



# Re-description of the type specimens of *Corinnomma hamulatum* (Song & Zhu, 1992) **stat. rest.** (Araneae, Corinnidae) from Hubei, China

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## Abstract

## Background

*Corinnomma* Karsch, 1880 comprises 14 species, distributed in Asia, Africa and America. Amongst Asian species, *Castianeira hamulata* Song & Zhu, 1992 was considered as a junior synonym of *Co. severum* (Thorell, 1877) by Deeleman-Reinhold (2001).

## New information

The species *Corinnomma hamulatum* (Song & Zhu, 1992) **stat. rest.** is resurrected from its synonymy with *C. severum* (Thorell, 1877). Photos and morphological re-description of the type specimens are presented. The results of species delimitation using the Poisson Tree Process also support the resurrection of this species.

## Keywords

Asia, diagnosis, morphology, spider, taxonomy

## Introduction

Family Corinnidae Karsch, 1880 comprises 76 genera and 876 known species on a global scale, encompassing two subfamilies: Castianeirinae Reiskind, 1969 and Corinninae Karsch, 1880 (Reiskind 1969, World Spider Catalog 2025). The Castianeirinae includes 42 genera, which are typically mimics, usually of ants and occasionally of wasps (Silva-Junior and Bonaldo 2024).

*Corinnomma* Karsch, 1880, with the type species *Co. severum* (Thorell, 1877), belongs to the Castianeirinae and includes 14 species distributed across Asia, Africa and America (World Spider Catalog 2025). Amongst them, three species have been recorded from China: *Co. severum* (Thorell, 1877) (♂♀), *Co. simplex* L. Zhang, Jin & F. Zhang, 2022 (♂♀) and *Co. spirale* L. Zhang, Jin & F. Zhang, 2022 (♂♀) (World Spider Catalog 2025). This genus can be distinguished by the gradually sloping anterior abdomen, the dorsal scute being fused to the ventral scute and in the cylindrical palpal tibia without ventral concavity (Raven 2015). The species *Co. hamulatum* (= *Castianeira hamulata* Song & Zhu, 1992) is currently considered as a junior synonym of *Co. severum* (Deeleman-Reinhold 2001).

*Co. hamulatum* was originally described, based on two male and one female specimens from Hubei Province, China (Song and Zhu 1992). The original description was presented in Chinese and included inadequate figures (Song and Zhu 1992). Deeleman-Reinhold (2001) synonymised it with *Co. severum* without examining its type specimens. To resolve these taxonomic ambiguities, we re-studied the type specimens of *Co. hamulatum* to verify its taxonomic validity.

## Materials and methods

All specimens were preserved in 80% ethanol. The female genitalia were cleared in trypsin enzyme solution to dissolve non-chitinous tissues. Specimens were examined under a LEICA M205C stereomicroscope. Photomicrographs were taken with an Olympus C7070 zoom digital camera (7.1 megapixels). Species distribution maps were generated using ArcView GIS 3.2 software (ESRI 2002).

All measurements are in millimetres and were obtained with an Olympus SZX16 stereomicroscope with a Zongyuan CCD industrial camera. Measurements follow Zhang et al. (2022). All measurements of body lengths do not include the chelicerae. Eye sizes are measured as the maximum diameter from either the dorsal or frontal view. Leg measurements are given as follows: total length (femur, patella, tibia, metatarsus, tarsus). The terminology used in the text and figures follows Haddad (2012) and Zhang et al.

(2022). Abbreviations: ALE—anterior lateral eye; AME—anterior median eye; MOA—median ocular area; PLE—posterior lateral eye; PME—posterior median eye. Spination: do—dorsal; pl—prolateral; plv—prolateral ventral; rl—retrolateral; rlv—retrolateral ventral.

The material examined for this study is deposited in the following collections: **CYJL**—collection of Ye-Jie Lin, Dalian, China; **HNU**—College of Life Sciences, Hunan Normal University, Changsha, China; **IZCAS**—Institute of Zoology, Chinese Academy of Sciences, Beijing, China; **MHBU**—Museum of Hebei University, Baoding, China; **TRU**—Tongren University, Tongren, China.

In phylogenetic analysis, we included *Castianeira* sp. and *Nyssus* cf. *coloripes* as outgroups (Table 1). DNA was extracted from 2–4 legs using a TIANamp Genomic DNA Kit (TIANGEN Inc., Beijing, China) following the manufacturer's protocol. Gene fragment were amplified in 25 µl reactions. Primers and PCR conditions for each locus followed Zhang et al. (2022). We used the Poisson Tree Process (PTP) for species delimitation (Zhang et al. 2013). The software was run on the RAxML COI gene tree (Suppl. material 1) for  $2 \times 10^6$  generations. Convergence was assessed in the output file.

Table 1.

List of voucher information and GenBank accession numbers.

Taxon	Voucher	location	Genbank Accession Number (COI)
<i>Castianeira</i> sp.	MR527	Misiones, Argentina	<a href="#">KY017615.1</a>
<i>Corinnomma hamulatum</i>	YNM169	Yunnan, China	<a href="#">PV358000</a>
<i>Corinnomma hamulatum</i>	YNM172	Tibet, China	<a href="#">PV358002</a>
<i>Corinnomma hamulatum</i>	YNM173	Hainan, China	<a href="#">PV358003</a>
<i>Corinnomma hamulatum</i>	YNM177	Hainan, China	<a href="#">PV358005</a>
<i>Corinnomma hamulatum</i>	YNM183	Hainan, China	<a href="#">PV358010</a>
<i>Corinnomma hamulatum</i>	YNM184	Hainan, China	<a href="#">PV358011</a>
<i>Corinnomma hamulatum</i>	YNM185	Hainan, China	<a href="#">PV358012</a>
<i>Corinnomma hamulatum</i>	YNM186	Hainan, China	<a href="#">PV358013</a>
<i>Corinnomma hamulatum</i>	YNM187	Hainan, China	<a href="#">PV358014</a>
<i>Corinnomma hamulatum</i>	YNM188	Hainan, China	<a href="#">PV358015</a>
<i>Corinnomma hamulatum</i>	YNM189	Hainan, China	<a href="#">PV358016</a>
<i>Corinnomma hamulatum</i>	YNM194	Guangxi, China	<a href="#">PV358020</a>
<i>Corinnomma hamulatum</i>	YNM195	Hunan, China	<a href="#">PV358021</a>
<i>Corinnomma hamulatum</i>	YNM251	Hainan, China	<a href="#">PV358022</a>
<i>Corinnomma severum</i>	YNM116	Yunnan, China	<a href="#">ON054610</a>

Taxon	Voucher	location	Genbank Accession Number (COI)
<i>Corinnomma severum</i>	YNM110	Yunnan, China	<a href="#">ON054604</a>
<i>Corinnomma severum</i>	YNM113	Yunnan, China	<a href="#">ON054607</a>
<i>Corinnomma severum</i>	YNM114	Yunnan, China	<a href="#">ON054608</a>
<i>Corinnomma severum</i>	YNM162	Yunnan, China	<a href="#">PV357995</a>
<i>Corinnomma severum</i>	YNM163	Yunnan, China	<a href="#">PV357996</a>
<i>Corinnomma severum</i>	YNM164	Yunnan, China	<a href="#">PV357997</a>
<i>Corinnomma severum</i>	YNM165	Yunnan, China	<a href="#">PV357998</a>
<i>Corinnomma severum</i>	YNM167	Yunnan, China	<a href="#">PV357999</a>
<i>Corinnomma severum</i>	YNM170	Yunnan, China	<a href="#">PV358001</a>
<i>Corinnomma severum</i>	YNM175	Hainan, China	<a href="#">PV358004</a>
<i>Corinnomma severum</i>	YNM178	Yunnan, China	<a href="#">PV358006</a>
<i>Corinnomma severum</i>	YNM180	Yunnan, China	<a href="#">PV358007</a>
<i>Corinnomma severum</i>	YNM181	Yunnan, China	<a href="#">PV358008</a>
<i>Corinnomma severum</i>	YNM182	Yunnan, China	<a href="#">PV358009</a>
<i>Corinnomma severum</i>	YNM192	Yunnan, China	<a href="#">PV358018</a>
<i>Corinnomma severum</i>	YNM193	Yunnan, China	<a href="#">PV358019</a>
<i>Corinnomma simplex</i>	YNM115	Yunnan, China	<a href="#">ON054609</a>
<i>Corinnomma simplex</i>	YNM112	Yunnan, China	<a href="#">ON054606</a>
<i>Corinnomma spirale</i>	YNM106	Yunnan, China	<a href="#">ON054603</a>
<i>Corinnomma spirale</i>	YNM111	Yunnan, China	<a href="#">ON054605</a>
<i>Corinnomma spirale</i>	YNM190	Yunnan, China	<a href="#">PV358017</a>
<i>Nyssus cf. coloripes</i>	MR669	Tasmania, Australia	<a href="#">KY017624.1</a>

## Taxon treatment

### *Corinnomma hamulatum* (Song & Zhu, 1992)

#### Nomenclature

*Castianeira hamulata* Song & Zhu, 1992: 107, figs. 1–4 (♂♀); Song and Li (1997): 420, fig. 25A–D (♂♀); Song et al. (1999): 429, figs. 254O–P and 255E–F (♂♀).

*Corinnomma severum* (Thorell, 1877) - Deeleman-Reinhold (2001): 318, figs. 464–471 [♂♀, misidentification, considered as a senior synonym of *Castianeira*

*hamulatum* and *Corinnomma tiranglupa* (Barrion & Litsinger, 1995)]; Wang et al. (2012): 38, figs. 1A and 2A–I (♂♀, misidentification).

*Castianeira severum* Yin et al. (2012): 1131, fig. 601a–f (♂♀, misidentification).

## Materials

### Holotype:

- a. scientificName: *Corinnomma hamulatum*; country: China; stateProvince: Hubei; county: Xuan'en; verbatimCoordinates: 109.7269°E, 29.7986°N; year: 1989; month: 5; day: 25; individualCount: 1; sex: female; lifeStage: adult; catalogNumber: IZCAS-Ar9033; recordedBy: Anonymous; previousIdentifications: *Castianeira hamulata*; identifiedBy: Yejie Lin; dateIdentified: 2024; institutionCode: IZCAS; occurrenceID: 85711125-386B-5991-891C-0586F9ECD9E4

### Allotype:

- a. scientificName: *Corinnomma hamulatum*; country: China; stateProvince: Hubei; county: Xuan'en; verbatimCoordinates: 109.7269°E, 29.7986°N; year: 1989; month: 5; day: 25; individualCount: 1; sex: male; lifeStage: adult; catalogNumber: IZCAS-Ar9034; recordedBy: Anonymous; previousIdentifications: *Castianeira hamulata*; identifiedBy: Yejie Lin; dateIdentified: 2024; institutionCode: IZCAS; occurrenceID: 377A8C84-90F4-5311-85FF-EA556EEA2A2E

### Paratype:

- a. scientificName: *Corinnomma hamulatum*; country: China; stateProvince: Hubei; county: Xianfeng; municipality: Maheba Village; verbatimElevation: 394 m; verbatimCoordinates: 109.2500°E, 29.7627°N; year: 1989; month: 6; day: 4; individualCount: 1; sex: male; lifeStage: adult; catalogNumber: IZCAS-Ar9035; recordedBy: Anonymous; previousIdentifications: *Castianeira hamulata*; identifiedBy: Yejie Lin; dateIdentified: 2024; institutionCode: IZCAS; occurrenceID: 2DB91067-6DD2-5371-BAB6-D4521DE4A9CB

### Other materials:

- a. scientificName: *Corinnomma hamulatum*; country: China; stateProvince: Hunan; county: Sangzhi; municipality: Xijie Forest Farm; verbatimCoordinates: 110.1826°E, 29.3945°N; year: 2018; month: 11; day: 9; individualCount: 1; sex: male; lifeStage: adult; recordedBy: Zhaoyi Li, Hui Wang, and Yang Chen; previousIdentifications: *Corinnomma* sp.; identifiedBy: Yejie Lin; dateIdentified: 2024; institutionCode: MHBU; occurrenceID: 529E7D31-6697-5669-BECC-FD059F5F05C0
- b. scientificName: *Corinnomma hamulatum*; country: China; stateProvince: Guizhou; county: Jiangkou; municipality: Fanjingshan National Nature Reserve; year: 2011; month: 5; day: 11; individualCount: 4; sex: 3 males, 1 female; lifeStage: adult; recordedBy: Xiaoqi Mi, Hua Wang, and Mingyong Liao leg.; previousIdentifications: *Corinnomma severum*; identifiedBy: Yejie Lin; dateIdentified: 2024; institutionCode: TRU; occurrenceID: A94A2EDF-43B2-50B0-A156-BF4F8B0AD634
- c. scientificName: *Corinnomma hamulatum*; country: China; stateProvince: Hunan; county: Tongdao; municipality: Mujiao Township; year: 1996; month: 6; day: 4; individualCount: 1; sex: female; lifeStage: adult; recordedBy: Yongjing Zhang; previousIdentifications: *Castianeira severum*; identifiedBy: Yejie Lin; dateIdentified: 2024; institutionCode: HNU; occurrenceID: 266884E4-3390-570F-BFC2-102F46B26284
- d. scientificName: *Corinnomma hamulatum*; country: China; stateProvince: Hunan; county: Jiangyong; year: 1991; month: 10; day: 13; individualCount: 1; sex: male; lifeStage: adult;

recordedBy: Liansuo Gong; previousIdentifications: *Castianeira severum*; identifiedBy: Yejie Lin; dateIdentified: 2024; institutionCode: HNU; occurrenceID: BC8E2DA1-3CA1-5878-BAD9-00ED8E367229

- e. scientificName: *Corinnomma hamulatum*; country: China; stateProvince: Chongqing; county: Beibei; municipality: Jinyun Mountain; year: 2021; month: 9; day: 23; individualCount: 5; sex: 1 male, 4 females; lifeStage: adult; recordedBy: Qingtian We; previousIdentifications: *Corinnomma* sp.; identifiedBy: Yejie Lin; dateIdentified: 2024; institutionCode: CYJL; occurrenceID: AA1EEE86-99BD-5BFF-A60D-DACAB9B0BD46

## Description

**Male (allotype).** Total length 6.99 (7.05 with clypeus); carapace 3.42 long, 2.07 wide, opisthosoma 3.57 long, 2.14 wide. Eye sizes and interdistances: AME 0.18, ALE 0.11, PME 0.12, PLE 0.13; AME–AME 0.17, AME–ALE 0.05, PME–PME 0.26, PME–PLE 0.14, AME–PME 0.19, ALE–PLE 0.10. MOA 0.44 long, front width 0.45, back width 0.47. Clypeus height 0.15. Chelicerae with three promarginal (middle largest, distal smallest) and two retromarginal teeth (same size). Leg measurements: I 8.39 (2.26, 0.83, 2.07, 1.97, 1.26), II 7.67 (2.10, 0.78, 1.86, 1.77, 1.16), III 7.10 (1.94, 0.66, 1.76, 1.77, 0.97), IV 9.93 (2.68, 0.89, 2.24, 2.96, 1.16). Spination: femur I do 3 pl 1, II do 3, III do 3 pl 2 rl 2, IV do 3 pl 2 rl 2; patella III do 1; tibia I do 1 plv 3 rlv 3, II do 1 plv 3 rlv 2, III plv 2 rlv 2 pl 1 rl 1, IV plv 2 rlv 2 pl 1 rl 1; metatarsi I–II plv 2 rlv 2, III plv 3 rlv 3 pl 2 rl 2, IV plv 3 rlv 3 pl 3 rl 3.

Colouration (Fig. 4A and B). Carapace medially reddish-brown, with dark-brown margins and covered with dense short white hairs. Eye region black. Fovea longitudinal, black. Radial furrow indistinct. Chelicerae reddish-brown. Endites reddish-brown. Labium broader than long, reddish-brown. Sternum reddish-brown, with truncated anterior margin and pointed posterior end. Coxae of legs I–II yellowish-brown, that of legs III–IV dark-brown, femora dark-brown, remaining segments reddish-brown, all covered with dense short white hairs. Opisthosoma grey-brown, pear-shaped, scutum strongly sclerotised, dorsal scutum covering almost 9/10 of opisthosoma, with yellow and white short hairs, ventral scutum covering almost 1/2 of opisthosoma, with white short hairs in the anterior region. Spinnerets reddish-brown.

Palp (Figs 1, 2). Femur with two spines dorsally, five times longer than wide. Patella slightly curved, 1.5 times longer than wide, with three spines dorsally. Tibia two times longer than wide, with a spine prolaterally, at one third of tibia. Cymbium almost three times longer than wide, with distinct subulate retrobasal paracymbial spine, without ridge. Subtegulum covered by tegulum, not obvious. Tegulum pear-shaped. Sperm duct with three curves, a constriction present near the embolus. Embolus S-shaped, helically twisted, with two bends in ventral view, almost 1/4 of the bulb.

**Female (holotype).** Total length 8.26 (8.28 with clypeus); carapace 3.81 long, 2.46 wide, opisthosoma 4.45 long, 3.33 wide. Eye sizes and interdistances: AME 0.19, ALE 0.12, PME 0.12, PLE 0.12; AME–AME 0.21, AME–ALE 0.03, PME–PME 0.33, PME–PLE 0.18, AME–PME 0.19, ALE–PLE 0.12. MOA 0.43 long, front width 0.52, back width 0.58. Clypeus height 0.17. Chelicerae with three promarginal (middle

largest, distal smallest) and two retromarginal teeth (same size). Leg measurements: I 8.97 (2.42, 0.91, 2.28, 2.07, 1.29), II 8.61 (2.42, 0.90, 2.06, 1.94, 1.29), III 7.68 (2.10, 0.85, 1.76, 1.87, 1.10), IV 11.15 (3.06, 1.02, 2.55, 3.17, 1.35). Spination: femur I do 4, II do 3 pl 1, III do 3 pl 1 rl 1, IV do 1 pl 1 rl 1; patella I do 1, III do 2; tibia I do 1 plv 2 rlv 2, II plv 2 rlv 3, III do 1 pl 2 rl 2, IV do 1 plv 3 rlv 3 pl 2 rl 2; metatarsi I–II plv 2 rlv 2, III plv 3 rlv 3 pl 2 rl 3, IV do 1 plv 3 rlv 3 pl 3 rl 3.

Colouration (Fig. 4C and D). As in male.

Epigyne (Fig. 3A and B). Epigynal plate rectangular. Copulatory openings at middle of epigynal plate, with 6-shaped rims. Copulatory ducts C-shaped, attached to spermathecae I. Spermathecae I curved, contiguous. Spermathecae II sac-like, with straight, wrinkled and contiguous proximal and diverging globular distal parts. Fertilisation duct semi-circular, lying on Spermathecae II.

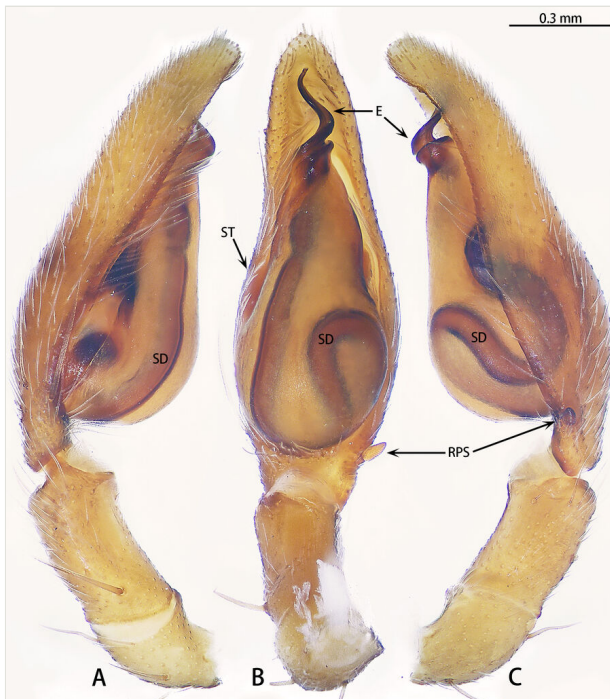


Figure 1. [doi](#)

*Corinnomma hamulatum* **stat. rest.**, allotype male. **A** Distal segments of palp, proteral view; **B** Same, ventral view; **C** Same, retrolateral view. Abbreviations: E—embolus; SD—sperm duct; ST—subtegulum; RPS—Retrobasal paracymbial spine.

## Diagnosis

*Corinnomma hamulatum* **stat. rest.** resembles *C. severum* and *C. spirale* Zhang, Jin & Zhang, 2022 in having transverse stripes on the abdomen; male embolic tip curved

and the length ratio of the basal coils to the distal coils is approximately 1:3; female with curved copulatory ducts.

However, the male can be distinguished by the retrobasal paracymbial spine conical, ridge absent (Fig. 2A and B) [vs. tongue-shaped, ridge present in *C. severum* (see Zhang et al. (2022): figs. 9A and B)], the length ratio of the embolus to the bulb is approximately 1:0.2 ventrally (Fig. 1B) [vs. 1:0.1 in *C. severum* [see Zhang et al. (2022): fig. 4B)], the distal fold almost 120° curved (Fig. 2C) (vs. 90° curved in *C. spirale* [see Zhang et al. (2022): fig. 10E]) and basal fold almost 90° curved ventrally (Fig. 2C) [vs. 110° curved in *C. severum* (see Zhang et al. (2022): fig. 4B)]. The females can be further distinguished by the length-to-width ratio of the copulatory opening being 1:0.4 (Fig. 3A) [vs. 1:0.6 in *C. severum* (see Zhang et al. (2022): fig. 4D)] and the C-shaped copulatory ducts (Fig. 3B) (vs. S-shaped in *C. spirale* (see Zhang et al. (2022): fig. 8D)].

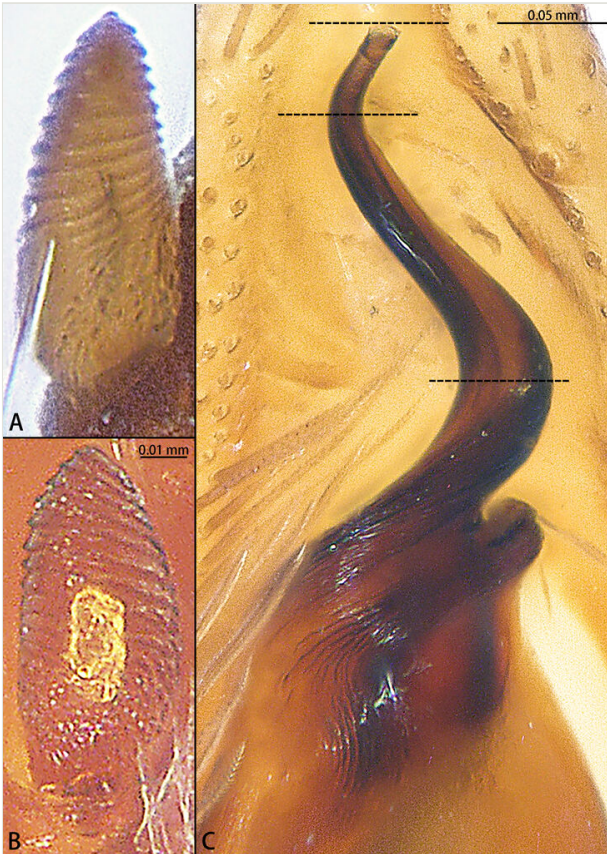


Figure 2. [doi](#)

*Corinnomma hamulatum* **stat. rest.**, allotype male. **A** Retrobasal paracymbial spine, lateral view; **B** Same, dorsal view; **C** Embolus, ventral view. Stipple lines indicate the demarcation between the basal and distal coils of the embolus.



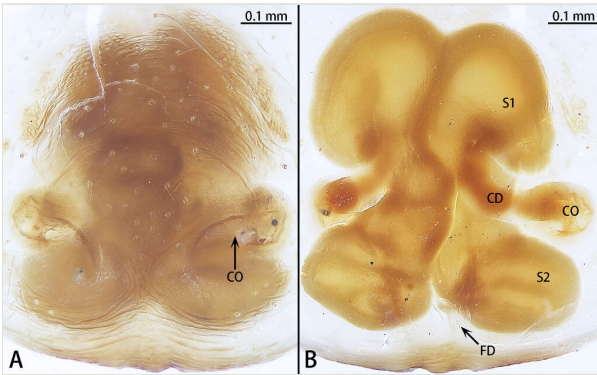


Figure 3. [doi](#)

*Corinnomma hamulatum* **stat. rest.**, holotype female. **A** Epigyne, ventral view; **B** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; FD—fertilisation duct; S1—spermatheca I; S2—spermatheca II.

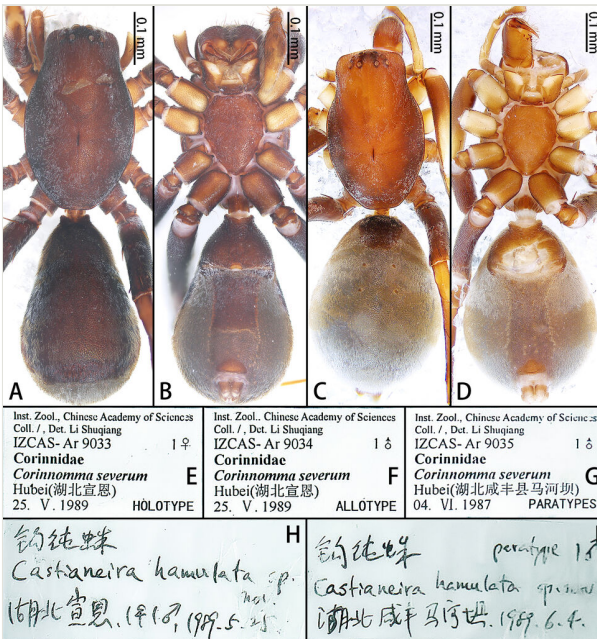


Figure 4. [doi](#)

*Corinnomma hamulatum* **stat. rest.**, habitus and labels, allotype male (**A**, **B**, **F**, **H**), holotype female (**C**, **D**, **E**, **H**) and paratype (**G**, **I**). **A** Allotype male, dorsal view; **B** Same, ventral view; **C** Holotype female, dorsal view; **D** Same, ventral view; **E**–**I** Original labels (**H**, **I** handwriting by Daxiang Song).

## Distribution

China (Hubei, Hunan, Chongqing, Guizhou) (Fig. 5).

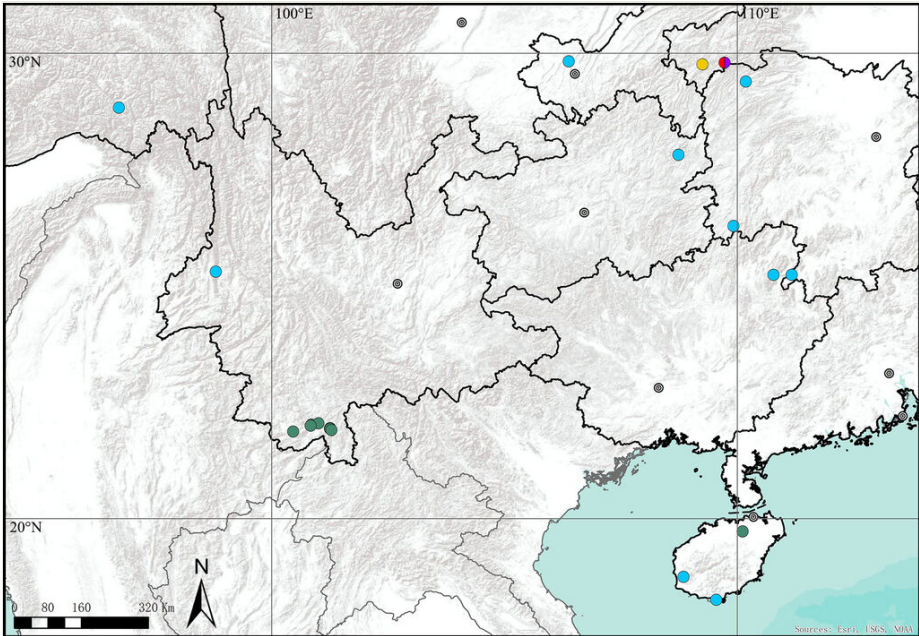


Figure 5. [doi](#)

Distribution records of *Corinnomma* spp. *hamulatum* **stat. rest.** in China: *C. hamulatum* **stat. rest.**: **Red** holotype, **Purple** allotype, **Yellow** paratype, **Blue** other records; *C. severum*: **Green**.

## Biology

Hunting during the day, mimicking ants. (Fig. 6).

## Taxon discussion

COI-based phylogenetic analysis revealed two primary clades: one comprising *Corinnomma severum* and the other encompassing three species (*C. simplex* Zhang, Jin & Zhang, 2022, *C. spirale* Zhang, Jin & Zhang, 2022 and *C. hamulatum* **stat. rest.**) (Suppl. material 1). Poisson Tree Processes (PTP) delimitation using 38 COI sequences identified six species (Table 1), excluding two outgroups ([KY017624.1](#), [KY017615.1](#)). The delimited species include *C. simplex* (YNM112, YNM115), *C. spirale* (YNM106, YNM190, YNM111), *C. severum* (YNM116, YNM110, YNM113, YNM114, YNM162, YNM163, YNM164, YNM165, YNM167, YNM170, YNM175, YNM178, YNM180, YNM181, YNM182, YNM192, YNM193) and *C. hamulatum* **stat. rest.** (YNM169, YNM172, YNM173, YNM177, YNM183, YNM184, YNM185, YNM186, YNM187, YNM188, YNM189, YNM194, YNM195, YNM251). Statistical support for this delimitation was significant (Null-model score: 77.691; Best single coalescent rate score: 105.008; LRT p-value: < 0.001), showing partial congruence with previous findings in Zhang et al. (2022).



Figure 6. [doi](#)

*Corinnomma hamulatum* **stat. rest.**, female from Chongqing, in life. Photo by Qianle Lu.

### Notes

As the paratype label does not match the handwritten label (Fig. 4G and I), the handwritten label takes precedence.

### Comments

The recent re-examination of the type specimens of *Co. hamulatum* has revealed that it is different from *Co. severum* and should be recognised as a valid species. Consequently, the validity of *Co. hamulatum* **stat. rest.** is hereby restored.

## Acknowledgements

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## Author contributions

Xinxin Li, Chang Chu and Yejie Lin contributed equally to this study. Conceptualisation: Yejie Lin; Data curation: Chang Chu; Formal analysis: Yejie Lin; Funding acquisition:

Xinxin Li; Investigation: Yejie Lin; Methodology: Chang Chu, Yejie Lin; Project administration: Xinxin Li, Yejie Lin; Resources: Xinxin Li, Chang Chu; Software: Yejie Lin; Supervision: Yejie Lin; Validation: Xinxin Li, Yejie Lin; Visualisation: Yejie Lin; Writing-original draft: Chang Chu, Yejie Lin; Writing, review and editing: Yejie Lin.

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## Supplementary material

### Suppl. material 1: RAxML COI gene tree, 38 specimens [doi](#)

**Authors:** Xinxin Li

**Data type:** phylogenetic tree

**Brief description:** Maximum Likelihood analysis was performed using RAxML v. 8.2.12 (Stamatakis 2014) with 1,000 ML Bootstrap replicates based on the GTRGAMMA model run by a rapid Bootstrap analysis.

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