European Journal of Taxonomy 1034: 259–270
https://doi.org/10.5852/ejt.2026.1034.3155
europeanjournaloftaxonomy.eu
ISSN 2118-9773
2026 · Zhong H. *et al.*

Received: 12 May 2025 • *Accepted: 23 October 2025* • *Published: 26 January 2026*
Topic editor: Magalie Castelin • *Desk editor: Eva-Maria Levermann*

Research article

urn:lsid:zoobank.org:pub:E4CB653A-E4D1-4CFD-897E-9A916E7F24C9

Description of two new species of the genus *Parathyas* Lundblad, 1926 (Acari: Hydryphantoidea: Hydryphantidae: Euthyadinae) from China

Hao ZHONG[1], Jian-Jun GUO[2], Dao-Chao JIN[3], Hai-Tao LI[4] & Xin-Yao GU[5,*]

[1,2,3,4]Institute of Entomology, Guizhou University, Scientific Observing and Experimental Station of Crop Pests in Guiyang, Ministry of Agricultural and Rural Affairs of the P.R. China, Guiyang 550025, P.R. China.
[5]College of Animal Sciences, Guizhou University, Guiyang 550025, P.R. China.

[*]Corresponding author: guxy@gzu.edu.cn
[1]E-mail: haozhong121@qq.com
[2]E-mail: jjguo@gzu.edu.cn
[3]Email: daochaojin@126.com
[4]Email: 3221448736@qq.com

Abstract. Two species, *Parathyas weichangensis* Zhong sp. nov. and *Parathyas jinghongensis* Zhong sp. nov. are described and illustrated in detail as new species to science. These specimens were collected from Weichang County, Chengde City, Hebei Province and Jinghong City, Yunnan Province, China, respectively.

Keywords. Water mites, new species, *Parathyas*, taxonomy, Chinese fauna.

Zhong H., Guo J.-J., Jin D.-C., Li H.-T. & Gu X.-Y. 2026. Description of two new species of the genus *Parathyas* Lundblad, 1926 (Acari: Hydryphantoidea: Hydryphantidae: Euthyadinae) from China. *European Journal of Taxonomy* 1034: 259–270. https://doi.org/10.5852/ejt.2026.1034.3155

Introduction

The genus *Parathyas* Lundblad, 1926 belongs to subfamily Euthyadinae K. Viets, 1931. They inhabit various aquatic environments such as temporary standing waters, small water bodies, springs, and swamps (Smit 2020). The main distinguishing features of *Parathyas* include the lack of pigment in the median eye, the never fused dorsalia (except Dc1 and 2, which are occasionally fused), three pairs of acetabula, Ac-1 located in front of the anterior margin of genital plate, Ac-2 and Ac-3 adjacent to the posterior margin of genital plate, and their basal sclerites fused to varying degrees and connected to the plate margin (Smit 2020). Currently, there are several species known from China, Europe, North Africa, Siberia, North America, and Kashmir, but only two species (*Parathyas pingwuensis* Zhong & Guo, 2025 and *Parathyas qilianensis* Zhong & Guo, 2025) are known from China (Cook 1959; Tuzovskij 2007; Di Sabatino *et al.* 2010; Smit 2020; Zhong *et al.* 2025).

During a recent research project on the Hydryphantoidea of China, two new species, i.e., *Parathyas weichangensis* Zhong sp. nov. and *Parathyas jinghongensis* Zhong sp. nov. were found in Weichang County, Chengde City, Hebei Province and Jinghong City, Yunnan Province, China, respectively. In this paper, the detailed descriptions and illustration of the two species are presented.

Material and methods

The collection, preservation of water mites and preparation of slides were conducted following Gu *et al.* (2021) and Zhang *et al.* (2025). Specimens were observed and drawn under a Leica DM3000 microscope. The illustrations were edited with Adobe Photoshop CS 2022®. Photographs of the specimens were taken with a Nikon DS-Ri2. A photo of the habitat of the collection site was taken with a mobile phone (Oppo A32). The terminology and abbreviations used follow Jin (1997) and Goldschmidt (2007).

Abbreviations used for the chaetotaxy and nomenclature of glandularia

A_1, A_2 = antenniform glandularia l and 2
C_1–C_4 = coxoglandularia 1–4
D_1–D_4 = dorsoglandularia 1–4
L_1–L_4 = lateroglandularia 1–4
O_1, O_2 = ocularia 1 and 2
V_1–V_4 = ventroglandularia 1–4

Abbreviations used for morphological terms

Ac-1–3	=	genital acetabula 1–3
ACG	=	anterior coxal group (Cx-I+Cx-II)
Ap	=	anal pore
Cx-I–Cx-IV	=	coxae I–IV
Dc1–5	=	dorsocentralia 1–5
Gf	=	entire genital field, width measured by outer margin of both sides
Ib	=	infracapitular bay
Ib-Ap	=	distance between posterior limit of Ib and edge of Ap
Ib-Gf	=	distance from Ib to anterior edge of Gf
I-L-1–6, etc.	=	first leg segments 1–6, etc.
P-I–P-V	=	palp segments I–V
PCG	=	posterior coxal group (Cx-III+Cx-IV)

The specimens were measured by a Nikon Ni-E microscope (with a Nikon DS-Ri2 camera). All measurements were given in µm. All specimens were deposited in the Institute of Entomology, Guizhou University, Guiyang, P.R. China (GUGC).

Results

Taxonomy

Class Arachnida Lamarck, 1801
Order Trombidiformes Reuter, 1909
Superfamily Hydryphantoidea Piersig, 1896
Family Hydryphantidae Piersig, 1896
Subfamily Euthyadinae K. Viets, 1931
Genus *Parathyas* Lundblad, 1926

Parathyas weichangensis Zhong sp. nov.
urn:lsid:zoobank.org:act:497657AB-90E8-4560-98CB-F268EAA53622
Figs 1–3

Diagnosis

A_1 smooth, thick and short. Coxae with very few fine setae. Pregenital sclerite extremely large, with a Y-shaped sclerite and anteriorly an arc-shaped ring. Ac-2 and Ac-3 fused into a common sclerite in trapezoidal arrangement. Setae of palp smooth. Legs slender and leg IV relatively long.

Etymology

The species is named after the Weichang County, where the holotype was collected.

Type material

Holotype
P.R. CHINA • ♀; Hebei Province, Chengde City, Weichang County; 42.3915° N, 117.1617° E; 1488 m a.s.l.; 26 Jun. 2021; Hai-Tao Li leg.; puddle still water; slide no. HB-HY-2021062601; GUGC.

Paratype
P.R. CHINA • 1 ♀; same data as for holotype; slide no. HB-HY-2021062602; GUGC.

Description

Female (n = 2)
Idiosoma elliptical (Fig. 1A–B), red in colour. Integument papillate. Muscle attachment sclerites present. Median eye free in integument, external diameter of frontal ring approximately ½ × as long as eye capsule. Prefrontalia and postfrontalia separated. A_1 smooth, thick and short. O_1 located near anterior idiosoma margin. Dc1 and Dc2 fused to form rounded platelet on each side, Dc3–5 of small size (Figs 1A, 3A). Coxae in four groups, setae on coxae minute and sparse. Anteromedial margin of Cx-I with three setae, anterolateral margin of Cx-I with one seta; lateral margin of Cx-II with two setae; lateral margin of Cx-III with three setae (Fig. 3B). Genital plate with transverse anterior; pregenital sclerite extremely large, with Y-shaped sclerite and anteriorly arc-shaped ring (Fig. 3J); medial margin of genital plate with very small setae, and with longer setae posteriorly. Three pairs of acetabula, arranged more or less in line on each side. Ac-1 lying anterior to anterior margin of genital plate, Ac-2 and Ac-3 fused into common sclerite in trapezoidal arrangement (Fig. 2A). Excretory pore slit-shaped, with large crescent-shaped anterior sclerite, posterior sclerite small, not forming continuous ring, and with knob-shaped anterior extension. Setae of palp smooth, dorsal margin of P-I with two setae; P-II with four setae; P-III with one long seta; P-IV with small dorsodistal extension, and with one homomorphic hair-like seta on ventrodistal and dorsodistal ends, respectively; P-V sharp, with two small setae (Figs 2B, 3C). Gnathosoma with short rostrum (Figs 2C, 3E). Chelicera chela serrated (Figs 2D, 3D). Legs slender and leg IV relatively long, with many peg-like setae and without swimming setae (Fig. 3F–I).

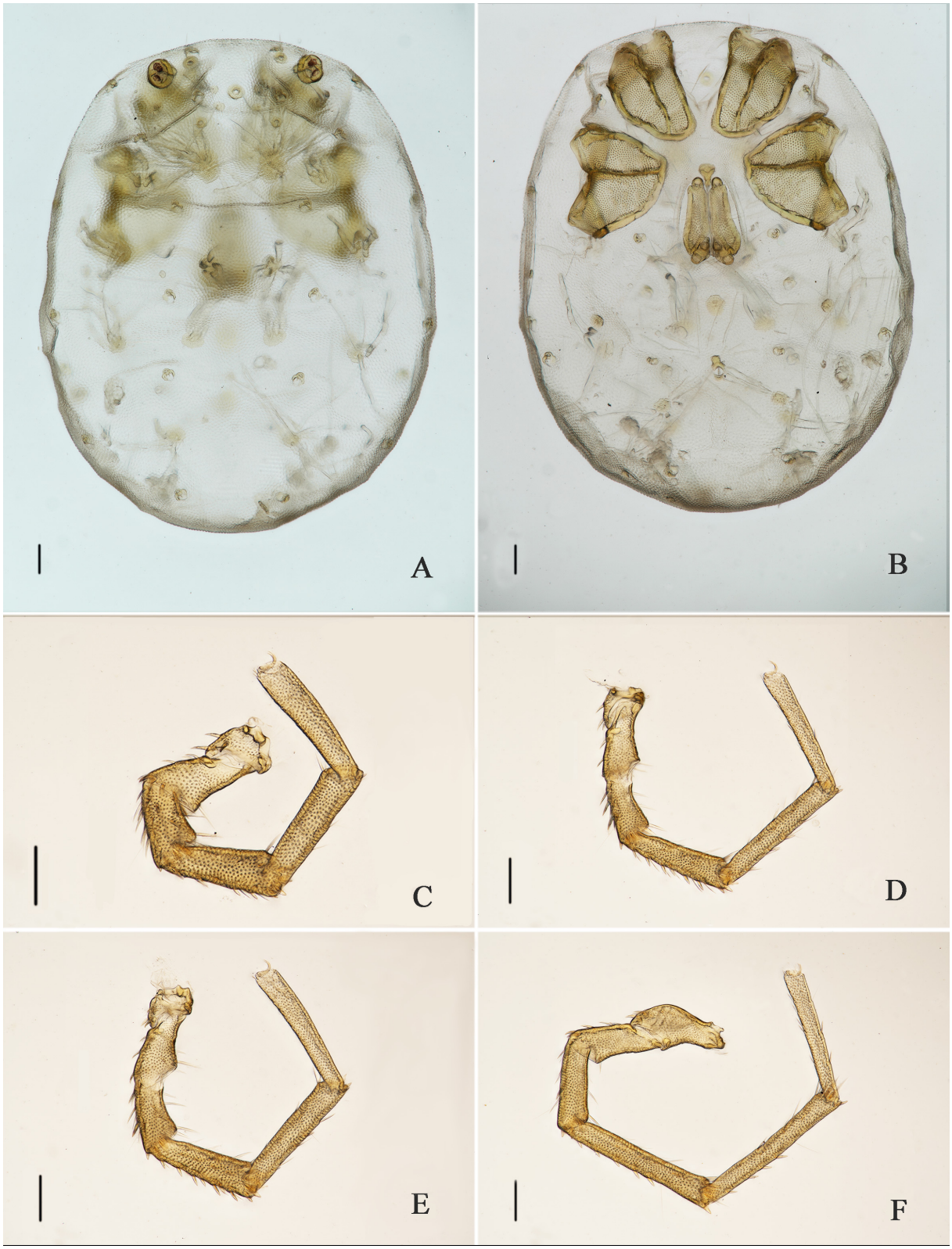

Fig. 1. *Parathyas weichangensis* Zhong sp. nov., holotype, ♀ (HB-HY-2021062601, GUGC). **A**. Idiosoma, dorsal view. **B**. Idiosoma, ventral view. **C**. Leg I. **D**. Leg II. **E**. Leg III. **F**. Leg IV. Scale bars = 100 μm.

Measurements. Idiosoma length 1650 (1815), width 1313 (1382). ACG 376 (393) in length, 297 (320) in width. PCG 378 (426) in length, 339 (412) in width. Genital field (including pregenital sclerite) 347 (346) in length, 197 (205) in width. Ib-Ap 888 (996). Ib-Gf 211 (275). Dorsal lengths of palp segments: P-I, 56 (62); P-II, 120 (132); P-III, 100 (109); P-IV, 195 (218) (including small distal extension); P-V, 43 (46). Gnathosoma 306 (323) in length. Chelicera length 390 (401). Dorsal lengths of segments of legs I–V: I-L-1, 85 (109); I-L-2, 115 (120); I-L-3, 129 (165); I-L-4, 191 (246); I-L-5, 243 (281); I-L-6, 188 (243) (Fig. 1C); II-L-1, 95 (90); II-L-2, 108 (136); II-L-3, 143 (189); II-L-4, 249 (285); II-L-5, 330 (346); II-L-6, 288 (313) (Fig. 1D); III-L-1, 87 (97); III-L-2, 123 (122); III-L-3, 166 (167); III-L-4, 232 (287); III-L-5, 317 (367); III-L-6, 307 (308) (Fig. 1E); IV-L-1, 198 (249); IV-L-2, 147 (165); IV-L-3, 219 (250); IV-L-4, 398 (456); IV-L-5, 406 (449); IV-L-6, 321 (342) (Fig. 1F).

Male

Not collected.

Remarks

This new species resembles *Parathyas barbigera* (K. Viets, 1908). But there are obvious differences: (1) A_1 smooth, thick and short in the new species, but A_1 plumose, slender and long in *P. barbigera* (Tuzovskij 2007); (2) setae of P-I–III smooth in the new species, but plumose in *P. barbigera* (Tuzovskij 2007; Di Sabatino *et al.* 2010); (3) setae on coxae minute and sparse in the new species, but coxae with numerous setae especially Cx-I and Cx-III in *P. barbigera* (Tuzovskij 2007); (4) pregenital sclerite extremely large, with a Y-shaped sclerite and anteriorly an arc-shaped ring in the new species, but pregenital sclerite inverted water droplet-shaped in *P. barbigera* (Tuzovskij 2007); (5) dorsal and ventral plates of small size in the new species, but dorsal and ventral plates rather large, especially in females of *P. barbigera* (Tuzovskij 2007); (6) excretory pore slit-shaped, with a large crescent-shaped anterior

Fig. 2. *Parathyas weichangensis* Zhong sp. nov., holotype, ♀ (HB-HY-2021062601, GUGC). **A**. Genital field. **B**. Palp. **C**. Gnathosoma. **D**. Chelicera. Scale bars = 100 μm.

sclerite, posterior sclerite small, not forming a continuous ring in the new species, but excretory pore surrounded by a sclerotized ring in *P. barbigera* (Tuzovskij 2007; Di Sabatino *et al.* 2010).

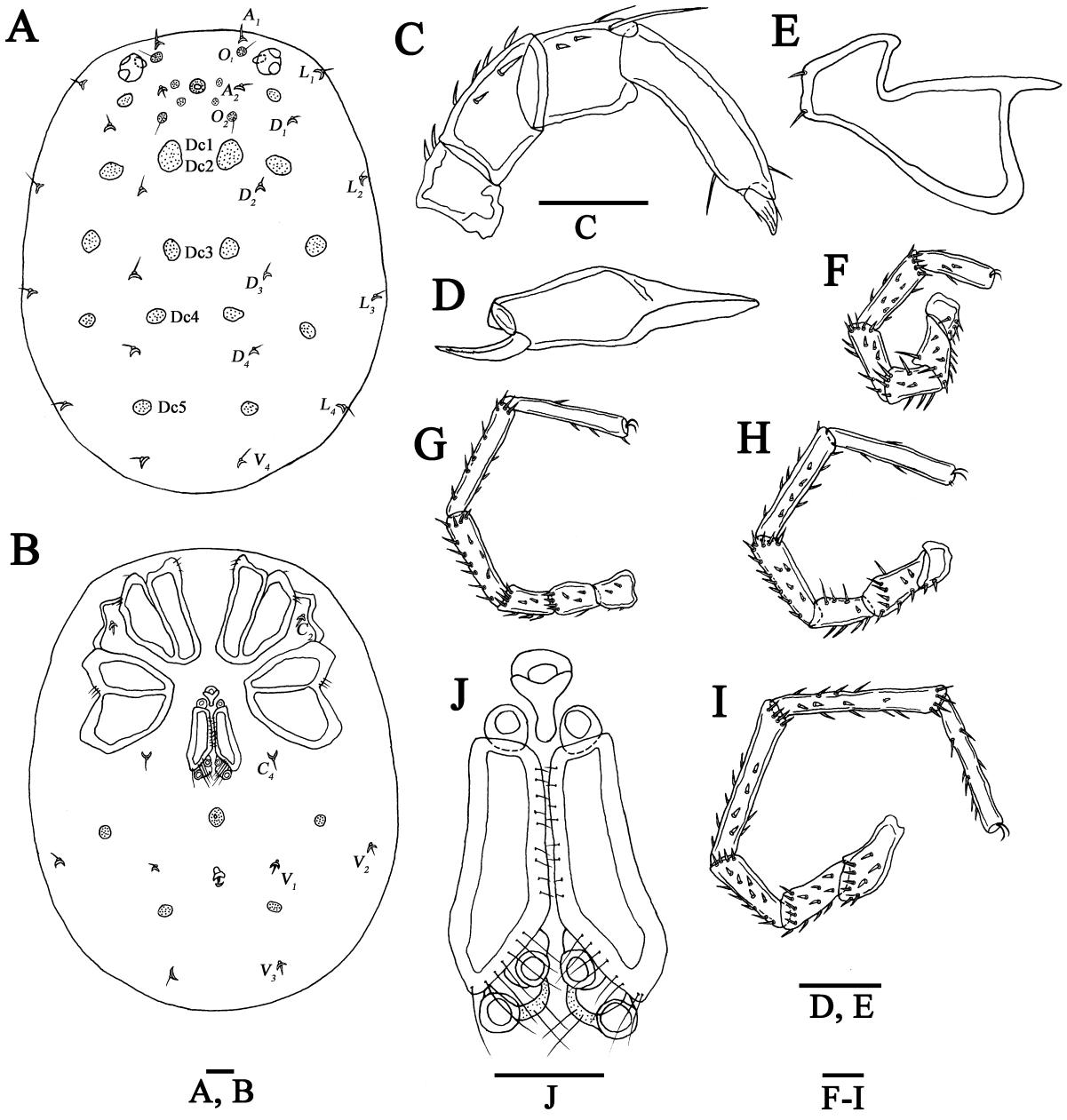

Fig. 3. *Parathyas weichangensis* Zhong sp. nov., holotype, ♀ (HB-HY-2021062601, GUGC). **A**. Idiosoma, dorsal view. **B**. Idiosoma, ventral view. **C**. Palp. **D**. Chelicera. **E**. Gnathosoma. **F**. Leg I. **G**. Leg II. **H**. Leg III. **I**. Leg IV. **J**. Genital field. Scale bars = 100 μm.

Parathyas jinghongensis Zhong sp. nov.
urn:lsid:zoobank.org:act:5AF260D0-CB66-417E-83D4-5DBA91AB5162
Figs 4–7

Diagnosis

Median eye large. A_1 smooth, short and thick. Acetabula large, Ac-2 and Ac-3 not fused into a common sclerite at their base. Genital plate narrow. Legs slender and long.

Etymology

The species is named after Jinghong City, where the holotype was collected.

Type material

Holotype
P.R. CHINA • ♂; Yunnan Province, Jinghong City; 21.9581° N, 101.2157° E; 562 m a.s.l.; 4 Jul. 2023; Ping Li and Lan Jia leg.; stream with gravel (Fig. 4); slide no. YN-HY-2023070401; GUGC.

Paratype
P.R. CHINA • 1 ♂; same data as for holotype; slide no. YN-HY-2023070402; GUGC.

Description

Male (n = 2)
Idiosoma elliptical (Fig. 5A–B). Integument papillate. Median eye large (external diameter of frontal ring approximately ⅔ × as long as eye capsule). Prefrontalia and postfrontalia separated (Figs 5A, 7A). A_1 smooth, short and thick. Dc1 and Dc2 fused to longish platelet on each side. Coxae in four groups, setae on coxae minute and sparse. Cx-I anteromedially with two setae; Cx-II with two setae at lateral margin; lateral margin of Cx-III with two setae (Fig. 7B). Pregenital sclerite distanced from genital field. Genital plate narrow, with longer setae posteriorly. Acetabula large, Ac-2 and Ac-3 near posterior margin of genital plate, Ac-2 located anterior to Ac-3, and not fused into common sclerite at their base, pair of short setae on posterior end of genital plate (Fig. 6A). Excretory pore slit-shaped, with large crescent-shaped anterior sclerite, posterior sclerite small, not forming continuous ring. Dorsal margin of P-I with two setae; P-II with two setae; P-III with one long seta; P-IV with one dorsodistal extension, and with one homomorphic hair-like seta ventrodistally and dorsodistally; P-V with two setae (Figs 6B, 7C). Gnathosoma with short rostrum (Figs 6C, 7E). Chelicera chela serrated (Figs 6D, 7D). Legs slender and long, with many peg-like setae and without swimming setae (Fig. 7F–I).

Measurements. Idiosoma length 1227 (1198), width 953 (910). ACG 293 (279) in length, 238 (233) in width. PCG 338 (332) in length, 280 (272) in width. Genital field (including pregenital sclerite) 285 (263) in length, 209 (213) in width. Ib-Ap 731 (760). Ib-Gf 188 (179). Dorsal lengths of palp segments: P-I, 55 (53); P-II, 121 (115); P-III, 68 (63); P-IV, 179 (167) (including distal extension); P-V, 46 (41). Gnathosoma 259 (253) in length (Figs 6C, 7E). Chelicera length 338 (337) (Figs 6D, 7D). Dorsal lengths of segments of legs I–IV: I-L-1, 81 (78); I-L-2, 75 (86); I-L-3, 124 (101); I-L-4, 170 (157); I-L-5, 202 (200); I-L-6, 207 (181) (Fig. 5C); II-L-1, 81 (52); II-L-2, 79 (102); II-L-3, 115 (123); II-L-4, 196 (202); II-L-5, 239 (245); II-L-6, 257 (256) (Fig. 5D); III-L-1, 87 (72); III-L-2, 105 (81); III-L-3, 109 (106); III-L-4, 191 (197); III-L-5, 243 (244); III-L-6, 223 (213) (Fig. 5E); IV-L-1, 179 (191); IV-L-2, 106 (112); IV-L-3, 163 (165); IV-L-4, 305 (304); IV-L-5, 310 (307); IV-L-6, 239 (213) (Fig. 5F).

Female
Not collected.

Fig. 4. Photo of the type locailty of *Parathyas jinghongensis* Zhong sp. nov.

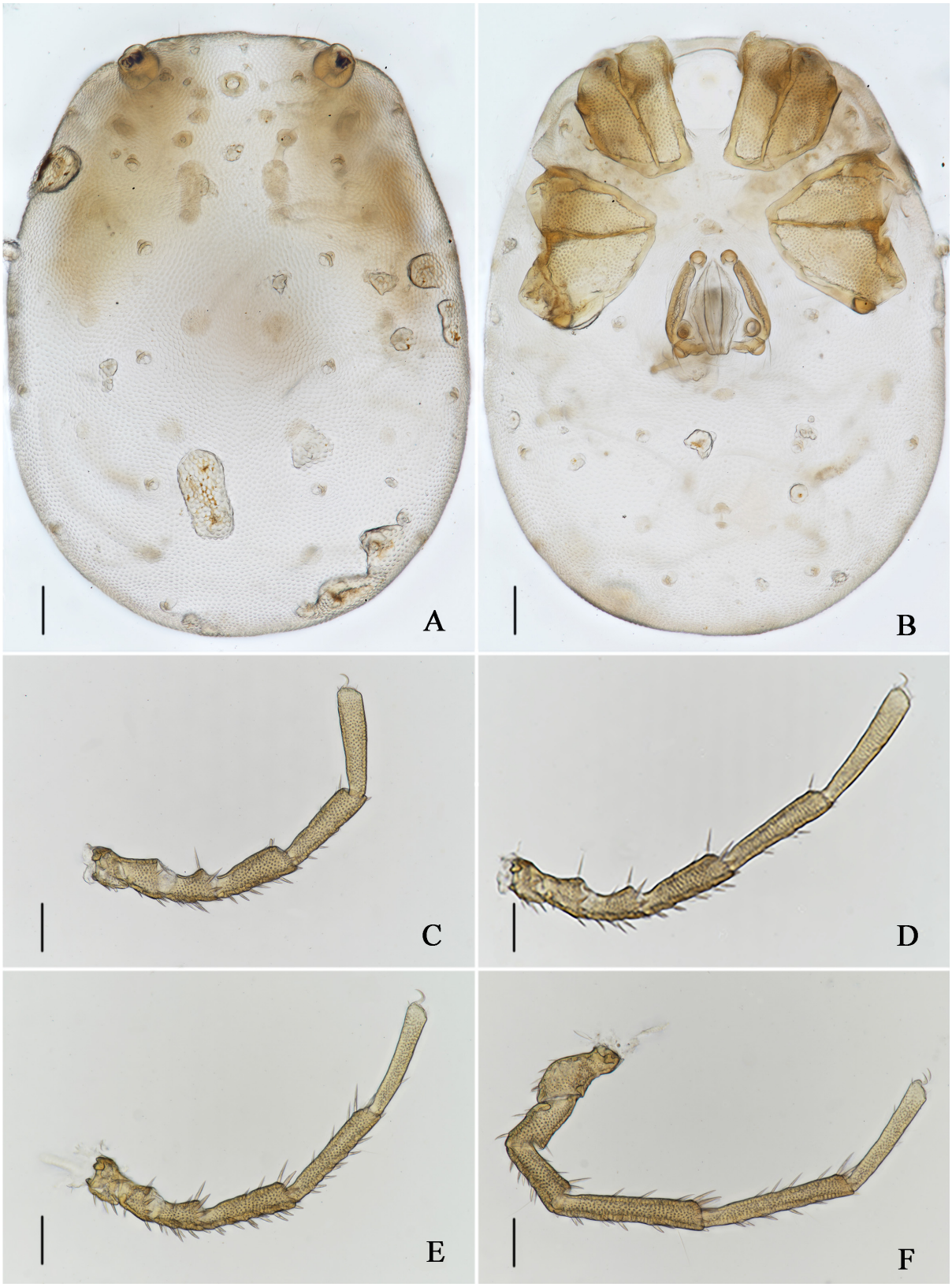

Fig. 5. *Parathyas jinghongensis* Zhong sp. nov., holotype, ♂ (YN-HY-2023070401, GUGC). **A**. Idiosoma, dorsal view. **B**. Idiosoma, ventral view. **C**. Leg I. **D**. Leg II. **E**. Leg III. **F**. Leg IV. Scale bars = 100 μm.

Remarks

In *Parathyas*, sexual dimorphism is minimal, males typically exhibit the pregenital sclerite positioned distally from the genital field, while females display this sclerite either near the anterior gonopore edge or distanced similarly to males (Di Sabatino *et al.* 2010). Therefore, aside from the pregenital sclerite placement, most morphological characteristics remain consistent between sexes.

From the new species *Parathyas jinghongensis* Zhong sp. nov. only the male is known, their genital plate has similarities with *Parathyas qilianensis* Zhong & Guo, 2025, but from the latter species only females are known. Although sex-different *P. jinghongensis* and *P. qilianensis*, the comparison in other morphological characteristics is still applicable except for the pregenital sclerite, but there are the following differences (Zhong *et al.* 2025): (1) median eye large (external diameter of frontal ring approximately ⅔ × as long as the eye capsule) in the new species, but median eye small (external diameter of frontal ring about 3 × as short as length of the eye capsule) in *P. qilianensis*; (2) acetabula large in the new species, but acetabula small in *P. qilianensis*; (3) setae on coxae minute and sparse in the new species, but coxae with clearly visible setae, especially Cx-I anteromedially with a pair of long setae in *P. qilianensis*.

At present, we identify the species by their morphological characters. In subsequent studies, if we are able to collect more specimens, we will carry out molecular studies.

Fig. 6. *Parathyas jinghongensis* Zhong sp. nov., holotype, ♂ (YN-HY-2023070401, GUGC). **A**. Genital field. **B**. Palp. **C**. Gnathosoma. **D**. Chelicera. Scale bars = 100 µm.

Discussion

To date, only four species of the genus *Parathyas* have been recorded in China, with known distributions limited to provinces such as Sichuan, Qinghai, Hebei, and Yunnan (Zhong *et al.* 2025). Given that China spans two major biogeographic realms – the Palearctic and the Oriental – and harbors diverse habitats, rich biological resources, and high species diversity (Zhang *et al.* 1998), it is theoretically plausible that a considerable number of undescribed or undiscovered species remain. Moreover, in previous studies, some species were described solely based on single-sex specimens, leading to incomplete morphological

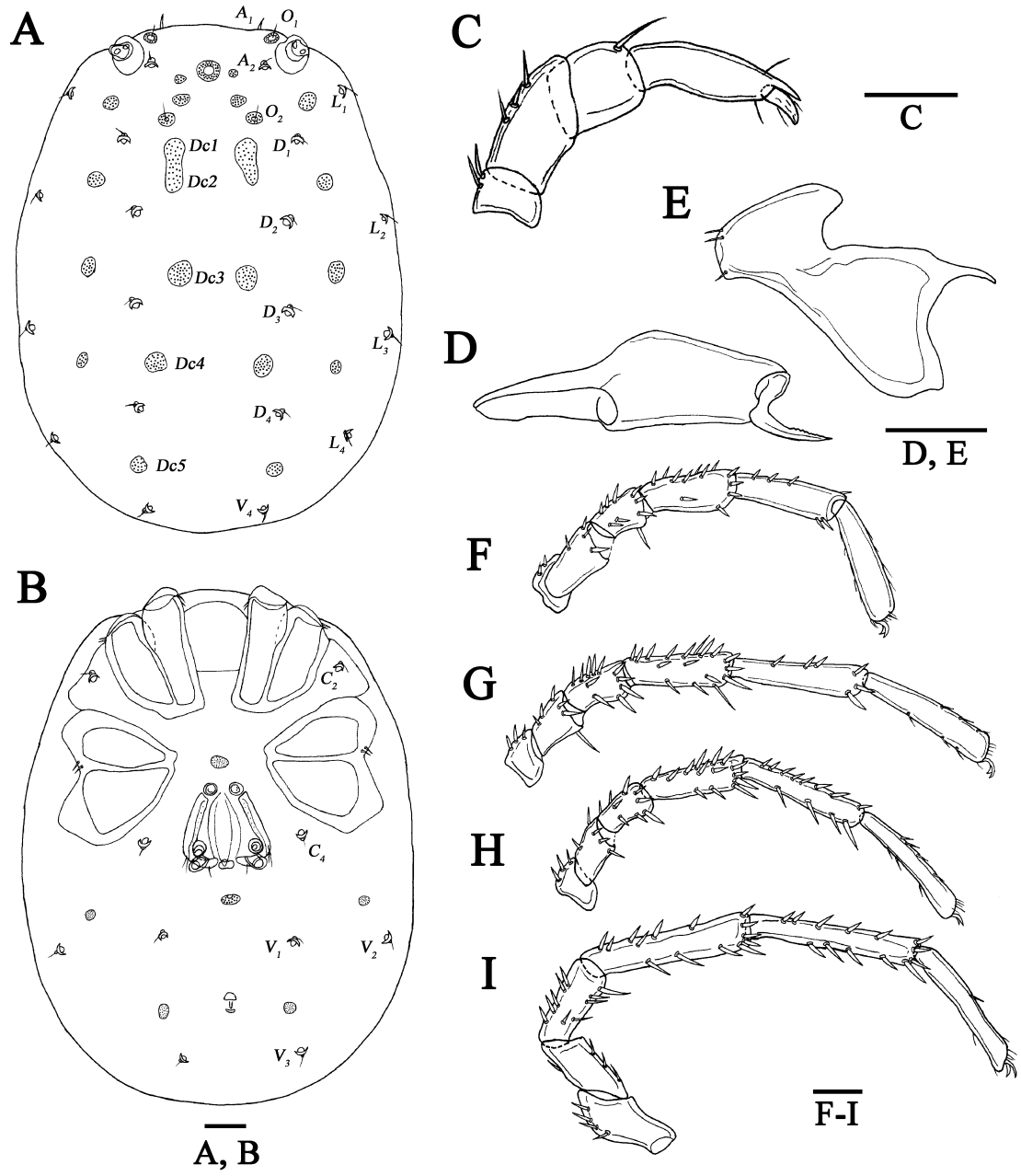

Fig. 7. *Parathyas jinghongensis* Zhong sp. nov., holotype, ♂ (YN-HY-2023070401, GUGC). **A**. Idiosoma, dorsal view. **B**. Idiosoma, ventral view. **C**. Palp. **D**. Chelicera. **E**. Gnathosoma. **F**. Leg I. **G**. Leg II. **H**. Leg III **I**. Leg IV. Scale bars = 100 μm.

characterization and ambiguous species boundaries. Therefore, future field surveys should strengthen systematic collections of water mites in this genus, with particular emphasis on sampling across different sexes, habitats, and geographical gradients. Such efforts will contribute to more accurate species delimitation, clarify distribution patterns, and provide a solid material basis for taxonomic revision and phylogenetic studies of this group.

Acknowledgments

We are indebted to Lan Jia and Ping Li (Guizhou University, China) for the specimen collection. This research was supported by the National Natural Science Foundation of China (32260125) and the Guizhou Provincial Science and Technology Projects (Qiankehe Pingtai Rencai-GCC [2022] 029-1).

References

Cook D.R. 1959. Studies on the Thyasinae of North America (Acarina: Hydryphantidae). *The American Midland Naturalist* 62 (2): 402–428. https://doi.org/10.2307/2422535

Di Sabatino A., Gerecke R., Gledhill T. & Smit H. 2010. Chelicerata: Acari II. *Süßwasserfauna von Mitteleuropa* 7/2-2: 1–234. Spektrum Akademischer Verlag, Heidelberg.

Goldschmidt T. 2007. Studies on Latin American water mites of the genus *Torrenticola* Piersig, 1896. (Torrenticolidae, Hydrachnidia, Acari). *Zoological Journal of the Linnean Society* 150 (3): 443–678. https://doi.org/10.1111/j.1096-3642.2007.00305.x

Gu X.Y., Li H.T., Jin D.C. & Guo J.J. 2021. Collection and preservation of water mites and preparation of slide specimens. *Bio-101*: e1010676. [In Chinese.]. https://doi.org/10.21769/BioProtoc.1010676

Jin D.C. 1997. *Hydrachnellae-morphology Systematics a Primary Study of Chinese Fauna*. Guizhou Science and Technology Publishing House, Guiyang. [In Chinese.]

Smit H. 2020. Water mites of the world, with keys to the families, subfamilies, genera and subgenera (Acari: Hydrachnidia). *Monografieën van de Nederlandse entomologische Vereniging* 12: 1–774.

Tuzovskij P.V. 2007. Water mites of the genus *Thyas* Koch, 1835 (Acariformes: Thyadidae) in Russia. *Acarina* 15 (2): 173–259.

Zhang S.M. 1998. *Zoogeographical Regionalization of Agricultural and Forest Insects in China*. China Agriculture Press, Beijing. [In Chinese.]

Zhang Y.H., Li H.T., Hu Z.Y. & Guo J.J. 2025. Two new species in the genus *Atractides* Koch, 1837 (Acari: Hydrachnidiae: Hygrobatidae), with the first descriptions of the female of two species from China. *European Journal of Taxonomy* 976: 47–76. https://doi.org/10.5852/ejt.2025.976.2775

Zhong H., Gu X.Y., Li P., Hu Z.Y. & Guo J.J. 2025. The first record of the water mite genus *Parathyas* Lundblad, 1926 (Acari: Hydryphantoidea: Hydryphantidae) from China with description of two new species. *Systematic and Applied Acarology* 30 (2): 233–242. https://doi.org/10.11158/saa.30.2.4