjia, SATY0703, LSY; (13) PT ♂, CHINA: Hubei, Shennongjia, LSY; (14) PT ♀, CHINA: Hubei, Shennongjia, LSY; (15) PT ♂, CHINA: Shaanxi, Lan'gao, LSY, SATY0716; (16) PT ♂, CHINA: Shaanxi, Lan'gao, LSY, SATY0704; (17) PT ♂, CHINA: Shaanxi, Lan'gao, LSY. Fig. 18-21 (♂): *Lopinga stax* SUGIYAMA, 1999 stat. nov.: (18) China: Gansu, Hezheng, SATY0560, LSY; (19) HT of *Lopinga catena zhaoi* LANG, China: Ningxia, Liupanshan, SATY0047, CMNH; (20) China: Shaanxi, Ningshan, SATY0561, LSY; (21) CHINA: Shaanxi, Fengxian, SATY0048, LSY. Fig. 22, 23: *Lopinga shaana* LANG & TSHIKOLOVETS, 2017: (22) HT ♂, CHINA: Shaanxi, Ningshan, SATY0558, CMNH; (23) PT ♂, CHINA: Shaanxi, Ningshan, SATY0559, LSY.



**catena**



**shaana**

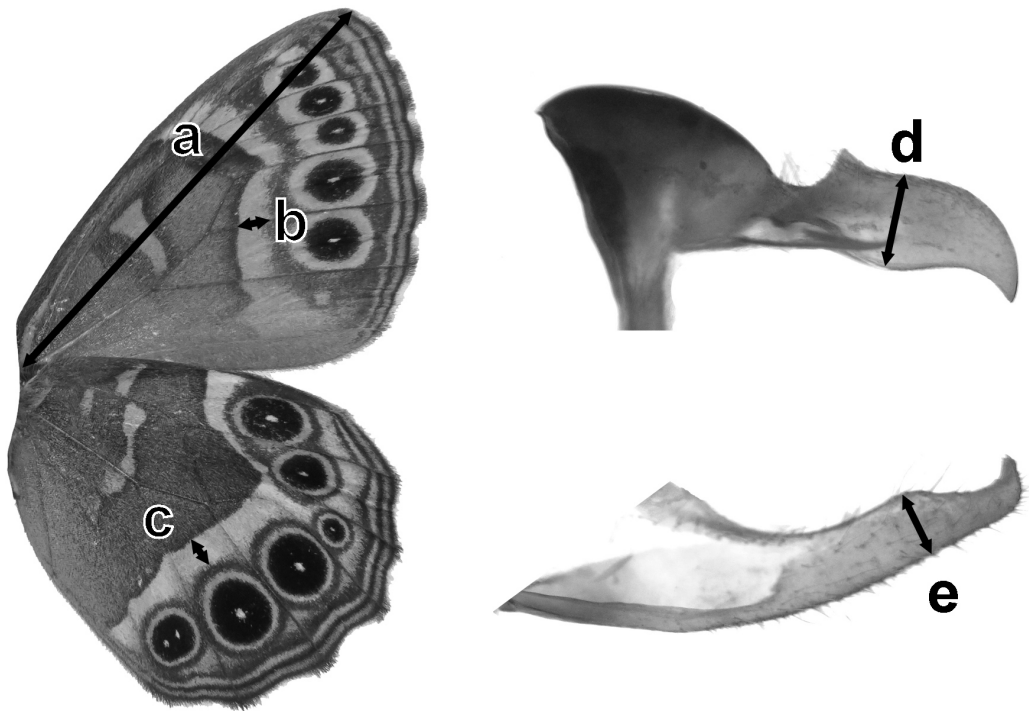


**microcatena**



**stax**

Fig. 24-38: ♂ genitalia in lateral view with left valva and aedeagus removed; al - aedeagus in lateral view; ad - aedeagus in dorsal view.  
**Fig. 24-29:** *Lopinga catena* (LEECH, 1890): (24) CHINA: Gansu, Wenxian, SATY0636, LSY; (25) China: Shaanxi, Lan'gao, SATY0705, LSY; (26) China: Shaanxi, Lan'gao, SATY0715, LSY; (27) China: Hubei, Shennongjia, SATY0709, LSY; (28) China: Hubei, Shennongjia, SATY0710, LSY; (29) China: Hubei, Shennongjia, SATY0711, LSY.  
**Fig. 30, 31:** *Lopinga shaana* LANG & TSHIKOLOVETS, 2017: (30) HT, China: Shaanxi, Ningshan, SATY0558, CMNH; (31) PT, China: Shaanxi, Ningshan, SATY0559, LSY.  
**Fig. 32-35:** *Lopinga microcatena spec. nov.*: (32) PT, China: Shaanxi, Lan'gao, LSY, SATY0704, LSY; (33) PT, China: Shaanxi, Lan'gao, LSY, SATY0716, LSY; (34) HT, China: Hubei, Shennongjia, SATY0717, CMNH; (35) PT, China: Hubei, Shennongjia, SATY0703, LSY.  
**Fig. 36-38:** *Lopinga stax* SUGIYAMA, 1999 *stat. nov.*: (36) China: Gansu, Hezheng, SATY0560, LSY; (37) HT of *Lopinga catena zhaoi* LANG, China: Ningxia, Liupanshan, SATY0047, CMNH; (38) China: Shaanxi, Ningshan, SATY0561, LSY.



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Fig. 39: Some measured features of the *Lopinga catena* (LEECH)-complex (see Table 1). a - forewing length (FWL); b - width of the yellowish discal band along vein 3 on forewing underside (WBF); c - width of the white band inside the postdiscal ocellus in space 2 on hindwing underside (WBH); d - width of the uncus (WOU); e - width of the apical half of the valva (WOV).

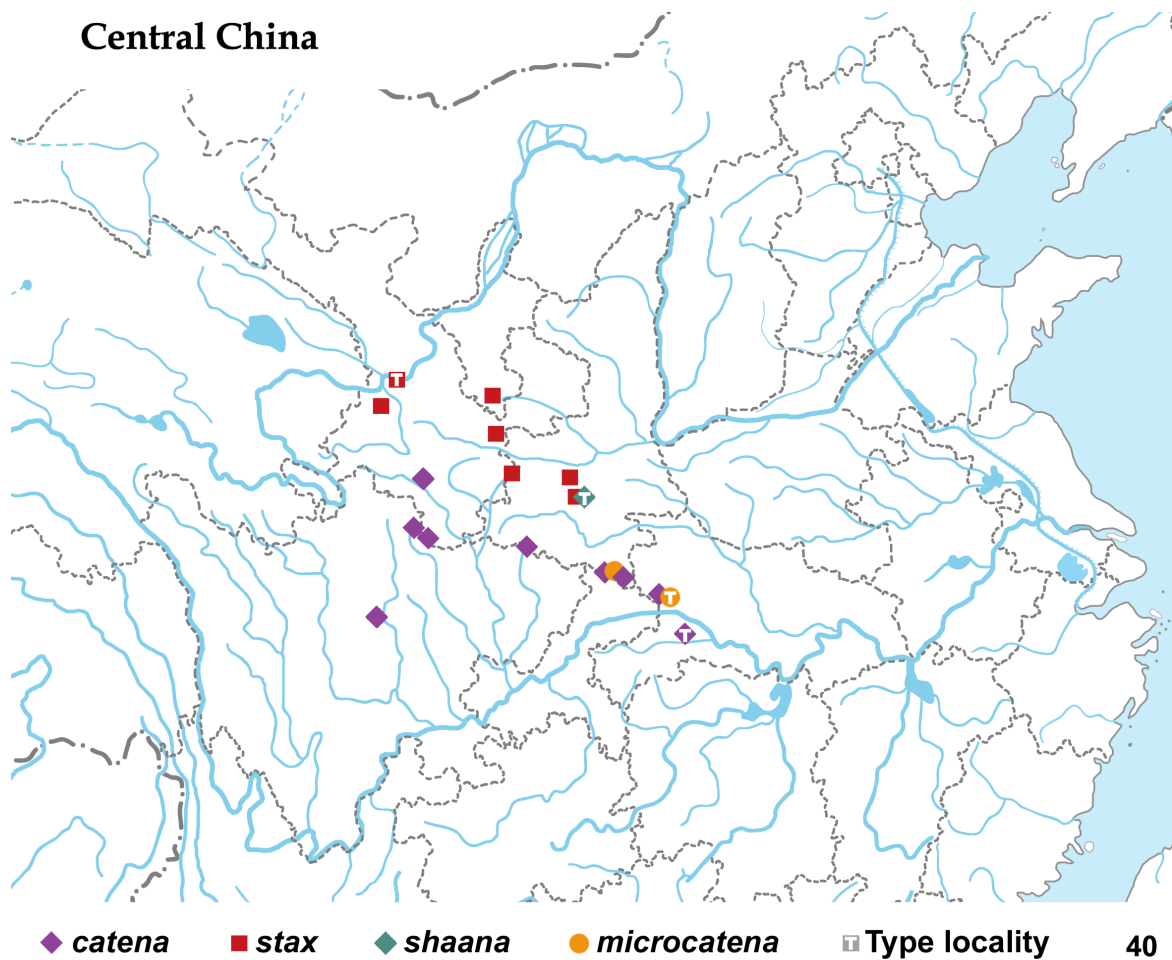


Fig. 40: Distribution map of the *Lopinga catena* (LEECH, 1890)-complex (Sources of data: Specimens kept in LSY & CMNH; LEECH, 1892; BOZANO, 1999; SUGIYAMA, 1999; LANG, 2017).

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