

First record of the genus *Heradion* (Araneae, Zodariidae) from Laos, with description of a new species

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Summary

A new spider species, *Heradion depressum* n. sp., is described from primary evergreen and secondary forests of Champasak Province, Laos. The genus is recorded from Laos for the first time.

Introduction

The genus *Heradion* Dankittipakul & Jocqué, 2004 was established for zodariid spiders occurring in humid, evergreen forests of Thailand and Malaysia. Additional species were subsequently reported from lowland evergreen forests of Vietnam (Chami-Kranon & Ono 2007; Ono 2004a,b). The genus currently includes nine species: *H. damrongi* Dankittipakul & Jocqué, 2004; *H. flammeum* (Ono, 2004); *H. intermedium* Chami-Kranon & Ono, 2007; *H. luctator* Dankittipakul & Jocqué, 2004; *H. momoinum* (Ono, 2004); *H. naiadis* Dankittipakul & Jocqué, 2004 (the type species); *H. paradiseum* (Ono, 2004); *H. pernix* Dankittipakul & Jocqué, 2004; and *H. peteri* Dankittipakul & Jocqué, 2004.

An extensive spider survey of Laos was conducted from 2003 to 2011, and a total of 195 spider species is reported from the material collected on eight expeditions. More than 60 species have been described as new, and approximately 50 species are endemic to Laos, according to present knowledge (Jäger 2007, Jäger & Praxaysombath 2009, 2011). Most specimens of the family Zodariidae obtained in Laos belong to *Asceua* Thorell, 1887 and *Mallinella* Strand, 1906 (Dankittipakul & Jocqué in preparation). To date, only a single zodariid species, *Stenomomorpha anne* Jäger, 2007, has been described from Luang Prabang.

Heradion is apparently well represented in Southeast Asia. Since *Heradion* species were reported from neighbouring countries, it was expected to occur in Laos. The present study deals with an additional new species recently collected from primary evergreen hill forests of Champasak Province in southern Laos. More taxonomic work needs

to be carried out and additional information on the spider fauna of Laos should be forthcoming in the near future.

Material and methods

External morphology was examined, measured and drawn with an Olympus SZX-9 stereomicroscope and an Olympus BX-40 equipped with a drawing tube and photographic devices. Measurements of leg segments were taken from the dorsal side. All measurements are in millimetres. Epigynes were drawn in the natural and the cleared state (after immersion in 96% lactic acid for 10–20 minutes). Leg measurements are given as: total length (femur, patella + tibia, metatarsus, tarsus). Type specimens will be deposited in the collection of Senckenberg Museum, Frankfurt am Main, Germany (SMF).

Abbreviations used in the text and in the figures are as follows: ALE, anterior lateral eyes; AME, anterior median eyes; C, conductor; CO, copulatory orifice; DA, distal tegular apophysis; DTA, dorsolateral tibial apophysis; E, embolus; FD, fertilization duct; GP, gland pore; ID, insemination duct; MA: median apophysis; MOQ, median ocular quadrangle; PLE, posterior lateral eyes; PME, posterior median eyes; RTA: retrolateral tibial apophysis; S, spermatheca; SDA, sclerotized margin of distal tegular apophysis; ST, subtegulum; T, tegulum. Spination: d, dorsal; pl, prolateral; rl, retrolateral; v, ventral. Arrangement refers to number of spines from proximal to distal part.

Zodariidae Thorell, 1881

Heradion Dankittipakul & Jocqué, 2004

Heradion depressum n. sp. (Figs. 1–13)

Type material: Holotype ♂, Laos, Champasak Province, Muang Bachieng, Ban Lak 35, That Itou, N 15°11'37.7", E 106°06'06.3", 810 m, secondary forest close to river, leaf litter, daytime, sifting, leg. P. Jäger & S. Bayer, 26 November 2009 (SMF). Paratype: 1 ♂, same data as holotype (SMF). 1 ♀, Champasak Province, Muang Bachieng, Ban Lak 38, That Fane, N 15°11'03.0", E 106°07'36.9", 952 m, plateau, valley with stream, primary forest, leaf litter, daytime, sifting, leg. P. Jäger & J. Martens, 14 March 2010 (SMF). 1 ♀, Champasak Province, Muang Bachieng, Ban Lak 35, That Itou, N 15°11'37.7", E 106°06'06.3", 810 m, secondary forest close to river, leaf litter, daytime, sifting, leg. P. Jäger & J. Martens, 17 March 2010 (SMF).

Etymology: The specific epithet *depressum* is a nominative neuter singular of the Latin adjective *depressus*, meaning 'situated low, depressed', and refers to the anterior depressions on the epigyne which are absent in other *Heradion* species.

Diagnosis: Males of *H. depressum* n. sp. are recognized by the proximally broad embolus abruptly becoming filiform in its distal half and the peculiar shape of median and distal tegular apophyses. Females can be distinguished from congeners by a pair of anterior depressions on the epigyne and by the straight insemination ducts.

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Figs. 1–2: Dorsal habitus of *Heradion depressum* n. sp. **1** male holotype; **2** female paratype.

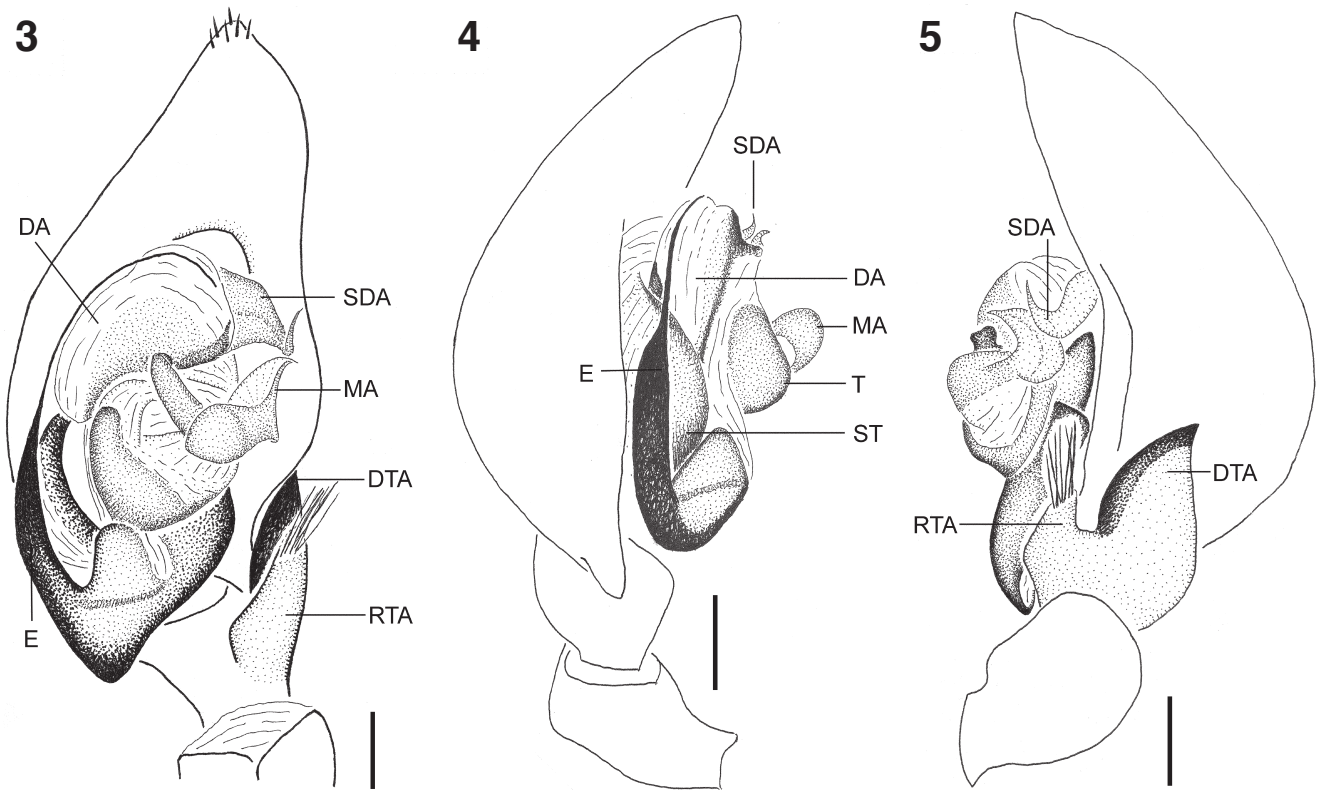
Description: Male (holotype): Total length 5.41; prosoma 3.10 long, 2.46 wide; opisthosoma 2.30 long. Eye sizes and interdistances: AME 0.16, ALE 0.14, PME 0.12, PLE 0.14, AME–AME 0.08, AME–ALE 0.12, PME–PME 0.12, PME–PLE 0.30; MOQ: 0.50 long, 0.46 anterior width, 0.44 posterior width. Leg formula 4123. Leg measurements: I 10.71 (2.83, 3.44, 2.46, 1.96), II 9.36 (2.13, 2.71, 1.98, 1.54), III 8.01 (2.20, 2.49, 2.00, 1.32), IV 10.98 (2.13, 3.47, 3.52, 1.87). Spination: femora I d-1 pl-1, II d-1 III d-1, IV d-1-1-1; patellae III pl-1, IV pl-1; tibiae I v-1-1-2, II v-1-0-1-2, III d-1-1 pl-1 rl-0-1 v-1-1-1-2, IV d-1-1-1 pl-1 rl-1 v-1-1-1-1-2; metatarsi I v-1-1-1-1, II v-2-1-1-1, III d-1-1-2 rl-1 v-2-1-1, IV d-1-1-2 pl-1 rl-1 v-2-1-1-2.

Coloration and pattern (Figs. 1, 12). Carapace bright red; integument smooth and shiny. Chelicerae dark reddish brown; labium, gnathocoxae and sternum orange-brown. Legs bi-colored: coxae to femora orange, patellae to tarsi yellowish; lacking strong spines; metatarsi II–IV disto-ventrally provided with preening brush consisting of chisel-shaped hairs. Opisthosoma ovoid; purplish; dorsal scutum lanceolate, occupying slightly less than half of opisthosomal length; dorsum with two pairs of pale oblong spots, followed by two broad transverse median bands and pre-anal ring; venter with two triangular markings situated

medially. Posterior ventral spines erected, arranged in group on yellowish chitinous base.

Palp (Figs. 3–5). RTA with elevated ridge, apex partially membranous, provided with group of long hairs. DTA petal-shaped, relatively broad at base, terminally bluntly pointed. Cymbium with shallow fold, reaching slightly over half cymbial length. TA with heavily sclerotized cylindrical process and beak-shaped semi-transparent flange. DA membranous, semi-circular, apico-retrolateral margin heavily sclerotized, gradually narrowing towards hook-shaped apex. No clear separation between tegulum and embolic base. Embolus proximally broad, abruptly becoming filiform in its distal half.

Female (paratype): Total length 6.87; prosoma 3.75 long, 2.40 wide; opisthosoma 3.50 long. Eye sizes and interdistances: AME 0.16, ALE 0.12, PME 0.12, PLE 0.10, AME–AME 0.06, AME–ALE 0.12, PME–PME 0.14, PME–PLE 0.32; MOQ: 0.48 long, 0.46 anterior width, 0.40 posterior width. Leg formula 4123. Leg measurements: I 9.32 (2.14, 3.00, 2.26, 1.94), II 8.34 (2.14, 2.80, 1.88, 1.54), III 8.32 (2.14, 2.66, 2.07, 1.46), IV 11.38 (2.14, 3.86, 3.36, 2.00). Spination: femora I d-1 pl-1, II d-1, III d-1-1, IV d-1-1-1; tibiae I v-2-1-1-1, II v-2-1-1-1, III d-1-2 pl-1-1 rl-1 v-1-2-1-1, IV d-1-1-1 rl-1 v-2-1-1-1-1; metatarsi I v-2-1-1-1;

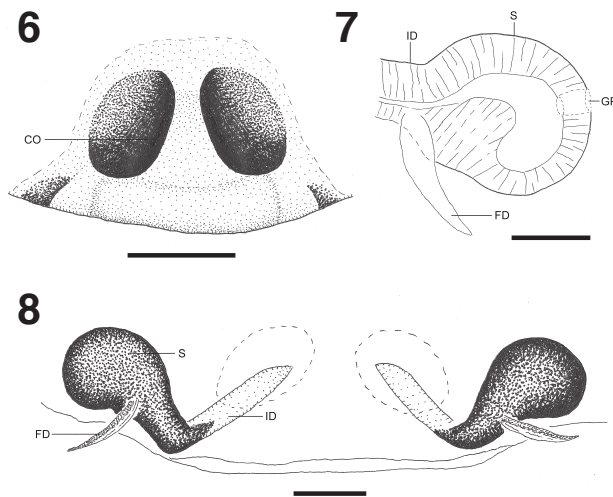


Figs. 3–5: *Heradion depressum* n. sp., male holotype, left palp. **3** Ventral view; **4** Prolateral view; **5** Retrolateral view. Scale lines = 0.2 mm.

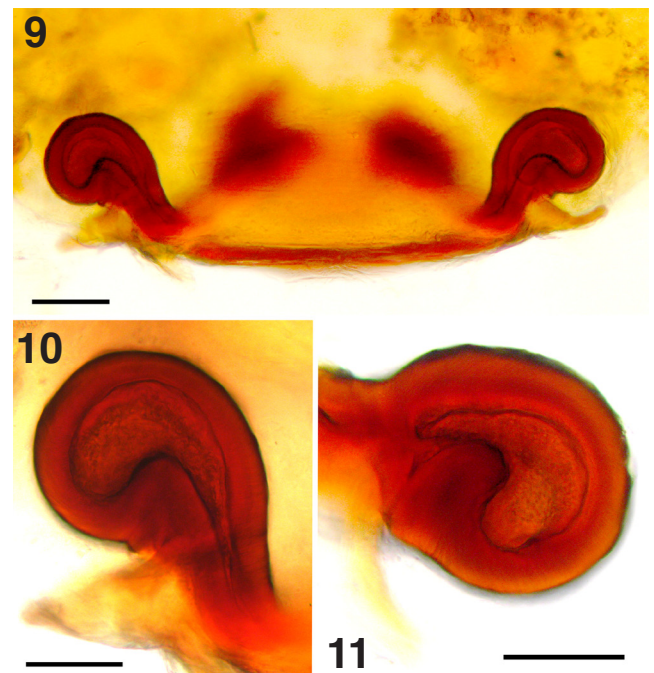
II v-2-1-1-1, III d-2-1 pl-1-1 v-2-1-1-1-1, IV d-1-0-1-1 pl-1-1-0-1 rl-1-0-1 v-2-1-1-2.

Coloration and pattern (Figs. 2, 13). Carapace bright red; integument smooth and shiny, except posterior lateral margins slightly rugose. Chelicerae dark reddish brown; labium, gnathocoxae and sternum orange-brown. Legs orange. Opisthosoma ovoid; purplish, dorsum with three pairs of pale oblong spots, third pair medially connected, followed by broad transverse median band and pre-anal ring; venter with two triangular markings situated medially. Posterior ventral spines erected, arranged in group on yellowish chitinous base.

Epigyne and internal genitalia (Figs. 6–11). Epigynal region elevated; pair of oblong depression situated anteriorly; genital orifices located underneath crescent-shaped ridges; posterior margin of epigyne strongly rebordered. Insemination ducts weakly sclerotized, straight, descending posterolaterally. Spermathecae spherical, heavily sclerotized. Fertilization ducts acuminate, originating posterior medially.



Figs. 6–8: *Heradion depressum* n. sp., female paratype. **6** Epigyne, ventral; **7** Left spermatheca, lateral; **8** Internal genitalia, dorsal. Scale lines = 0.5 mm (6), 0.1 mm (7, 8).



Figs. 9–11: *Heradion depressum* n. sp., female paratype. **9** Internal genitalia, dorsal; **10** Right spermatheca, dorsal; **11** Left spermatheca, lateral. Scale lines = 0.1 mm.



Figs. 12–13: Dorsal habitus of *Heradion depressum* n. sp.; live specimens collected at That Fane by sieving leaf litter. **12** male; **13** paratype female. Photos: Peter Jäger.

Natural history: *H. depressum* n. sp. inhabits primary evergreen and secondary forests at moderately high altitudes (810–952 m).

Distribution: Laos (Champasak Province, Bolaven Plateau).

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References

- CHAMI-KRANON, T. & ONO, H. 2007: On Vietnamese representatives of the ant spider genus *Heradion* (Araneae: Zodariidae). *Zootaxa* **1395**: 59–68.
- DANKITTIPAKUL, P. & JOCQUÉ, R. 2004: Two new genera of Zodariidae (Araneae) from Southeast Asia. *Revue suisse de Zoologie* **111**: 749–784.
- JÄGER, P. 2007: Spiders from Laos with descriptions of new species (Arachnida: Araneae). *Acta Arachnologica* **56**: 29–58.
- JÄGER, P. & PRAXAYSOMBATH, B. 2009: Spiders from Laos: new species and new records (Arachnida: Araneae). *Acta Arachnologica* **58**: 27–51.
- JÄGER, P. & PRAXAYSOMBATH, B. 2011: Spiders from Laos with forty-two new records and first results from the provinces Bolikhamsay and Champasak (Arachnida: Araneae). *Acta Arachnologica* **60**: 9–31.
- ONO, H. 2004a: Three new species of the genus *Mallinella* (Araneae, Zodariidae) from Vietnam. *Bulletin of the National Science Museum, Tokyo, series A* **30**: 1–7.
- ONO, H. 2004b: Spiders of the family Zodariidae (Araneae) from Dambri, Lam Dong Province, southern Vietnam. *Bulletin of the National Science Museum, Tokyo, series A* **30**: 67–75.